Appendix 6.8-1: Greenhouse Gas Technical Report

TECHNICAL MEMORANDUM

To: Amanda Acuna and Lisa Kranitz, City of Gardena

From: Olivia Chan and Rita Garcia, Kimley-Horn and Associates

Date: February 15, 2024

Subject: **Greenhouse Gas Technical Report 1610 West Artesia Boulevard Project, California Peer Review**

Kimley-Horn has conducted a follow-up third-party peer review of the Project's Greenhouse Gas Technical Report (CAJA Environmental Services, February 2024) on behalf of the City of Gardena to verify that Kimley-Horn's recommendations and Project updates have been incorporated. The revised February 2024 report addressed the third-party peer review comments and thus is in compliance with Kimley-Horn's recommendations. The analysis, as revised, meets the applicable provisions of CEQA and the State CEQA Guidelines and is adequate for inclusion in the Project SCEA.

Please do not hesitate to contact Olivia Chan at 714.939.1030 or olivia.chan@kimley-horn.com with any questions.

Greenhouse Gas Technical Report

for the

1610 Artesia Boulevard Project

City of Gardena

Prepared by

CAJA Environmental Services and DKA Planning

February 2024

GREENHOUSE GAS TECHNICAL REPORT

Introduction

This technical report, prepared by CAJA Environmental Services in conjunction with DKA Planning, examines the direct and indirect impacts of the Project at 1610 Artesia Boulevard in the City of Gardena related to greenhouse gas (GHG) emissions and global climate change by disclosing GHG emissions generated by the Project and by addressing the Project's consistency with applicable GHG emission reduction plans, policies, and regulations. Calculation worksheets and documentation are included in the Technical Appendix to this analysis.

The Proposed Project would redevelop an approximately 3.43-acre property into a multi-family residential development with 300 apartment units (283 market rate units and 17 affordable units) in a six-story, podium apartment building. Various apartment types (i.e., studios, and one- and two-bedroom units ranging from 515 square feet to 1,280 square feet) are proposed on levels two to six, with amenities (i.e., pool courtyard, fitness center, golf lounge, business center, and roof deck) on the podium level. Additionally, 528 onsite parking spaces in an on-grade parking garage with one subterranean level are proposed.

Environmental Setting

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in average temperature of Earth's surface and atmosphere. One identified cause of global warming is an increase of GHG emissions in the atmosphere. GHG emissions are those compounds in Earth's atmosphere that play a critical role in determining Earth's surface temperature.

Earth's natural warming process is known as the "greenhouse effect." It is called the greenhouse effect because Earth and the atmosphere surrounding it are like a greenhouse with glass panes in that the glass allows solar radiation (sunlight) into Earth's atmosphere but prevents radiative heat from escaping, thus warming Earth's atmosphere. Some levels of GHG emissions keep the average surface temperature of Earth close to a hospitable 60 degrees Fahrenheit. However, it is believed that excessive concentrations of anthropogenic GHG emissions in the atmosphere can result in increased global mean temperatures, with associated adverse climatic and ecological consequences.[1]

Scientists studying the particularly rapid rise in global temperatures have determined that human activity has resulted in increased emissions of GHG emissions, primarily from the burning of fossil fuels (from motor vehicle travel, electricity generation, consumption of natural gas, industrial activity, manufacturing), deforestation, agricultural activity, and the decomposition of solid waste. Scientists refer

[1] Intergovernmental Panel on Climate Change, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)].

to the global warming context of the past century as the "enhanced greenhouse effect" to distinguish it from the natural greenhouse effect.[2]

Global GHG emissions due to human activities have grown since pre-industrial times. As reported by the United States Environmental Protection Agency (USEPA), global carbon emissions from fossil fuels increased by over 16 times between 1900 and 2008 and by about 1.5 times between 1990 and 2008. In addition, in the Global Carbon Budget 2014 report, published in September 2014, atmospheric carbon dioxide (CO_2) concentrations in 2013 were found to be 43 percent above the concentration at the start of the Industrial Revolution, and the present concentration is the highest during at least the last 800,000 years.[3] Global increases in CO_2 concentrations are due primarily to fossil fuel use, with land use change providing another significant but smaller contribution. Regarding emissions of non-CO_2 GHG, these have also increased significantly since 1990. In particular, studies have concluded that it is very likely that the observed increase in methane (CH_4) concentration is predominantly due to agriculture and fossil fuel use.[4]

In August 2007, international climate talks held under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) led to the official recognition by the participating nations that global emissions of GHG must be reduced. According to the "Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol," avoiding the most catastrophic events forecast by the United Nations Intergovernmental Panel on Climate Change (IPCC) would entail emissions reductions by industrialized countries in the range of 25 to 40 percent below 1990 levels. Because of the Kyoto Protocol's Clean Development Mechanism, which gives industrialized countries credit for financing emission-reducing projects in developing countries, such an emissions goal in industrialized countries could ultimately spur efforts to cut emissions in developing countries as well.[5]

With regard to the adverse effects of global warming, as reported by the Southern California Association of Governments (SCAG), "Global warming poses a serious threat to the economic well-being, public health, and natural environment in southern California and beyond. The potential adverse impacts of global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases. Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product. However, in terms of total CO_2 emissions, California is second only to Texas in the nation and is the 12th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is also a major contributor to the global warming problem."

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2 Center for Climate and Energy Solutions, Climate Change 101: Understanding and Responding to Global Climate Change.

3 C. Le Quéré, et al., Global Carbon Budget 2014, (Earth System Science Data, 2015, doi:10.5194/essd–7–47–2015).

4 USEPA, Atmospheric Concentrations of Greenhouse Gas, updated June 2015.

5 United Nations Framework Convention on Climate Change, Press Release—Vienna UN Conference Shows Consensus on Key Building Blocks for Effective International Response to Climate Change, August 31, 2007

GHG Emissions Background

GHG emissions include CO_2, CH_4, nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).[6] Carbon dioxide is the most abundant GHG. Other GHG emissions are less abundant but have higher global warming potential than CO_2. Thus, emissions of other GHG emissions are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. A general description of the GHG emissions is provided in Table 1.

Global Warming Potential (GWP) is one type of simplified index based upon radiative properties used to estimate the potential future impacts of emissions of different gases upon the climate system. The GWP is based on several factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The higher the GWP, the more that a given gas warms the Earth compared to CO_2 over that period. A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 2.[7] As indicated on the table, the GWP ranges from 1 to 22,800.

Projected Impacts of Global Warming in California

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model it, the uncertainty surrounding climate change may never be eliminated. Nonetheless, the IPCC's Fifth Assessment Report, Summary for Policy Makers states that, "it is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forces together."[8] A report from the National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity.[9]

According to the California Air Resources Board (CARB), the potential impacts in California due to global climate change may include: loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more large forest fires; more drought years; increased erosion of California's coastlines

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6 As defined by California Assembly Bill (AB) 32 and Senate Bill (SB) 104.

7 Atmospheric lifetime is defined as the time required to turn over the global Atmospheric burden. Source: Intergovernmental Panel on Climate Change, IPCC Third Assessment Report: Climate Change 2001 (TAR), Chapter 4: Atmospheric Chemistry and Greenhouse Gases, 2001, p. 247.

8 Intergovernmental Panel on Climate Change, Fifth Assessment Report, Summary for Policy Makers, page 5, 2013, http://ipcc.ch/report/ar5/syr/. Accessed April 2020.

9 Anderegg, William R. L., J.W. Prall, J. Harold, S.H., Schneider, Expert Credibility in Climate Change, Proceedings of the National Academy of Sciences of the United States of America. 2010;107:12107-12109.

and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation. Below is a summary of some of the potential effects that could be experienced in California because of global warming and climate change.

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect and, therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would exacerbate air quality. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state.[10] However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires.

In 2009, the California Natural Resources Agency (CNRA) published the *California Climate Adaptation Strategy* as a response to the Governor's Executive Order S-13-2008.[11] The CNRA report lists specific recommendations for state and local agencies to best adapt to the anticipated risks posed by a changing climate. In accordance with the *California Climate Adaptation Strategy*, the California Energy Commission (CEC) was directed to develop a website on climate change scenarios and impacts that would be beneficial for local decision makers.[12] The website, known as Cal-Adapt, became operational in 2011[13] and provides a projection of potential future climate scenarios. The data are comprised of the average values (i.e., temperature, sea-level rise, snowpack) from a variety of scenarios and models and are meant to illustrate how the climate may change based on a variety of different potential social and economic factors.

Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "[c]onsiderable uncertainty about precise impacts of climate change on California hydrology and water resources will remain until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change."[14] For example, some studies identify little change in total annual precipitation in projections for California while others

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10 California Environmental Protection Agency, Preparing California for Extreme Heat: Guidance and Recommendations, October 2013, https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CCHEP-General/CDPH-EPA-2013-Preparing-CA-for-Extreme-Heat_ADA.pdf. Accessed April 2020

11 California Natural Resources Agency, Climate Action Team, 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008, 2009.

12 California Natural Resources Agency, Climate Action Team, 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008, 2009.

13 The Cal-Adapt website address is: http://cal-adapt.org.

14 Pacific Institute for Studies in Development, Environment and Security, Climate Change and California Water Resources: A Survey and Summary of the Literature, July 2003, page 5, http://www.pacinst.org/reports/climate_change_and_california_water_resources.pdf. Accessed April 2020.

show significantly more precipitation.[15] Warmer, wetter winters would increase the amount of runoff available for groundwater recharge; however, this additional runoff would occur at a time when some basins are either being recharged at their maximum capacity or are already full. Conversely, reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge.[16]

The California Department of Water Resources report on climate change and effects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta, concludes that "climate change will likely have a significant effect on California's future water resources…[and] future water demand." It also reports that "much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain."[17] It also reports that the relationship between climate change and its potential effect on water demand is not well understood, but "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.[18] In its *Fifth Assessment Report*, the IPCC states "Changes in the global water cycle in response to the warming over the 21st century will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions."[19]

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide, and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

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15 Pacific Institute for Studies in Development, Environment and Security, Climate Change and California Water Resources: A Survey and Summary of the Literature, July 2003, http://www.pacinst.org/reports/climate_change_and_california_water_resources.pdf. Accessed April 2020.

16 California Natural Resources Agency, Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy, 2014.

17 California Department of Water Resources Climate Change Report, Progress on Incorporating Climate Change into Planning and Management of California's Water Resources, July 2006, page 2-54, https://water.ca.gov/LegacyFiles/climatechange/docs/CCprogress_nov06.pdf. Accessed April 2020

18 California Department of Water Resources Climate Change Report, Progress on Incorporating Climate Change into Planning and Management of California's Water Resources, July 2006, page 2-75, https://water.ca.gov/LegacyFiles/climatechange/docs/CCprogress_nov06.pdf. Accessed April 2020

19 Intergovernmental Panel on Climate Change, Fifth Assessment Report, Summary for Policy Makers, 2013, page 20.

Agriculture

California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.[20]

Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise by 2-11.5°F (1.1-6.4°C) by 2100, with significant regional variation.[21] Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as 2 feet along most of the United States coastline. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage.[22]

Table 1
Description of Identified GHG Emissions[a]

Greenhouse Gas	General Description
Carbon Dioxide (CO_2)	An odorless, colorless GHG, which has both natural and anthropocentric sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO_2 are burning coal, oil, natural gas, and wood.
Methane (CH_4)	A flammable gas and is the main component of natural gas. When one molecule of CH_4 is burned in the presence of oxygen, one molecule of CO_2 and two molecules of water are released. A natural source of CH_4 is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH_4, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
Nitrous Oxide (N_2O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil

[20] California Climate Change Center, Our Changing Climate: Assessing the Risks to California, 2006, https://www.ucsusa.org/resources/our-changing-climate-assessing-risks-california. Accessed April 2020.

[21] National Research Council, Advancing the Science of Climate Change, 2010, http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/Science-Report-Brief-final.pdf. Accessed April 2020.

[22] Parmesan, C., and H. Galbraith, Observed Impacts of Global Climate Change in the U.S., Prepared for the Pew Center on Global Climate Change, November 2004, https://www.c2es.org/site/assets/uploads/2004/11/observed-impacts-climate-change-united-states.pdf. Accessed April 2020.

Table 1
Description of Identified GHG Emissions[a]

Greenhouse Gas	General Description
	fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, racecars, and as an aerosol spray propellant.
Hydrofluorocarbons (HFCs)	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are non-toxic, non-flammable, insoluble, and chemically unreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic man-made chemicals that are used as a substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semi-conductor manufacturing.
Sulfur Hexafluoride (SF_6)	An inorganic, odorless, colorless, non-toxic, and non-flammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.
Nitrogen Trifluoride (NF_3)	An inorganic, non-toxic, odorless, non-flammable gas. NF_3 is used in the manufacture of semi-conductors, as an oxidizer of high-energy fuels, for the preparation of tetrafluorohydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.

Note: GHG emissions identified in this table are ones identified in the Kyoto Protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.
Source: Association of Environmental Professionals, Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final, June 29, 2007; Environmental Protection Agency, Acute Exposure Guideline Levels (AEGLs) for Nitrogen Trifluoride; January 2009.

Table 2
Atmospheric Lifetimes and Global Warming Potential

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12 (+/-3)	25
Nitrous Oxide (N_2O)	114	298
HFC-23: Fluoroform (CHF_3)	270	14,800
HFC-134a: 1,1,1,2-Tetrafluoroethane (CH_2FCF_3)	14	1,430
HFC-152a: 1,1-Difluoroethane ($C_2H_4F_2$)	1.4	124

PFC-14: Tetrafluoromethane (CF_4)	50,000	7,390
PFC-116: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800
Nitrogen Trifluoride (NF_3)	740	17,200
Source: IPCC, Climate Change 2007: Working Group I: The Physical Science Basis, Direct Global Warming Potentials.		

Regulatory Framework

In response to growing scientific and political concern with global climate change, federal and state entities have adopted a series of laws to reduce emissions of GHG emissions to the atmosphere.

Federal

Federal Clean Air Act

The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO_2 and other GHG emissions are pollutants under the federal Clean Air Act (CAA), which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. The U.S. Supreme Court did not mandate that the USEPA enact regulations to reduce GHG emissions. Instead, the Court found that the USEPA could avoid acting if it found that GHG emissions do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHG emissions contribute to climate change.

On April 17, 2009, the USEPA issued a proposed finding that GHG emissions contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009-0171. The USEPA stated that high atmospheric levels of GHG emissions "are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes." The USEPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the USEPA Administrator on December 7, 2009. The final findings were published in the Federal Register on December 15, 2009. The final rule was effective on January 14, 2010.[23] While these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by the USEPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

On April 4, 2012, the USEPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired electric generating units larger than 25 megawatts (MW) are required to limit emissions to 1,000 pounds of CO_2 per MW-hour (CO_2/MWh) on an average annual basis, subject to certain exceptions. Subsequently, on April 23, 2018, the USEPA issued a policy stating that CO_2 emissions from biomass-fired and other

[23] USEPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Final Rule.

biogenic sources would be considered carbon neutral when used for energy production at stationary sources.

Corporate Average Fuel Economy (CAFE) Standards

In response to the *Massachusetts v. Environmental Protection Agency* ruling, the George W. Bush Administration issued Executive Order 13432 in 2007, directing the USEPA, the United States Department of Transportation (USDOT), and the United States Department of Energy (USDOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011; in 2010, the USEPA and the 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 USEPA, USDOT, USDOE, and NHTSA to establish additional standards regarding fuel efficiency and GHG emissions reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG emissions and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards are projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if the standards were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. In March 2020, NHTSA and USEPA adopted new less stringent standards covering model years 2021 through 2026.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011 the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.[24]

Building on the success of the first phase of standards, in August 2016, the USEPA and the NHTSA finalized Phase 2 standards for medium and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The Phase 2 standards were to lower CO_2 emissions by approximately 1.1 billion metric tons and save vehicle owners fuel costs of about $170 billion.[25] On August 10, 2021, NHTSA proposed new CAFE standards for 2024-2026 that would increase the stringency of standards by 8 percent per year rather than the previous 1.5 percent.

On September 19, 2019, the NHTSA and USEPA issued a final action entitled the “One National Program Rules” to enable the federal government to provide nationwide uniform fuel economy and greenhouse gas (GHG) emission standards for automobile and light duty trucks. This action finalizes the

[24] The emission reductions attributable to the regulations for medium- and heavy-duty trucks were not included in the Project’s emissions inventory due to the difficulty in quantifying the reductions. Excluding these reductions results in a more conservative (i.e., higher) estimate of emissions for the Project.

[25] USEPA and NHTSA Adopt Standards to Reduce GHG and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond, August 2016.

Safe Affordable Fuel Efficient (SAFE) Vehicles Rule and clarifies that federal law preempts state and local tailpipe GHG emissions standards as well as zero emission vehicle (ZEV) mandates. The SAFE Vehicle Rule also withdraws the CAA waiver granted to the State of California that allowed the state to enforce its own Low Emission Vehicle program.[26] On March 31, 2020, Part II of the SAFE Vehicles was issued and sets carbon dioxide emissions and CAFE standards for passenger vehicles and light duty trucks, covering model years 2021-2026.[27] On December 21, 2021, NHTSA repealed the SAFE I Rule.

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;

- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;

- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and

- While superseded by the USEPA and the NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks, and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."[28]

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[26] U.S. Department of Transportation and EPA. 2019. *One National Program Rule on Federal Preemption of State Fuel Economy Standards*, https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-one-national-program-federal-preemption-state#:~:text=In%20this%20action%20NHTSA%20is,and%20local%20programs%20are%20preempted.

[27] U.S. Department of Transportation. 2020. *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/final_safe_preamble_web_version_200330.pdf.

[28] A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

State

Executive Order S-3-05

This Executive Order, issued by Governor Schwarzenegger in June 2005, established GHG emissions targets for the state, as well as a process to ensure the targets are met. The order directed the Secretary for the California Environmental Protection Agency (CalEPA) to report every two years on the state's progress toward meeting the Governor's GHG emission reduction targets. The statewide GHG emissions reduction targets are as follows:

- By 2010, reduce to 2000 emission levels;[29]
- By 2020, reduce to 1990 emission levels;
- By 2030, reduce to 40 percent below 1990 levels; and
- By 2050, reduce to 80 percent below 1990 levels.

The State Legislature adopted equivalent 2020 and 2030 statewide targets in the California Global Warming Solutions Act of 2006 (also known as Assembly Bill [AB] 32) and Senate Bill [SB] 32, respectively, both of which are discussed below. However, the Legislature has not yet adopted a target for the 2050 horizon year.

As a result of Executive Order S-3-05, the California CAT, led by the Secretary of CalEPA, was formed. The CAT is made up of representatives from several state agencies and was formed to implement global warming emission reduction programs and to report on the progress made toward meeting statewide targets established under the Executive Order. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the Executive Order.[30] The CAT stated that smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development (TOD), and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.[31]

Executive Order B-30-15

Issued by Governor Brown in April 2015, established an additional statewide policy goal to reduce GHG emissions 40 percent below their 1990 levels by 2030. Reducing GHG emissions by 40 percent below

[29] The 2010 target to reduce GHG emissions to 2000 levels was not met. Source: Rubin, Thomas A.," Does California Really Need Major Land Use and Transportation Changes to Meet Greenhouse Gas Emissions Targets?," July 3, 2013.

[30] CalEPA, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006.

[31] CalEPA, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 58.

1990 levels in 2030 and by 80 percent below 1990 levels by 2050 (consistent with Executive Order S-3-05) aligns with scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius.[32]

Executive Order B-55-18

Issued by Governor Jerry Brown in September 2018, this establishes a statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress towards this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

Executive Order S-1-07 (California Low Carbon Fuel Standard)

Executive Order S-1-07, the LCFS (issued on January 18, 2007), requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. Regulatory proceedings and implementation of the LCFS were directed to CARB. The LCFS has been identified by CARB as a discrete early action item in the adopted Climate Change Scoping Plan. The LCFS program was re-adopted in 2015 and will continue to complement other AB 32 measures, transform, and diversify the fuel pool, and is a key part of the State's petroleum reduction goals for 2030.

California Assembly Bill 32 (California Global Warming Solutions Act of 2006) and Senate Bill 32

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the state to achieving the following:

- By 2010, reduce to 2000 GHG emission levels;[33] and
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California CAT GHG emissions reduction targets for 2010 and 2020, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. To achieve the reduction targets, AB 32 requires CARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG emissions reductions.[34]

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[32] California Air Resources Board, Frequently Asked Questions about Executive Order B-30-15, 2030 Carbon Target and Adaptation FAQs, April 29, 2015.

[33] The 2010 target to reduce GHG emissions to 2000 levels was not met. Source: Rubin, Thomas A., "Does California Really Need Major Land Use and Transportation Changes to Meet Greenhouse Gas Emissions Targets?", July 3, 2013.

[34] CARB's list of discrete early action measures that could be adopted and implemented before January 1, 2010, was approved on June 21, 2007. The three adopted discrete early action measures are: (1) a low- carbon fuel standard, which reduces carbon intensity in fuels statewide; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance; and (3) increased methane capture from landfills, which includes requiring the use of state-of-the-art capture technologies.

SB 32, signed September 8, 2016, updates AB 32 (the Global Warming Solutions Act) to include an emissions reductions goal for 2030. Specifically, SB 32 requires the state board to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

Assembly Bill 197

AB 197, signed September 8, 2016, is a bill linked to SB 32 that prioritizes efforts to cut GHG emissions in low-income or minority communities. AB 197 requires CARB to make available, and update at least annually, on its Internet Web site the emissions of greenhouse gases, criteria pollutants, and toxic air contaminants for each facility that reports to CARB and air districts. In addition, AB 197 adds two Members of the Legislature to the CARB board as ex officio, non-voting members and creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the Legislature and the houses of the Legislature concerning the state's programs, policies, and investments related to climate change.

Senate Bill 350

SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. SB 350 is the implementation of some of the goals of Executive Order B-30-15. The objectives of SB 350 are: (1) to increase the procurement of electricity from renewable sources from 33 percent to 50 percent by December 31, 2030; and (2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.[35]

Senate Bill 1368

SB 1368, signed September 29, 2006, is a companion bill to AB 32 that requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the state. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard, which is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per MWh. Furthermore, on May 23, 2007, the CEC adopted regulations that establish and implement an identical Emissions Performance Standard of 1,100 pounds of CO_2 per MWh (see CEC Order No. 07-523-7).

Assembly Bill 1493 (Pavley I)

AB 1493, passed in 2002, requires the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state. CARB originally

[35] Senate Bill 350 (2015–2016 Reg, Session) Stats 2015, ch. 547.

approved regulations to reduce GHG emissions from passenger vehicles in September 2004, with the regulations to take effect in 2009. On September 24, 2009, CARB adopted amendments to these "Pavley" regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016.[36] Although setting emission standards on automobiles is solely the responsibility of the USEPA, the federal CAA allows California to set state-specific emission standards on automobiles if the state first obtains a waiver from the USEPA. The USEPA granted California that waiver on July 1, 2009. A comparison between the AB 1493 standards and the Federal CAFE standards was completed by CARB and the analysis determined that California emission standards are 16 percent more stringent through the 2016 model year and 18 percent more stringent for 2020 model year.[37] California is also committed to further strengthening these standards beginning with 2020 model year vehicles to obtain a 45-percent GHG reduction in comparison to the 2009 model year.

Senate Bill 97

SB 97, passed in August 2007, is designed to work in conjunction with CEQA and AB 32. SB 97 requires the Office of Planning and Research (OPR) to prepare and develop guidelines for the mitigation of GHG emissions or the effects thereof, including, but not limited to, the effects associated with transportation and energy consumption. The Draft Guidelines Amendments for Greenhouse Gas Emissions (Guidelines Amendments) were adopted on December 30, 2009 and address the specific obligations of public agencies when analyzing GHG emissions under CEQA to determine a project's effects on the environment.

However, neither a threshold of significance nor any specific mitigation measures are included or provided in the Guidelines Amendments.[38] The Guidelines Amendments require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. The Guidelines Amendments give discretion to the lead agency whether to: (1) use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use; or (2) rely on a qualitative analysis or performance- based standards. Furthermore, the Guidelines Amendments identify the following three factors that should be considered in the evaluation of the significance of GHG emissions:

1. The extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

[36] California Air Resources Board, Clean Car Standards—Pavley, Assembly Bill 1493, www.arb.ca.gov/cc/ccms/ccms.htm, accessed April 2020.

[37] California Air Resources Board, "Comparison of Greenhouse Gas Reductions for all Fifty United States under CAFE Standards and ARB Regulations Adopted Pursuant to AB 1493", January 23, 2008.

[38] See 14 Cal. Code Regs. §§ 15064.7 (generally giving discretion to lead agencies to develop and publish thresholds of significance for use in the determination of the significance of environmental effects), 15064.4 (giving discretion to lead agencies to determine the significance of impacts from GHG emissions).

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.[39]

The administrative record for the Guidelines Amendments also clarifies "that the effects of greenhouse gas emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis."[40]

In December 2018, OPR approved a CEQA and Climate Change Advisory that updated the 2009 guidance for project-level analyses. It reaffirms the discretion that lead agencies have in establishing an appropriate methodology and determining significance.

Senate Bill 743

This 2013 legislation updates the way transportation impacts are measured in California, focusing on vehicle miles traveled (VMT) rather than level of service as the main measure of transportation impacts. It calls on decisionmakers throughout the State to focus on reducing overall VMT and the GHG emissions from such vehicle activity. Traffic studies in the City of Gardena began formally analyzing projects in this fashion effective July 1, 2020.

Senate Bill 375

Acknowledging the relationship between land use planning and transportation sector GHG emissions, SB 375 was passed by the State Assembly on August 25, 2008 and signed by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the GHG reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating employment opportunities close to transit. Under SB 375, each Metropolitan Planning Organization (MPO) would be required to adopt a Sustainable Community Strategy (SCS) to encourage compact development that reduce passenger VMT and trips so that the region will meet a target, created by CARB, for reducing GHG emissions. If the SCS is unable to achieve the regional GHG emissions reduction targets, then the MPO is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measures.

Assembly Bill 1279

This 2022 legislation creates a legally binding goal that California achieve carbon neutrality by 2045. It would also require the State to reduce GHG emissions by 85 percent below 1990 levels by 2045.

[39] 14 Cal. Code Regs. § 15064.4(b).

[40] Letter from Cynthia Bryant, Director of the Governor's Office of Planning and Research to Mike Chrisman, California Secretary for Natural Resources, dated April 13, 2009.

Climate Change Scoping Plan

In 2008, CARB approved the original *Climate Change Scoping Plan* as required by AB 32.[41] Subsequently, CARB approved updates to the *Climate Change Scoping Plan* in 2014 *(First Update)* and 2017 *(2017 Update)*, with the *2017 Update* considering SB 32 (adopted in 2016) in addition to AB 32. In December 2022, CARB adopted the 2022 Update, which addresses the State's goal for carbon neutrality by 2045.

The original *Climate Change Scoping Plan* proposed a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health.[42] The original *Climate Change Scoping Plan* identified a range of GHG reduction actions that included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

The original *Climate Change Scoping Plan* called for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions were addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard (LCFS), and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and, sometimes, required to use energy more efficiently. Utility energy providers were required to include more renewable energy sources through implementation of the Renewables Portfolio Standard (RPS).[43] Additionally, the original *Climate Change Scoping Plan* emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicated that substantial savings of electricity and natural gas would be accomplished through "improving energy efficiency by 25 percent."

The original *Climate Change Scoping Plan* identified several specific issues relevant to the Project, including the following:

- The potential of using the green building framework as a mechanism, which could enable GHG emissions reductions in other sectors (i.e., electricity, natural gas), noting that:

  > *A Green Building strategy will produce greenhouse gas savings through buildings that exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined, these measures can also contribute to healthy indoor air quality, protect human health, and minimize impacts to the environment.*

[41] Climate Change Proposed Scoping Plan was approved by CARB on December 11, 2008.

[42] California Air Resources Board, Climate Change Scoping Plan, December 2008.

[43] For a discussion of Renewables Portfolio Standard, refer to Subsection 2(h)(i), California Renewables Portfolio Standard.

- The importance of supporting the Department of Water Resources' work to implement the Governor's objective to reduce per capita water use by 20 percent by 2020.[44] Specific measures to achieve this goal include water use efficiency, water recycling, and reuse of urban runoff. The original *Climate Change Scoping Plan* noted that water use requires significant amounts of energy, including approximately one-fifth of statewide electricity.

- Encouraging local governments to set quantifiable emission reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

Forecasting the emissions for 2020 if no actions are taken was necessary to assess the scope of the reductions California must make to return to the 1990 emissions level by 2020 as required by AB 32. CARB originally defined the "business-as-usual" or BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the original *Climate Change Scoping Plan*. For example, in further explaining CARB's BAU methodology, 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 original *Climate Change Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations).[45]

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update).[46] The stated purpose of the First Update was 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 percent below 1990 levels by 2050.[47] 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 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.[48]

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.[49] Those six areas were: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3)

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[44] California Department of Water Resources, 20x2020 Water Conservation Plan. The Plan called for California to reduce per capita water use from 192 to 154 gallons per capita daily from 2009 to 2020 and beyond. https://www.waterboards.ca.gov/water_issues/hot_topics/20x2020/docs/20x2020plan.pdf

[45] California Air Resources Board, Climate Change Scoping Plan: A Framework for Change, p. 12, December 2008.

[46] Health & Safety Code §38561(h) requires CARB to update the Scoping Plan every five years.

[47] California Air Resources Board, First Update, May 2014, p. 4.

[48] California Air Resources Board, First Update, May 2014, p. 34.

[49] California Air Resources Board, First Update, May 2014, p. 6.

agriculture; (4) water; (5) waste management; and (6) natural and working lands. The First Update identified key recommended actions for each sector that would facilitate achievement of the 2050 reduction target.

The First Update discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings as an element of meeting mid-term and long-term GHG emissions reduction goals. The First Update expressed CARB's commitment to working with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) to facilitate further achievements in building energy efficiency.

In December 2017, CARB adopted California's 2017 *Climate Change Scoping Plan Update: The Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan Update*). The *2017 Climate Change Scoping Plan* addresses the deeper cuts required by SB 32 by a 2030 horizon year and has a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. The 2017 Scoping Plan Update includes policies to require direct GHG emissions reductions at some of the state's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade program, which constrains and reduces emissions at covered sources.

CARB adopted its *2022 Scoping Plan* update on December 15, 2022 that lays the groundwork to achieving carbon neutrality statewide by 2045. The 2022 Scoping Plan is designed to reduce GHG emissions 85 percent below 1990 levels by 2045. Most reductions would come from conversion from combustion-based industries and technologies to electricity. While Statewide programs calling for electrifying the vehicle fleet and energy sources would account for the vast majority of GHG reductions needed by 2030, local actions are needed to supplement these. The Scoping Plan recommends City's develop local Climate Action Plans (CAPs) that are consistent with the Scoping Plan's GHG reduction goals, incorporate State-level GHG priorities into processes for approving land use projects, implement mitigation measures as needed to reduce GHG emissions from developments, and leverage opportunities for regional collaboration.

Cap-and-Trade Program

The original *Climate Change Scoping Plan* identified a cap-and-trade program as one of the strategies for California to reduce GHG emissions. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap can trade permits to emit GHG emissions within the overall limit.

The Program is designed to reduce GHG emissions from major sources, such as refineries and power plants, (deemed "covered entities"). "Covered entities" subject to the Cap-and-Trade Program are sources that emit more than 25,000 metric tons CO_2e ($MTCO_2e$) per year. Triggering of the 25,000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule or MRR).

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or in part (if eligible) and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender an allowance for each metric ton CO_2e of GHG they emit.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2030 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any source. Rather, GHG emissions reductions are only guaranteed on a cumulative basis. As summarized by CARB in the First Update:

> *The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced.*

For example, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a commensurate reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative.

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2030 GHG emissions reduction mandate.

> *The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. […][50]*

Overall, the Cap-and-Trade Program will achieve aggregate, rather than site-specific or project-level, GHG emissions reductions. Also, due to the regulatory framework adopted by CARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the state's emissions forecasts and the effectiveness of direct regulatory measures. The Cap-and-Trade Program

[50] California Air Resources Board, First Update, May 2014, p. 88.

covered approximately 450 businesses responsible for about 85 percent of California's GHG emissions.[51]

The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and- Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.[52] Furthermore, the Cap-and-Trade Program also covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with VMT are covered by the Cap-and-Trade Program.

Assembly Bill 398 was enacted in 2017 to extend the Cap-and-Trade Program from January 1, 2021, through December 31, 2030. As part of AB 398, refinements were made to the Cap-and-Trade program to establish updated protocols and allocation of proceeds to reduce GHG emissions.

California Renewables Portfolio Standard

The California RPS program (2002, SB 1078) required that 20 percent of the available energy supplies are from renewable energy sources by 2017. In 2006, SB 107 accelerated the 20 percent mandate to 2010. These mandates apply directly to investor-owned utilities. On April 12, 2011, California Governor Jerry Brown signed into law SB 2X, which modified California's RPS program to require that both public and investor-owned utilities in California receive at least 33 percent of their electricity from renewable sources by the year 2020.

Advanced Clean Cars Regulations

In 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2015–2025.[53] The components of the Advance Clean Car program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero- Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[54]

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[51] Center for Climate and Energy Solutions, California Cap-and-Trade,https://www.c2es.org/content/california-cap-and-trade/, accessed April 2020.

[52] While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, fuel suppliers did not have a compliance obligation (i.e., they were not fully regulated) until 2015.

[53] California Air Resources Board, California's Advanced Clean Cars Program, www.arb.ca.gov/msprog/acc/acc.htm, accessed April 2020.

[54] Ibid.

On September 23, 2020, Governor Gavin Newsom signed Executive Order No. N-79-20 that phases out sales of new gas-powered passenger cars by 2035 in California with an additional ten-year transition period for heavy vehicles. The state would not restrict used car sales, nor forbid residents from owning gas-powered vehicles. In accordance with the Executive Order, CARB is developing a 2020 Mobile Source Strategy, a comprehensive analysis that presents scenarios for possible strategies to reduce the carbon, toxic and unhealthy pollution from cars, trucks, equipment, and ships. The strategies will provide important information for numerous regulations and incentive programs going forward by conveying what is necessary to address the aggressive emission reduction requirements.

In November 2022, the ACC II regulations took effect, setting annual ZEV and plug-in hybrid vehicle sales requirements for model years 2026 to 2035 (ZEV program) and increasingly more stringent exhaust and evaporative emission standards (LEV program) to ensure automakers phase out new sales of internal combustion engine vehicles.

California Appliance Efficiency Regulations (Title 20, Sections 1601 through 1608)

The 2014 Appliance Efficiency Regulations, adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels of operating efficiency, and other cost- effective measures, to promote the use of energy- and water-efficient appliances.

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

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.[55] The 2022 standards continue to improve upon previous standards for new construction of, and additions and alterations to, residential and non-residential buildings and became effective January 1, 2023. Compliance with Title 24 is enforced through the building permit process. Key changes included encouraging heat pump technology for space and water heating, setting electric-ready requirements for single-family homes, expanding solar photovoltaic system and battery storage standards, and strengthening ventilation standards to improve indoor air quality.

California Green Building Standards (CALGreen Code)

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11) are mandatory green building standards for new structures. They focus on measures to reduce water consumption, GHG emissions, and materials and waste. These codes are updated every three years, with the 2022 CalGreen code updates effective January 1, 2023. New requirements address requirements for Level 2 electric vehicle chargers and use of solar photovoltaic shade structures instead of shade trees. Voluntary measures focus on higher EV charging requirements for parking facilities.

[55] California Energy Commission, 2019 Building Energy Efficiency Standards, https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency, accessed April 2020.

Regional

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons, methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons by the year 2000;
- Develop recycling regulations for hydrochlorofluorocarbons (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

Southern California Association of Governments

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020-2045 RTP/SCS on September 3, 2020, calling for $639 billion in transportation investments and reducing VMT by 19 percent per capita from 2005 to 2035. The updated plan accommodates 21.3 percent growth in population from 2016 (3,933,800) to 2045 (4,771,300) and a 15.6 percent growth in jobs from 2016 (1,848,300) to 2045 (2,135,900). The updated RTP/SCS calls for several land use-based strategies to accommodate growth, minimize criteria pollutant emissions, and achieve climate change objectives:

- Decreasing drive-along work commutes by three percent
- Reducing per capita VMT by five percent and vehicle hours traveled per capita by nine percent
- Increasing transit commuting by two percent
- Reducing travel delay per capita by 26 percent
- Creating 264,500 new jobs annually
- Reducing greenfield development by 29 percent by focusing on smart growth
- Locating six more percent household growth in High Quality Transit Areas (HQTAs), which concentrate roadway repair investments, leverage transit and active transportation investments,

reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability.

- Locating 15 percent more jobs in HQTAs

The 2020-2045 RTP/SCS calls for a 19 percent reduction in per capita GHG emissions by 2035 from 2005 levels. This is intended to be consistent with CARB's performance targets during this same period. The bulk of these reductions are to come from transportation investments, pricing strategies, TDM strategies, and land use programs. On October 30, 2020, CARB accepted the RTP/SCS quantification of GHG emissions on October 30, 2020 (Executive Order G-20-239, SCAG 2020 SCS ARB Acceptance of GHG Quantification Determination).

Local

City of Gardena Building Code

The City relies on the 2022 Title 24 building codes and 2022 California Green Building Standards Code (CalGreen, effective January 1, 2023) that promote green building requirements that reduce carbon-based emissions from new construction and remodels.

City of Gardena Climate Action Plan

In December 2017, the City adopted the Climate Action Plan (CAP) that documents the City's GHG emissions inventory and sets a 2020 GHG emission reduction target of 15 percent below 2005 levels and a 2035 target of 49 percent below 2005 levels. These goals put the City on a path toward helping California reduce is 2050 emissions by 80 percent below 1990 levels. It includes five categories of strategies and 22 goals:

1. Land Use and Transportation
    a. Accelerate the market for EVs
    b. Encourage ridesharing
    c. Encourage transit usage
    d. Adopt active transportation initiatives
    e. Parking strategies
    f. Organizational strategies
    g. Land use strategies
2. Energy Efficiency
    a. Increase energy efficiency in existing residential units
    b. Increase energy efficiency in new residential developments
    c. Increase energy efficiency in existing commercial units
    d. Increase energy efficiency in new commercial developments
    e. Increase energy efficiency through water efficiency
    f. Participate in education, outreach, and planning for energy efficiency
    g. Increase energy efficiency in municipal buildings
    h. Increase energy efficiency in City infrastructure
    i. Reduce energy consumption in the long term
3. Solid Waste

    a. Increase diversion and reduction of residential waste
    b. Increase diversion and reduction of commercial waste
    c. Reduce and divert municipal waste
4. Urban Greening
    a. Increase and maintain urban greening in the community
    b. Increase and maintain urban greening in municipal facilities
5. Energy Generation and Storage
    a. Support energy generation and storage in the community

The vast majority of these goals target the City and other public agencies, calling on them to adopt ordinances and other programs to mandate or incentivize greener technologies and practices in the community.

City of Gardena Climate Vulnerability Assessment

In 2021, the City adopted the Climate Vulnerability Assessment (CVA) to inform City policy that promotes integrated action to safeguard the City from the adverse effects of climate change. These included the following key policies:

- PS 6.1: Community Preparedness. A well-prepared City that can effectively overcome natural disasters and scarcity of resources due to climate change.
- PS 6.2: Collaboration. Collaborate with local, regional, state and/or federal jurisdictions and agencies on climate resiliency and adaptation strategies.
- PS 6.3: Water Supply. Promote plans and programs and collaborate with local, regional, state and federal jurisdictions to increase sustainable water sources and protect water infrastructure.
- PS 6.4: Vulnerable Populations, Areas, and Infrastructure. Implement necessary actions and programs to improve preparation and response for the most vulnerable community members and areas, and infrastructure.
- PS 6.5: Cooling Centers. Designate public buildings, specific private buildings, or institutions with air conditioning as public cooling shelters; extend hours at air-conditioned sites during periods of extreme heat or power outage (if the site is supported by a backup generator).
- PS 6.6: Energy Supply. Promote plans and programs that increase sustainable energy sources.
- PS 6.7: Storms. Provide access to flood protection resources and services (signage, sandbags, etc.) at designated public facilities before and during extreme weather events.
- PS 6.8: Special Assistance. Address the needs of individuals with limited mobility or limited access to transportation for access to safe and comfortable shelter during extreme heat events or other severe weather events.
- PS 6.9: Greenhouse Gas Reductions. Reduce communitywide greenhouse gas emissions locally by actively supporting regional efforts to reduce greenhouse gases.
- PS 6.10: Extreme Heat Vulnerabilities. Encourage new developments, major remodels, and redevelopments address urban heat island issues and reduce urban heat island effects for the proposed project site and adjacent properties in accordance with the City's amendments to the California Building Code set forth in Gardena Municipal Code section 15.04.060.
- PS 6.11: Urban Forestry Plan. Minimize damage associated with wind-related hazards and address climate change and urban heat island effects through the development of an urban forestry plan.

- PS 6.12: Climate Resiliency Plan. Develop a climate resiliency plan that integrates and builds upon the strategies identified in the General Plan and Climate Action Plan.

City of Gardena General Plan Community Safety Element

In February 2022, the City adopted its Public Safety Plan, a component of the Community Safety Element. This Plan reaffirmed the City's concern with climate change and resiliency planning by setting a focus on public safety. It references the CAP and CVA and includes a Goal 6, which calls for "[a] resilience, sustainable, and equitable community where risks to life, property, the economy, and the environment resulting from climate change, including extreme weather events, are minimized.

City of Gardena General Plan Environmental Justice Element

The City's Environmental Justice Element focuses policy on the fair treatment and meaningful involvement of all people with respect to the development, adoption, implementation, and enforcement of environmental regulations. It includes Goal 1, which calls for reducing GHGs, enhancing air quality, and reducing impacts associated with climate change. It includes Policy EF 1.5, which calls to "Prioritize long-term sustainability for the City of Gardena, in alignment with regional and state goals, by promoting infill development, reduced reliance on single- occupancy vehicle trips, and improved multi-modal transportation networks, with the goal of reducing air pollution and greenhouse gas emissions, thereby improving the health and quality of life for residents."

Existing Conditions

Existing Statewide GHG Emissions

GHG emissions are the result of both natural and human-influenced activities. Regarding human-influenced activities, motor vehicle travel, consumption of fossil fuels for power generation, industrial processes, heating and cooling, landfills, agriculture, and wildfires are the primary sources of GHG emissions. Without human intervention, Earth maintains an approximate balance between the emission of GHG emissions into the atmosphere and the storage of GHG emissions in oceans and terrestrial ecosystems. Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal), have contributed to the rapid increase in atmospheric levels of GHG emissions over the last 150 years.

As reported by the CEC, California contributes approximately one percent of global and 8.2 percent of national GHG emissions.[56] California represents approximately 12 percent of the national population. Approximately 80 percent of GHGs in California are CO_2 produced from fossil fuel combustion. The current California GHG inventory compiles statewide anthropogenic GHG emissions and carbon sinks/storage from years 2000 through 2019.[57] It includes estimates for CO_2, CH_4, N_2O, HFCs, PFCs,

[56] California Energy Commission, Tracking Progress, Greenhouse Gas Emission Reductions. https://www.energy.ca.gov/data-reports/tracking-progress. Accessed July 2023.

[57] A carbon inventory identifies and quantifies sources and sinks of greenhouse gases. Sinks are defined as a natural or artificial reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period.

and SF_6. The GHG inventory for California for years 2010 through 2019 is presented in Table 3. As shown therein, the GHG inventory for California in 2019 was 418.2 million $MTCO_2e$.

Table 3
California GHG Inventory
(metric tons of carbon dioxide equivalent [$MTCO_2e$])

	2013	2014	2015	2016	2017	2018	2019
Transportation	161.2	162.6	166.2	169.8	171.2	169.6	166.1
Electric Power	91.7	92.5	90.3	89.0	88.8	89.2	88.2
Industrial	16.8	17.7	18.6	19.2	20.0	20.4	20.6
Commercial & Residential	91.4	88.9	84.8	68.6	62.1	63.1	58.8
Agriculture	161.2	162.6	166.2	169.8	171.2	169.6	166.1
High GWP	91.4	88.9	84.8	68.6	62.1	63.1	58.8
Recycling & Waste	91.7	92.5	90.3	89.0	88.8	89.2	88.2
Total	447.5	443.0	440.7	429.1	424.6	425.1	418.2

Source: California Air Resources Board (2021). California Greenhouse Gas Emission Inventory - 2021 Edition. Data available at: https://ww3.arb.ca.gov/cc/inventory/data/data.htm

Existing Project Site Emissions

The Project Site is improved with two commercial buildings totaling approximately 39,510 square feet. Approximately 31,010 square feet is occupied by auto repair stores while the remaining 8,500 square feet are vacant. As summarized in Table 4, much of the existing GHG emissions are associated with the 822 daily vehicle trips traveling to and from the Project Site, though additional GHGs are generated by the refrigeration and condensing units from auto repair facilities.[58]

Table 4
Annual GHG Emissions Summary (Existing)[a]
(metric tons of carbon dioxide equivalent [MTCO2e])

Sector	$MTCO_2$[a]
Area[b]	1
Energy[c] (electricity and natural gas)	150
Mobile	1,119
Solid Waste[d]	38
Water/Wastewater[e]	7
Refrigerants	1,356
Total Emissions	**2,671**

a CO_2e was calculated using CalEEMod and the results are provided in the Technical Appendix.
b Area source emissions are from landscape equipment and other operational equipment only; hearths omitted.
c Energy source emissions are based on CalEEMod default electricity and natural gas usage rates.
d Solid waste emissions are calculated based on CalEEMod default solid waste generation rates.
e Water/Wastewater emissions are calculated based on CalEEMod default water consumption rates.

[58] Linscott Law & Greenspan, Memorandum: TPG 1610 Artesia Project – Vehicle Miles Traveled Assessment; July 21, 2023.

Source: DKA Planning, 2023.

Methodology

CEQA Guidelines Section 15064.4(a) assists lead agencies in determining the significance of the impacts of GHG emissions, giving them discretion to determine whether to assess impacts quantitatively or qualitatively. It calls for a good-faith effort to describe and calculate emissions. The City, SCAQMD, OPR, CARB, California Air Pollution Control Officers Association (CAPCOA), and other applicable agencies have not adopted a numerical threshold of significance for assessing impacts related to GHG emissions. As a result, the methodology for evaluating a project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans adopted for the purpose of reducing and/or mitigating GHG emissions.[59] This evaluation is the sole basis pursuant to CEQA for determining the significance of a project's GHG-related impacts on the environment.

The analysis also calculates the amount of GHG emissions from the Project using recommended air quality models. The primary purpose of quantifying the Project's GHG emissions is to satisfy CEQA Guidelines Section 15064.4(a). The estimated emissions inventory is also used to determine if there would be a reduction in the Project's incremental contribution of GHG emissions because of compliance with regulations requirements adopted to implement plans for reducing or mitigating GHG emissions. As such, it provides further justification that a project is consistent with plans adopted for the purpose of reducing and/or mitigating GHG emissions by a project and over time. However, the significance of the Project's GHG emissions is not based on the amount of emissions from the Project.

Consistency with Applicable Plans and Policies

A consistency analysis has been provided that describes the Project's compliance with or exceedance of performance-based standards, and consistency with applicable plans and policies adopted for the purpose of reducing GHG emissions, included in the applicable portions of the 2022 Climate Change Scoping Plan, the 2020-2045 RTP/SCS, the City's CAP, and the General Plan.

As part of the Climate Change Scoping Plan, a statewide emissions inventory was developed as required by AB 32 which directs CARB to develop and track GHG emissions reductions to document progress towards the state GHG target. The emissions inventory also takes into account GHG emissions reduction measures developed by CARB to achieve state targets. Consistency with the Climate Change Scoping Plan is evaluated by comparing the Project's GHG emissions reduction measures to those contained in the Scoping Plan.

As noted in CEQA Guidelines Section 15064.4(b)(3), consistency with such plans and policies "must reduce or mitigate the project's incremental contribution of greenhouse gas emissions." To demonstrate such incremental reductions, this chapter estimates reductions of Project-related GHG emissions resulting from consistency with plans. Consistent with evolving scientific knowledge, approaches to GHG emissions quantification may continue to evolve in the future.

[59] CEQA Guidelines, Section 14 CCR 15064.4.

While there are many ways to quantify the efficiency of the GHG reduction measures provided for in the plans and policies, this analysis compares the Project's GHG emissions to the emissions that would be generated by the Project in the absence of any GHG emissions reduction measures (i.e., the Project Without Reduction Features Scenario). This approach is consistent with the concepts used in CARB's 2022 Climate Change Scoping Plan. This methodology is used to analyze consistency with applicable GHG emissions reduction plans and policies and demonstrate the efficacy of the measures contained therein, but it is not a threshold of significance.

The analysis in this report includes potential emissions under the Project Without Reduction Features scenarios and from the Project at build-out based on actions and mandates expected to be in force in 2026, when the Project is completed. Early-action measures identified in the Climate Change Scoping Plan that have not been approved were not credited in this analysis. By not speculating on potential regulatory conditions, the analysis takes a conservative approach that likely overestimates the Project's GHG emissions at build-out. The Project Without Reduction Features scenario is used to establish a comparison with project-generated GHG emissions. The Project Without Reduction Features scenario does not consider site-specific conditions, project design features, or prescribed mitigation measures. As an example, The Project Without Reduction Features scenario would apply a base Institute of Transportation Engineers (ITE) trip-generation rate for the Project and would not consider site-specific benefits resulting from close proximity to public transportation.

Based on further guidance from the 2022 Scoping Plan, this analysis also evaluates whether the Project would incorporate key GHG strategies for residential and mixed-use projects:[60]

- Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standard in the California Green Building Standards Code.
- Locate projects on infill sites surrounded by urban uses and is served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
- Does not result in the loss or conversion of natural and working lands.
- Consists of transit-supportive densities (i.e., 20 dwelling units per acre), is within 0.5 mile of transit stops, or satisfies more detailed and stringent criteria in the regional SCS.
- Reduces parking requirements.
- Dedicating at least 20 percent of residents as affordable to lower-income residents.
- Results in no net loss of existing affordable units.
- Uses all-electric appliances without any natural gas connections and does not use propane of other fossil fuels for space heating, water heating, or indoor cooking.

[60] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality, Appendix D (Local Actions) Table 3; November 2022.

Pursuant to the 2022 Scoping Plan, these project attributes help identify residential and mixed-use projects that are "clearly consistent with the State's climate goals."

Quantification of Emissions

This analysis quantifies the Project's GHG emissions for information purposes, considering the GHG reduction features that would be incorporated into the Project's design. It relies on the California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California, who provided data (e.g., emission factors, trip lengths, meteorology, source inventory) to account for local requirements and conditions. The model is considered by SCAQMD to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.

This analysis quantifies the Project's emissions and compares them to a Project without Reduction Features scenario, as defined by CARB's most updated projections for AB 32 and SB 32. This comparison is included for informational purposes to disclose the relative carbon efficiency of the Project and to determine if there would be a reduction in the Project's incremental contribution of GHG emissions based on compliance with regulations and requirements adopted to implement plans for reducing GHG emissions. The Project Without Reduction Features scenario does not consider site-specific conditions, Project design features, or prescribed mitigation measures. This includes the use of ENERGY STAR-rated appliances, installation of energy-efficient HVAC systems, glass with minimal reflectivity to reduce glare, efficient water management and sustainable landscaping, bicycle parking, electric vehicle (EV) charging spaces, and the Project's proximity to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations.

This approach is consistent with the concepts used in the CARB's *Climate Change Scoping Plan* for the implementation of AB 32. This methodology is used to analyze consistency with applicable GHG reduction plans and policies and demonstrate the efficacy of the measures contained therein, but it is not a threshold of significance. The Project Without Reduction Features scenario is similar to the approach currently used by the City with respect to evaluating a proposed development project's consistency with CARB's Scoping Plans. Currently, the City evaluates the proposed project under two scenarios—one scenario without GHG reduction measures (akin to the Project Without Reduction Features scenario) and a second scenario with GHG reduction measures.

The Project Without Reduction Features scenario also does not account for energy efficiency measures that would go beyond Title 24 building standards or trip reductions from the co-location of uses and availability of public transit. However, the Project without Reduction Features does consider regulatory measures included in CARB's *Climate Change Scoping Plan,* SCAG's 2020-2045 RTP/SCS, and the City's CAP.

Construction

The Project's construction emissions were calculated using CalEEMod Version 2022.1.1.20. Details of the modeling assumptions and emission factors are provided in the Technical Appendix. CalEEMod

calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecasted based on the proposed construction schedule and included the mobile source and fugitive dust emissions factors derived from CalEEMod.

The calculations of the emissions generated during Project construction activities reflect the types and quantities of construction equipment that would be used to remove existing pavement, grade, and excavate the Project Site; construct the proposed building and related improvements; and plant new landscaping within the Project Site.

In accordance with SCAQMD's guidance, GHG emissions from construction were amortized (i.e., averaged annually) over the lifetime of the Project. Because emissions from construction activities occur over a relatively short-term period, they contribute a relatively small portion of the overall lifetime GHG emissions for the Project. In addition, GHG emissions reduction measures for construction equipment are relatively limited. Thus, SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime, so that GHG emissions reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies.[61] As a result, the Project's total construction GHG emissions were divided by 30 to determine an approximate annual construction emissions estimate comparable to operational emissions.

Operation

Similar to construction, CalEEMod is used to calculate potential GHG emissions generated by new land uses on the Project Site, including area sources, electricity, natural gas, mobile sources, stationary sources (i.e., emergency generators), solid waste generation and disposal, and water usage/wastewater generation.

Area source emissions include landscaping equipment that are based on the size of the land uses (e.g., square footage or dwelling unit), the GHG emission factors for fuel combustion, and the global warming potential (GWP) values for the GHG emissions emitted.

GHG emissions associated with electricity demand are based on the size of the land uses, the electrical demand factors for the land uses, the GHG emission factors for the electricity utility provider, and the GWP values for the GHG emissions emitted. As with electricity, the emissions of GHG emissions associated with natural gas combustion are based on the size of the land uses, the natural gas combustion factors for the land uses in units of million British thermal units (MMBtu), the GHG emission factors for natural gas combustion, and the GWP values for the GHG emissions emitted.[62]

Mobile source GHG emissions are calculated based on an estimate of the Project's annual VMT, which is derived using CalEEMod based on the trip generation provided in the Transportation Study prepared

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[61] SCAQMD Governing Board Agenda Item 31, December 5, 2008.

[62] Energy consumption estimates with CalEEMod 2022.1.1.20 are based on the California Energy Commission's 2020 Residential Appliance Saturation Survey (residential uses) and 2021 Commercial Forecast database, both of which reflected the 2019 Title 24 energy efficiency standards. These energy consumption estimates were adjusted to reflect the 2022 Title 24 standards that cumulatively produce a 0.49 percent reduction in electricity use and 0.45 percent reduction in natural gas use when compared to the 2019 standards.

for the Project. The CalEEMod-derived VMT values account for the daily and seasonal variations in trip frequency and length associated with new employee and visitor trips to and from the Project Site and other activities that generate a vehicle trip.

Stationary source GHG emissions are based on proposed stationary sources (i.e., emergency generators) that would be provided on the Project Site.

GHG emissions associated with solid waste disposal are based on the size of the Project's proposed land uses, the waste disposal rate for the land uses, the waste diversion rate, the GHG emission factors for solid waste decomposition, and the GWP values for the GHG emissions emitted.

GHG emissions related to water usage and wastewater generation are based on the size of the land uses, the water demand factors, the electrical intensity factors for water supply, treatment, and distribution, electrical intensity factors for wastewater treatment, the GHG emission factors for the electricity utility provider, and the GWP values for the GHG emissions emitted.

The analysis of Project GHG emissions at buildout uses assumptions in CARB's EMFAC2021 model (1.0.1) and considers actions and mandates expected to be in force when the Project is operational (e.g., Pavley I Standards, full implementation of California's 33 percent RPS by 2030 and 50 percent by 2050 and the California LCFS). In addition, because mobile source GHG emissions are directly dependent on the number of vehicle trips, a decrease in the number of project-generated trips because of project features (e.g., proximity to transit) would provide a proportional reduction in mobile source GHG emissions compared to a generic project without such locational benefits. Calculation of Project GHG emissions conservatively did not include actions and mandates that are not already in place but are expected to be enforced when the Project is operational (e.g., Pavley II, which could further reduce GHG emissions from use of light-duty vehicles by 2.5 percent). Similarly, emissions reductions regarding Cap-and-Trade were not included in this analysis as they applied to other future reductions in non-transportation sectors. As for the Cap-and-Trade program's benefits for the transportation sector, the analysis utilizes CARB's assumptions in EMFAC2021 for any short-term reductions in GHG emissions. By not speculating on potential regulatory conditions, the analysis takes a conservative approach that likely overestimates the Project's GHG emissions at buildout, because the state is expected to implement several policies and programs aimed at reducing GHG emissions from the land use and transportation sectors to meet the state's long-term climate goals.

There are no GHG emissions thresholds adopted by the SCAQMD that are applicable to the Project. In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.[63] Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 $MTCO_2e$ per year. Under this proposal, such commercial and residential projects would have been assumed to have a less than significant impact on climate change. However, this proposed screening threshold was not adopted by the SCAQMD. When considering emissions from the existing auto repair facility (2,671 $MTCO_2e$ annually, as shown in Table 4, below), the Project would result in a net decrease of 453 $MTCO_2e$ annually (as shown in Table 12, below), which is less than 3,000 $MTCO_2e$ per year. Thus, even

if the SCAQMD interim GHG threshold of significance was adopted, the Project would have a less than significant impact based on such threshold.

Thresholds of Significance

State CEQA Guidelines Appendix G

In accordance with Appendix G of the State CEQA Guidelines (Appendix G), a project would have a significant impact related to GHG emissions if the project would do the following:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHG emissions.

Project Impacts

Consistency with Applicable Plans and Policies

The discussion below describes the extent the Project complies with or exceeds the performance-based standards included in the regulations outlined in the *Climate Change Scoping Plan* and the 2020-2045 RTP/SCS, each of which identifies GHG-reducing measures that directly and indirectly apply to the Project. This analysis also evaluates the Project's consistency with the City's CAP and General Plan. As shown herein, the Project would be consistent with the applicable GHG reduction plans and policies.

State

Climate Change Scoping Plan

The goal to reduce GHG emissions to 1990 levels by 2020 (Executive Order S-3-05) was codified by the Legislature as the 2006 Global Warming Solutions Act (AB 32). In 2008, CARB approved a Climate Change Scoping Plan as required by AB 32 that has been updated over time to reflect updated strategies. In addition, SB 32 was approved in 2016, calling for deeper GHG emissions reductions by 2030. The 2022 Climate Change Scoping Plan addresses the 2030 horizon but also addresses the objective of carbon neutrality by 2045 and has a range of GHG emissions reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. The following discussion demonstrates how the pertinent reduction actions relate to and reduce project-related GHG emissions.

Table 5 evaluates the Project's potential to conflict with applicable reduction actions/strategies by emissions source category outlined in the *2022 Climate Change Scoping Plan Update*.[64] When compared to SB 32, the Project would not conflict with its objectives and the GHG reduction-related

[64] An evaluation of stationary sources is not necessary as the stationary source emissions will be created by emergency generators that would only be used in an emergency.

actions and strategies of the 2022 Scoping Plan. Table 5 confirms that the Project would not conflict with the Scoping Plan's focus on increasing renewable energy use, putting more electric cars on the road, and improving energy efficiency. Although a number of these strategies are currently promulgated, some have not yet been formally proposed or adopted. It is expected that these measures or similar actions to reduce GHG emissions will be adopted as required to achieve statewide GHG emissions targets.

Independent studies confirm CARB's determination that the state's existing and proposed regulatory framework will put the state on a pathway to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 85 percent below 1990 levels by 2045 to meet carbon neutrality objectives if additional appropriate reduction measures are adopted. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2045, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the state to meet the 2045 target.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
Smart Growth / Vehicle Miles Traveled (VMT)	VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045	SB 375: Reduce demand for fossil transportation fuels and GHG	**No Conflict.** The Project represents an infill development within an urbanized area that would concentrate new residences within an HQTA and reduce per capita VMT and GHG emissions. As noted in the VMT Assessment prepared for the Project, the Project is located in a Low VMT area for residential projects, as designated by the City, which means that the Project generates VMT on a per capita basis that is at least 15% lower than the baseline regional average of 21.8 miles (SCAG RTP/SCS regional baseline). The Project would be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS. The Project Site is located in an HQTA, as the Project Site is located within one half-mile of Western Avenue, which is a high-quality transit corridor in SCAG's RTP/SCS.
Light-duty Vehicle (LDV) Zero Emission Vehicles (ZEVs)	100% of Light Duty Vehicle sales are ZEV by 2035	EO N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. In November 2022, the Advanced Clean Cars II regulations took effect, setting ZEV and plug-in hybrid vehicle sales requirements for model years 2026 to 2035 (ZEV program) and increasingly stringent emission standards (LEV program) to ensure automakers phase out sales of internal combustion engine vehicles.	**No Conflict.** Emissions from vehicle engines from the Project would be regulated by State regulations governing technology and cleaner emissions. In addition, at least 10 percent of the total onsite parking spaces would be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
Truck ZEVs	100% of medium-duty (MDV)/HDV sales are ZEV by 2040 (AB 74 University of California Institute of Transportation Studies [ITS] report)	EO N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. CARB's Advanced Clean Truck Regulation accelerates the transition of zero-emission medium- and heavy-duty vehicles from 2024 to 2035. CARB also adopted the Innovative Clean Transit measure in 2018 that requires all public transit agencies to transition to zero emission fleets.	**No Conflict.** While the Project would not generate substantial medium- and heavy-duty truck traffic, it would not impede the advancement of cleaner trucks over time.
Aviation	20% of aviation fuel demand is met by electricity (batteries) or hydrogen (fuel cells) in 2045. Sustainable aviation fuel meets most or the rest of the aviation fuel demand that has not already transitioned to hydrogen or batteries.	CARB focuses on reducing emissions from ground support equipment and airport transit vehicles. It is also working with national and international entities to tighten aircraft emission standards. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** This strategy focuses on industry availability of clean fuel alternatives over time. The Project would not impede the advancement of a cleaner aviation industry over time.
Ocean-going Vessels (OGVs)	2020 OGV At-Berth regulation fully implemented, with most OGVs utilizing shore power by 2027. 25% of OGVs utilize hydrogen fuel cell electric technology by 2045.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In 2015, Executive Order B-32-15 called. For a less polluting freight transport system that addressed OGVs, transport refrigeration units, and clean trucks.	**No Conflict.** While the Project would not directly impact trade or OGVs, it would not impede the advancement of a cleaner on- or off-shore sources over time.
Port Operations	100% of cargo handling equipment is zero-emission by 2037. 100% of drayage trucks are zero emission by 2035.	Executive Order N-79-20: Reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory. In 2015, Executive Order B-32-15 called. For a less polluting freight transport system that addressed OGVs, transport refrigeration units, and clean trucks.	**No Conflict.** While the Project would not directly impact trade or port operations, it would not impede the advancement of a cleaner on-shore sources over time.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
Freight and Passenger rail	100% of passenger and other locomotive sales are ZEV by 2030. 100% of line haul locomotive sales are ZEV by 2035. Line haul and passenger rail rely primarily on hydrogen fuel cell technology, and others primarily utilize electricity.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In 2015, Executive Order B-32-15 called. For a less polluting freight transport system that addressed OGVs, transport refrigeration units, and clean trucks.	**No Conflict.** While the Project would not directly impact freight or passenger rail, it would not impede the advancement of a cleaner locomotives over time. The Project's land uses would not include freight transportation or warehousing that would be subject to the California Sustainable Freight Action Plan. Therefore, the Project would not interfere or impede the implementation of the Sustainable Freight Action Plan.
Oil and Gas Extraction	Reduce oil and gas extraction operations in line with petroleum demand by 2045.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** While the Project would not directly impact oil extraction, it would help reduce demand for petroleum products from energy, area, and mobile sources.
Petroleum Refining	CCS on majority of operations by 2030, beginning in 2028 Production reduced in line with petroleum demand.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** While the Project would not directly impact oil extraction, it would help reduce demand for petroleum products that require refining.
Electricity Generation	Sector GHG target of 38 $MMTCO_2e$ in 2030 and 30 $MMTCO_2e$ in 2035. Retail sales load coverage 20 gigawatts (GW) of offshore wind by 2045. Meet increased demand for electrification without new fossil gas-fired resources.	SB 350 and SB 100: Reduce GHGs and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact the sources of electricity generation.
New Residential and Commercial Buildings	All electric appliances beginning 2026 (residential) and 2029	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**Not Materially Conflicting.** The Project would incorporate appliances

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
	(commercial), contributing to 6 million heat pumps installed statewide by 2030.		that are consistent with Title 24 and Green Building requirements and consistent with the reduction of residential energy use. However, the Project would include a mix of electric and natural gas appliances.
Existing Residential Buildings	80% of appliance sales are electric by 2030 and 100% of appliance sales are electric by 2035. Appliances are replaced at end of life such that by 2030 there are 3 million all-electric and electric-ready homes—and by 2035, 7 million homes—as well as contributing to 6 million heat pumps installed statewide by 2030.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would comply with Title 24 and Green Building requirements during construction and any future retrofit or appliance replacement requirements.
Existing Commercial Buildings	80% of appliance sales are electric by 2030, and 100% of appliance sales are electric by 2045. Appliances are replaced at end of life, contributing to 6 million heat pumps installed statewide by 2030.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** While the Project is not an existing commercial development, it would not interfere with any future requirements to retrofit commercial appliances.
Food Products	7.5% of energy demand electrified directly and/or indirectly by 2030; 75% by 2045	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact sources of energy for food production.
Construction Equipment	25% of energy demand electrified by 2030 and 75% electrified by 2045	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact sources of energy for construction equipment.
Chemicals and Allied Products; Pulp and Paper	Electrify 0% of boilers by 2030 and 100% of boilers by 2045. Hydrogen for 25% of process heat by 2035 and 100% by 2045	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact the sources of energy for boilers.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
	Electrify 100% of other energy demand by 2045.		
Stone, Clay, Glass, and Cement	CCS on 40% of operations by 2035 and on all facilities by 2045 Process emissions reduced through alternative materials and CCS	SB 596: Reduce demand for fossil energy, process emissions, and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact the sources of energy for stone, clay, glass, and cement facilities.
Other Industrial Manufacturing	0% energy demand electrified by 2030 and 50% by 2045	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not directly impact the sources of energy for industrial facilities.
Combined Heat and Power	Facilities retire by 2040.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not affect facilities that produced heat and power.
Agriculture Energy Use	25% energy demand electrified by 2030 and 75% by 2045	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory	**No Conflict.** The Project would not affect directly agricultural sources of energy.
Low Carbon Fuels for Transportation	Biomass supply is used to produce conventional and advanced biofuels, as well as hydrogen.	AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In November 2022, the Advanced Clean Cars II regulations took effect, setting low emission standards for transportation.	**No Conflict.** This regulatory program applies to fuel suppliers, not directly to land use development. GHG emissions related to vehicular travel associated with the Project would benefit from this regulation because fuel used by Project-related vehicles would be required to comply with the LCFS. Mobile source GHG emissions estimates were calculated using CalEEMod that includes implementation of the LCFS into mobile source emission factors. The current LCFS targets a 20% reduction in CI from a 2010 baseline by 2030. GHG emissions generated by Project-related vehicular travel would benefit

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
			from the Advanced Clean Cars Program.
Low Carbon Fuels for Buildings and Industry	In 2030s biomethane blended in pipeline Renewable hydrogen blended in fossil gas pipeline at 7% energy (~20% by volume), ramping up between 2030 and 2040 In 2030s, dedicated hydrogen pipelines constructed to serve certain industrial clusters	SB 350: The Clean Energy and Pollution Reduction Act of 2015 increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by 2030. Required measures include increasing RPS to 50 percent of retail sales by 2030, establishing annual targets for statewide energy efficiency that achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030. SB 100: The California Renewables Portfolio Standard Program (2018) requires retail sellers to procure renewable energy that is at least 50 percent by December 31, 2026 and 60 percent by December 31, 2030. It requires local publicly owned electric utilities to procure a minimum quantity of electricity from renewable energy resources of 44 percent of retail sales by December 31, 2024 and 60 percent by December 31, 2030.	**No Conflict.** The Project would comply with this this action/strategy being located within the Southern California Edison (SCE) and Southern California Gas (SCG) service areas and would comply with CalGreen and Title 24 energy efficiency standards. SCE must generate electricity that would increase renewable energy resources to 33 percent by 2020 and 50 percent by 2030. As SCE would provide electricity service to the Project Site, by 2030 the Project would use electricity consistent with the requirements of SB 350. With regard to gas service, SCG has committed to achieving net zero GHG emissions in its operations and delivery of gas by 2045. This would be accomplished with clean fuels and hydrogen technology, renewable natural gas, and hydrogen blends. As required under SB 350, doubling of the energy efficiency savings from retail customers by 2030 would primarily rely on the existing suite of building energy efficiency standards under CCR Title 24, Part 6 (consistency with this regulation is discussed below) and utility-sponsored programs such as rebates for high-efficiency appliances, HVAC systems, and insulation.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
Non-combustion Methane Emissions	Increase landfill and dairy digester methane capture. Some alternative manure management deployed for smaller dairies Moderate adoption of enteric strategies by 2030 Divert 75% of organic waste from landfills by 2025. Oil and gas fugitive methane emissions reduced 50% by 2030 and further reductions as infrastructure components retire in line with reduced fossil gas demand	SB 1383 (2016) requires CARB to set 2030 emission reduction targets of 40 percent for methane and hydrofluorocarbons and 50 percent black carbon emissions below 2013 levels. The Project would comply with the CARB SLCP Reduction Strategy by using HVAC equipment with lower GWP refrigerants.	**No Conflict.** This program applies to State regulators looking to reduce methane emissions from landfill and dairy facilities and is not directly related to development of the Project. However, the Project would not interfere or impede efforts to reduce such pollutants.
High GWP Potential Emissions	Low GWP refrigerants introduced as building electrification increases, mitigating HFC emissions	SB 605 (2014) directed CARB to develop a comprehensive Short-Lived Climate Pollutant (SLCP) strategy.	**No Conflict.** This program applies to State regulators looking to reduce high GWP refrigerants and is not directly related to development of the Project. However, the Project would not interfere or impede efforts to reduce such pollutants.
Natural and Working Lands	Conserve 30% of the state's NWL and coastal waters by 2030. Implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities—and in particular low-income, disadvantaged, and vulnerable communities.	EO N-82-20 and SB 27: CARB to include an NWL target in the Scoping Plan. AB 1757: Establish targets for carbon sequestration and nature-based climate solutions. SB 1386: NWL are an important strategy in meeting GHG reduction goals.	**No Conflict.** This program applies to State regulators governing Natural and Working Lands and is not directly related to development of the Project. However, the Project would not interfere or impede implementation of the Integrated Natural and Working Lands Implementation Plan, EO N-82-20, SB 27, or SB 1386.

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
Forests and Shrublands	At least 2.3 million acres treated statewide annually in forests, shrublands/chaparral, and grasslands, comprised of regionally specific management strategies that include prescribed fire, thinning, harvesting, and other management actions. No land conversion of forests, shrublands/chaparral, or grasslands.	Restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, and pests. Improve air quality and reduce health costs related to wildfire emissions. Improve water quantity and quality and improve rural economies. Provide forest biomass for resource utilization. EO B-52-18: CARB to increase the opportunity for using prescribed fire. AB 1504 (Skinner, Chapter 534, Statutes of 2010): CARB to recognize the role forests play in carbon sequestration and climate mitigation.	**No Conflict.** This program applies to State regulators governing forest and shrubland management and is not directly related to development of the Project. However, the Project would not interfere or impede implementation of EO B-52-18, AB 1504, or the Forest Carbon Plan.
Grasslands	At least 2.3 million acres treated includes increased management of grasslands interspersed in forests to reduce fuels surrounding communities using management strategies appropriate for grasslands. No land conversion of forests, shrublands/chaparral, or grasslands.		**No Conflict.** This program applies to State regulators of grasslands and is not directly related to development of the Project. However, the Project would not interfere or impede efforts to reduce fuels in grasslands surrounding communities.
Croplands	Implement climate smart practices for annual and perennial crops on ~80,000 acres annually. Land easements/ conservation on annual crops at ~5,500 acres annually. Increase organic agriculture to 20% of all cultivated acres by 2045 (~65,000 acres annually).	SB 859: Recognizes the ability of healthy soils practices to reduce GHG emissions from agricultural lands.	**No Conflict.** This program applies to State regulators overseeing croplands and is not directly related to development of the Project. However, the Project would not interfere or impede SB 859 and efforts to increase organic agriculture and conserve croplands.
Developed Lands	Increase urban forestry investment by 200% above	AB 2251 (Calderon, Chapter 186, Statutes of 2022): Increase urban tree canopy 10% by 2035.	**No Conflict.** This program applies to State regulators addressing urban

Table 5
2022 Scoping Plan Update Analysis

Sector	Actions and Strategies	Statutes, Executive Orders, Other Direction	Analysis
	current levels and utilize tree watering that is 30% less sensitive to drought. Establish defensible space that accounts for property boundaries.		forestry and is not directly related to development of the Project. However, the Project would not interfere or impede implementation of AB 2251 and efforts to increase the urban canopy.
Wetlands	Restore 60,000 acres of Delta wetlands		**No Conflict.** This program applies to State regulators restoring Delta wetlands and is not directly related to development of the Project. However, the Project would not interfere or impede efforts to restore wetland ecologies.
Sparsely Vegetated Lands	Land conversion at 50% of the Reference Scenario land conversion rate.		**No Conflict.** This program applies to State regulators slowing the conversion of sparsely vegetated lanes and is not directly related to development of the Project. However, the Project would not interfere or impede efforts to slow urban conversion of such lands.
Cap-and-Trade Program	Implement the post-2020 Cap-and-Trade Program with declining annual caps.	AB 398 was enacted in 2017 to extend and clarify the role of the state's Cap-and-Trade Program from January 1, 2021, through December 31, 2030. As part of AB 398, refinements were made to the Cap-and-Trade program to establish updated protocols and allocation of proceeds to reduce GHG emissions.	**Not Applicable.** This applies to the market-based program to reduce GHG emissions over time and is not applicable to a development project.
Source: DKA Planning, 2023, based on California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality, Scoping Plan Scenario.			

Based on the analysis in Table 5, the Project would not conflict with the State's 2022 Climate Change Scoping Plan's objective of achieving carbon neutrality statewide by 2045 and reducing 2030 GHG emissions in accord with SB 32.

As discussed earlier, the Project represents an infill development within an urbanized area that would concentrate new residences within an HQTA and reduce per capita VMT and GHG emissions. As noted in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). The Project would be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS. The Project Site is located in an HQTA as it is within one half-mile of Western Avenue, which is a high-quality transit corridor in SCAG's RTP/SCS. In addition, the Project Site is currently zoned R-6, Very High Density Multi-Family Residential. As the Project is consistent with the City's adopted zoning, and is not expected to result in substantial changes to the existing transportation network/infrastructure, it is assumed to be consistent with the land use and transportation network assumptions incorporated into SCAG's RTP/SCS.

The Project would also benefit from statewide and utility-provider efforts towards increasing the portion of electricity provided from renewable resources. SCE has committed to increasing renewable sources that exceed the Renewables Portfolio Standard requirements. The Project would include energy efficient mechanical systems, energy efficient glazing and window frames, Energy-Star appliances to be installed on-site, and the use of high-efficiency lighting. The Project would also benefit from statewide efforts to improve fuel economy of vehicles. The Project would also help reduce VMT given its development of residential uses on an infill site that is accessible to existing public transit.

Table 6, below, lists project attributes that are intended by CARB as a guide to help local jurisdictions qualitatively identify those residential and mixed-use projects that are clearly consistent with the State's climate goals, since these attributes address the largest sources of operational emissions for residential projects. However, according to CARB, lead agencies may determine that projects that incorporate some, but not all, of these key project attributes are also consistent with the State's climate goals.[65] As summarized in Table 6, the Project would not conflict with the majority of the list of project attributes identified by CARB, In addition, the Project's infill location in a HQTA with co-location of nearby work and shopping destinations provide the Project with attribute for reducing GHG emissions that are consistent with many of the 2022 Scoping Plan's suggested attributes for housing and mixed-use projects that are evaluated under CEQA.

[65] California Air Resources Board, 2022 Scoping Plan, Appendix D: Local Actions, pages 23-24.

Table 6
Analysis—2022 Scoping Plan Update (Key Residential and Mixed-Use Project Attributes That Reduce GHGs)

Priority Area	Key Project Attribute	Analysis
Transportation Electrification	Provides EV charging infrastructure that, at minimum, meets the most ambitious voluntary standard in the California Green Building Standards Code at the time of project approval.	**Conflict.** Although the Project does not meet the most ambitious California Green Building Standards Code voluntary standard, the Project would comply with the CALGreen Code for electric vehicle (EV) charging design. Compliance would provide 10 percent of parking stalls to be EV capable, 25 percent of parking stalls to be EV ready with Level 2 EV charging receptacles, and 5 percent of parking stalls to be equipped with Level 2 EV chargers. The final design may vary from this in compliance with the CALGreen Code. Therefore, this conflict is considered a less than significant impact given the Project complies with the CALGreen Code for EV design.
VMT Reduction	Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).	**No Conflict.** The Project is located on an urban infill site along a major regional arterial that is served by three public transit bus lines (Torrance Transit Line 13, Metro Line 344, and GTrans Line 2), as well as water and sewer service. The Project's proximity to work and shopping destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations.
	Does not result in the loss or conversion of natural and working lands	**No Conflict.** The Project is located on an urban infill site that is currently unused. There are no natural or working lands on the Project Site.
	Consists of transit-supportive densities (minimum of 20 residential dwelling units per acre), or Is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's SCS.	**No Conflict.** The Project would be fully consistent with this attribute, as it would provide a density of approximately 88 residences per acre and would be located on an urban infill site along a major regional arterial that is served by three public transit bus lines (Torrance Transit Line 13, Metro Line 344, and GTrans Line 2),

Table 6
Analysis—2022 Scoping Plan Update (Key Residential and Mixed-Use Project Attributes That Reduce GHGs)

Priority Area	Key Project Attribute	Analysis
	Reduces parking requirements by: Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or Providing residential parking supply at a ratio of less than one parking space per dwelling unit; or for multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.	**No Conflict.** Parking will be unbundled, which reduces parking requirements.
	At least 20 percent of units included are affordable to lower-income residents	**Conflict.** While the Project would not include 20 percent of units as affordable housing, the Project would include seven percent (17 DU) of units as affordable. This conflict is considered a less than significant impact given the Project complies with the City's development standards and supports the goal of providing affordable housing.
	Results in no net loss of existing affordable units	**No Conflict.** The Project would not remove any affordable housing units; rather, it would increase the housing stock of market-rate and affordable housing units.
Building Decarbonization	Uses all-electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking.	**Conflict.** Although the Project would not use all-electric appliances, the Project would meet the 2022 Energy Code and CALGreen Code and would not impede statewide decarbonization goals. As discussed above, the Project is not required to include all key project attributes identified in this table to be considered consistent with the State's climate goals. Therefore, this conflict would result in a less than significant impact.
Source: Priority Areas and Key Project Attributes from California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality, Appendix D (Local Actions) Table 3; November 2022.		

Regional

2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

The 2020-2045 RTP/SCS is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. The SCS will integrate land use and transportation strategies that will achieve GHG emissions reduction targets that are forecasted to achieve reduction in GHG emissions to achieve the state's 2035 and 2040 GHG reduction goals.

The 2020-2045 RTP/SCS projects an increase of 1.6 million households in the region and approximately 455,000 households in Los Angeles County from 2023 to 2045.[66] For Gardena, the 2020-2045 RTP/SCS projects an increase of 1,077 households between 2023 and 2045. The Project proposes 300 dwelling units (DU), which is approximately 0.02 percent of the region's projected household growth, approximately 0.07 percent of Los Angeles County's projected household growth, and approximately 28 percent of Gardena's projected household growth. Therefore, the Project would not conflict with SCAG's 2020 RTP/SCS and the SCAQMD 2020 AQMP.

The SCAG RTP also identifies ten goals related to housing, transportation technologies, equity, and resiliency in order to adequately reflect the increasing importance of these topics in the region. Table 7, 2020-2045 RTP/SCS Goals Analysis, evaluates the Project's potential to conflict with these goals. As indicated in Table 7, the Project would not conflict with the RTP/SCS Goals adopted for the purpose of reducing GHG emissions. As such, Project impacts concerning consistency with the RTP/SCS Goals would be less than significant, and no mitigation is required.

Table 7
2020-2045 RTP/SCS Goals Analysis

Goal		Project Analysis
Goal 1	Encourage regional economic prosperity and global competitiveness.	**Not Applicable**. This Goal is directed towards SCAG and the City and does not apply to the Project.
Goal 2	Improve mobility, accessibility, reliability, and travel safety for people and goods.	**No Conflict.** As a Land Use Tool, the 2020-2045 RTP/SCS identifies Priority Growth Areas (PGAs) throughout the SCAG region where 2020-2045 RTP/SCS strategies can be fully realized. These PGAs include Job Centers, Transit Priority Areas (TPAs), High-Quality Transit Areas (HQTAs), Neighborhood Mobility Areas (NMAs), Livable Corridors, and Spheres of Influence. The Project site is located near a Job Center and within an HQTA. The Project would develop a six-story podium apartment building consisting of 300 dwelling units (DU). The 300 DU would be comprised of 54 studio, 168 one-bedroom, and 78 two-bedroom DU, with 17

[66] Southern California Association of Governments. (2020). *Current Context – Demographics and Growth Forecast, Table 14: Jurisdiction-Level Growth Forecast - Continued*. Accessed January 2024.

Goal		Project Analysis
		of the units to be affordable. Given that the Project would develop residential uses on an infill site within walking distance of multiple transit opportunities and existing residential, commercial, and industrial uses, the Project would leverage the existing density and infrastructure to support mobility and accessibility for residents and visitors to the Project site. The Project will be served by a network of regional and local bus transit options. Specifically, the Project site is served by LA Metro, GTrans, and Torrance Transit. GTrans Line 2 serves the Project site via two bus stops on both the north and south either side of South Western Avenue at the West Artesia Boulevard and South Western Avenue intersection (i.e., approximately 1,056 feet and 1,005 feet west of the Project site, respectively). The LA Metro Line 344 serves the Project site via bus stops on the intersections of (i) West Artesia Boulevard and South Western Avenue (approximately 1,068 feet west of the Project site) and (ii) West Artesia Boulevard and South Normandie Avenue (approximately 1,682 feet to the east of the Project site). Torrance Transit Line 13 serves the Project site via two bus stops on East and West Artesia Boulevard almost immediately north of the Project site. Pedestrian access to the Project site is provided via sidewalks along Artesia Boulevard, South Normandie Avenue, and South Western Avenue. The Harbor Gateway Transit Center, which is a Los Angeles County Metro Rail, is located at 731 West 182nd Street, approximately 0.9 miles southeast of the Project site. As the Project would develop new infill housing, including affordable residential units, within walking distance of existing transit stops and services, the Project would provide opportunities for residents to use public transit for work and personal trips. The Project also includes design elements that would create bicycle and pedestrian-oriented amenities including 75 bicycle parking stalls. Pedestrian access to the Project would be provided on the ground floor off of West Artesia Boulevard. Thus, the Project would encourage the utilization of transit, bicycling, and walking as modes of transportation to and from the Project site and contribute to the productivity and use of the regional transportation system by providing housing near transit. This supports the goal of increased mobility, accessibility, and reliability. The Project would support travel safety near the Project site by providing new lighting within the Project site and around the perimeter, including new building identification lighting, accent lighting, wayfinding, balcony lighting, and security lighting. The Project would incorporate pedestrian lighting

Goal		Project Analysis
		along Artesia Boulevard. Additionally, pedestrian areas, including pathways and entryways into the Project, would be well-lit for security. The Project would be subject to a Site Plan Review to ensure vehicle and pedestrian safety throughout the project. Therefore, the Project would not conflict with this goal.
Goal 3	Enhance the preservation, security, and resilience of the regional transportation system.	**No Conflict.** The Project would support this goal by providing residents and visitors with convenient access to public transit and opportunities for walking and biking. The Project includes pedestrian improvements that would improve travel safety and reliability at the Project site. Vehicular access to the Project would be provided via one driveway on West Artesia Boulevard. Additionally, residents and guests would have pedestrian access to the site via two entryways on West Artesia Boulevard. In addition, the Project would include on-site security features such as security lighting and landscaping designs that will allow for high visibility. As described above under Goal 2, the Project site is located in proximity to public transit opportunities, which provide safe and reliable travel options for Project residents and guests. The Project would also provide 75 bicycle parking stalls on the ground floor. Thus, the Project would promote travel safety and reliability for the people in the region who travel to and from the Project site and through the surrounding area. Therefore, the Project would not conflict with this goal.
Goal 4	Increase person and goods movement and travel choices within the transportation system.	**No Conflict**. The Project is an infill development in an area that promotes the use of a variety of transportation options, which include walking, biking, and the use of public transportation. The Project consists of 300 DU and associated open space and amenities. Future Project residents and visitors could access the site using GTrans Line 2, LA Metro Line 344, and Torrance Transit Line 13. Given the Project's proximity to transit and street improvements along West Artesia Boulevard, the Project would promote the use of a variety of transportation options by providing residents and visitors with convenient access to public transit and opportunities including regional transportation and bus systems. The Project would contribute to the productivity and use of the regional transportation system by providing housing near transit. Therefore, the Project would not conflict with this goal.
Goal 5	Reduce greenhouse gas emissions and improve air quality.	**No Conflict.** The Project proposes to redevelop an approximately 3.43-acre property into a multi-family residential development with 300 apartment units (283 market rate units and 17 affordable units) in a

Goal		Project Analysis
		six-story, podium apartment building. The Project is in an area that promotes the use of a variety of transportation options, which include walking, biking, and the use of public transportation. The Project would comply with all regulations and policies aimed at reducing energy and greenhouse gas emissions, reducing the reliance on fossil fuels, and promoting energy-efficient standards and transportation. Additionally, energy-saving and sustainable design features would be incorporated into the Project as the proposed building would be subject to compliance with California Code of Regulations Title 24. Design features would include energy conservation, water conservation, and pedestrian- and bicycle-friendly site design. As it relates to energy conservation, the Project would include ENERGY STAR-rated appliances and install energy-efficient HVAC systems. All glass used in the building design would have minimal reflectivity to reduce glare to surrounding neighbors. As it relates to water conservation, the Project would incorporate efficient water management and sustainable landscaping. Bicycle parking spaces would be provided on the Project site pursuant to GMC Section 18.18A.040(I)(4) (Development Standards) requirements. In addition, at least 10 percent of the total onsite parking spaces would be electric vehicle charging spaces (EV spaces) capable of supporting future Level 2 EVSE. Therefore, the Project would not conflict with this goal.
Goal 6	Support healthy and equitable communities	**No Conflict**. The Project would support the use of multi-modal transportation options. The Project is a new infill residential development that would provide new housing, including affordable housing, within an HQTA. The Project is located near a variety of transit options that will facilitate the use of alternative modes of transportation which will aid in reducing car trips and reducing impacts to air quality. The Project would also provide 75 bicycle parking stalls (i.e., 1,163 SF) as required by GMC Section 18.18A.040(I)(4). Therefore, the Project would not conflict with this goal.
Goal 7	Adapt to a changing climate and support an integrated regional development pattern and transportation network.	**Not Applicable**. This is not a project-specific goal and is therefore not applicable.
Goal 8	Leverage new transportation technologies and data-driven solutions that result in more efficient travel.	**No Conflict**. The Project would meet the requirements for the City's Green Building Code and the California Green Building Code by including at least 35 percent of the Project's vehicle parking spaces to be capable of accommodating electric vehicle charging stations. The Project would be built

Goal		Project Analysis
		to the current building codes that require sustainability measures such as efficient energy systems. Therefore, the Project would not conflict with this goal.
Goal 9	Encourage development of diverse housing types in areas that are supported by multiple transportation options.	**No Conflict.** The Project site is located in SCAG's HQTA and near a Job Center near existing public transit opportunities provided via GTrans, LA Metro, and Torrance Transit. The Project would encourage the use of transit, walking, and bicycling, as the Project would locate market rate and affordable residential development in an area within walking and biking distance of GTrans Line 2, LA Metro Line 344, and Torrance Transit Line 13, and provides 1,163 square feet of bicycle parking. Pedestrian access to the Project site would be provided on the ground floor off of Artesia Boulevard. The Project would maintain dedications and improvements along Artesia Boulevard to upgrade and maintain the sidewalk in conformance with current standards, thereby enhancing pedestrian mobility. As a result, the Project would encourage land use and growth patterns that facilitate transit and active transportation by creating diverse housing opportunities and creating walkable areas; providing a variety of transportation choices; and providing opportunities for residents to use public transit for work trips and walk/bike to retail businesses near the Project site. Therefore, the Project would not conflict with this goal.
Goal 10	Promote conservation of natural and agricultural lands and restoration of habitats.	**Not Applicable.** This Goal is not applicable to the Project since the Project site does not contain any natural or agricultural lands.
Source: Southern California Association of Governments. (2020). *Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy.*		

The SCAG RTP also outlines seven guiding principles which take the goals outlined above in Table 7 and focuses them, creating a specific direction for plan investments. Table 8, 2020-2045 RTP/SCS Guiding Principles Analysis, evaluates the Project's consistency with these guiding principles. As indicated in Table 8, the Project would not conflict with the RTP/SCS Guiding Principles adopted for the purpose of reducing GHG emissions. As such, Project impacts concerning consistency with the RTP/SCS Guiding Principles would be less than significant, and no mitigation is required.

Table 8
2020-2045 RTP/SCS Guiding Principles Analysis

Guiding Principle		Project Analysis
Guiding Principle 1	Base transportation investments on adopted regional performance indicators and MAP-21/FAST Act regional targets.	**Not Applicable**. This Guiding Principle is directed towards SCAG and the City and does not apply to the Project.
Guiding Principle 2	Place high priority for transportation funding in the region on projects and programs that improve mobility, accessibility, reliability and safety, and that preserve the existing transportation system.	**Not Applicable.** This Guiding Principle is directed towards SCAG and the City and does not apply to the Project.
Guiding Principle 3	Assure that land use and growth strategies recognize local input, promote sustainable transportation options, and support equitable and adaptable communities.	**No Conflict.** The Project site's urban infill location near mass transit and proximity to services, commercial uses, and employment opportunities promotes a pedestrian-friendly environment and supports equitable and adaptable communities. The Project site's location also promotes the use of a variety of transportation options, which include walking and the use of public transportation. Therefore, the Project would not conflict with this Guiding Principle.
Guiding Principle 4	Encourage RTP/SCS investments and strategies that collectively result in reduced non-recurrent congestion and demand for single occupancy vehicle use, by leveraging new transportation technologies and expanding travel choices.	**No Conflict.** This Guiding Principle relates to SCAG's goals in supporting investments and strategies to reduce congestion and the use of single-occupant vehicles. Nevertheless, the Project is located within a HQTA. The Project would support public transportation and other alternative methods of transportation (e.g., transit, walking, and biking). Therefore, the Project would not conflict with this Guiding Principle.
Guiding Principle 5	Encourage transportation investments that will result in improved air quality and public health, and reduced greenhouse gas emissions	**No Conflict**. This Guiding Principle is directed towards SCAG and the City and does not apply to the Project. However, this relates to the Connect SoCal Goal 5, above. The Project is an infill development with market rate and affordable housing in an area that promotes the use of a variety of transportation options, which includes walking, biking, and the use of public transportation. Therefore, the Project would not conflict with this Guiding Principle.
Guiding Principle 6	Monitor progress on all aspects of the Plan, including the timely implementation of projects, programs, and strategies.	**Not Applicable.** This principle is directed towards SCAG and not does apply to individual projects such as the Project.
Guiding Principle 7	Regionally, transportation investments should reflect best-known science regarding climate change vulnerability,	**Not Applicable.** This principle is directed towards SCAG and not does apply to individual projects such as the Project**.**

Guiding Principle		Project Analysis
	in order to design for long term resilience.	
Source: Southern California Association of Governments. (2020). *Connect SoCal (2020 - 2045 Regional Transportation Plan/Sustainable Communities Strategy*.		

Table 9 provides a comparison of the Project against the GHG-related objectives of the 2020-2045 RTP/SCS.[67]

Table 9
2020-2045 RTP/SCS Objectives Analysis

Objectives	Analysis[a]
Increase percentage of region's total household growth occurring within HQTAs.	**No Conflict.** The Project Site is located in an HQTA, as it is located within one half-mile of Western Avenue, which is a high-quality transit corridor in SCAG's RTP/SCS. The Project would result in an increase of 300 households in an HQTA, including 17 affordable residences. The Project represents an infill development within an urbanized area that would concentrate new residences within an HQTA and reduce per capita VMT and GHG emissions. As noted in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). The Project would be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS.
Increase percent of the region's total employment growth occurring within HQTAs.	**Conflict.** The Project is an infill development that would include limited on-site employees necessary for management and maintenance of the residential development. However, the Project would also result in the removal of approximately 73 jobs from the Project Site based on the removal of the existing auto repair facility. Therefore, the Project would conflict with this objective. In addition, the Project would provide additional living opportunities in an existing employment center, which indirectly aids this policy.
Decrease total acreage of greenfield or otherwise rural land uses converted to urban use.	**No Conflict.** The Project is an infill development that would reduce the demand for sprawl development in greenfield or rural areas on the fringes of Southern California.
Decrease daily vehicle miles driven per person.	**No Conflict.** The Project is an infill development amid heavy transit infrastructure that would reduce daily VMT per capita. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional

[67] Southern California Association of Governments, 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Table 5.1 (page 123).

Objectives	Analysis[a]
	baseline). The Project would also be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS. Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations. Finally, the Project is served by three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2), and the Project would also include bicycle parking, which would encourage bicycling as a form of transportation, further reducing VMT.
Decrease average daily distance traveled for work and non-work trips (in miles)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs amid three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) that would reduce per capita travel distances. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations.
Increase percentage of work and non-work trips which are less than 3 miles in length.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. The proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations.
Increase share of short trip lengths for commute purposes.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would also shorten commute trips.

Objectives	Analysis[a]
Decrease average minutes of delay experienced per capita due to traffic congestion.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. The Project's proximity to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations. This would help decrease delay per capita as traffic congestion is eased with the Project's lower trip volumes and trip lengths. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would reduce the rate of growth in auto traffic and congestion by virtue of its transit and active transportation mode share given its location along this major corridor.
Decrease excess travel time resulting from the difference between a reference speed and actual speed.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs amid three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) that would reduce the rate of growth in auto traffic and congestion by virtue of its transit and active transportation mode share given its location. As such, the Project would help reduce recurrent traffic congestion delay for general vehicles.
Decrease excess travel time for heavy-duty trucks result from the difference between reference speed and actual speed.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs amid three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) that would reduce the rate of growth in auto traffic and congestion by virtue of its transit and active transportation mode share. As such, the Project would help reduce recurrent traffic congestion delay for heavy-duty trucks.
Increase percentage of PM peak period trips completed within 45 minutes by travel mode.	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). The Project would be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS. Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would reduce the rate of growth in auto traffic and congestion by virtue of its transit accessibility. Because the Project's location will attract travel to and from the corridor and local community, the share of PM peak period trips that are less than 45 minutes would increase when compared to an urban sprawl location.

Objectives	Analysis[a]
Increase percentage of trips that use transit (work and all trips)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs amid three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) that would help increase transit mode share when compared to a project that is not located near transit.
Decrease average travel time to work (all modes)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles (SCAG RTP/SCS regional baseline). Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would reduce the rate of growth in auto traffic and congestion by virtue of its transit and active transportation mode share given its location along the corridor. As such, average travel time to work should be reduced when compared to an urban sprawl location.
Increase percentage of trips using either walking or biking (by trip type)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. The Project's proximity to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk and bike to work and shopping destinations. In addition, the Project's proximity to the Harbor Gateway Transit Center, which is less than a mile from the Project Site, would allow Project residents to walk or bike to the Transit Center and then take transit to further destinations. Finally, the Project would include bicycle parking, which would encourage bicycling as a mode of transportation.
Reduce per capita GHG emissions (from 2005 levels)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles. The Project would also be consistent with SB 375 and its VMT reduction goals, as well as the GHG and transportation goals of the 2020-2045 RTP/SCS. Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, take transit, or drive shorter distances to work and shopping destinations, which would reduce GHG emissions. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would reduce the rate

Objectives	Analysis[a]
	of growth in auto traffic and congestion by virtue of its transit accessibility. As such, it is consistent with AB 32, SB 32, SB 375, and other initiatives designed to reduce per capita GHG emissions from 2005 levels.
Increase percentage of trips using a travel mode other than single occupancy vehicle (SOV)	**No Conflict.** The Project is an infill development in a dense urban corridor with housing and jobs. As discussed in the Project's VMT Assessment, the Project's home-based VMT per capita is more than 15 percent below the regional average of 21.8 miles. Moreover, the proximity of the residential project to home-based destinations along Artesia Boulevard, Western Avenue, and other major arterials provide opportunities for residents to walk, bike, or take transit to work and shopping destinations thereby increasing the percentage of trips using a mode other than a single-occupancy vehicle. The Project's proximity to three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2) would further reduce the rate of growth in SOV use and congestion by virtue of its transit accessibility within walking distance of the Project Site.

Local

Gardena Climate Action Plan

As noted earlier on pages 23-24, the 2017 CAP includes five categories of strategies and 22 goals, as well as a number of sub-strategies that are applicable to development projects. It should be noted that most of the CAP's measures are voluntary, with financial incentives available to promote increased implementation of those measures. As shown in Table 10, the Project wouldgenerally not conflict with the land use, transportation, and energy efficiency sub-strategies in the CAP that are relevant for development projects.

Table 10
Gardena CAP Analysis

Source	Sub-Strategy	Analysis
Land Use and Transportation	D2.1 Require bicycle parking through Zoning Code or other implementation documents.	**No Conflict.** The Project would provide on-site bicycle parking consistent with the Zoning code.
	D2.2 Require new developments to provide pedestrian, bicycle, and transit amenities.	**No Conflict.** The Project will provide short- and long-term bicycle parking for residents and visitors.
	D2.3 Require commercial and multi-family residential projects to provide permanent bicycle parking facilities.	**No Conflict.** The Project will provide permanent short- and long-term bicycle parking for residents and visitors.

Table 10
Gardena CAP Analysis

Source	Sub-Strategy	Analysis
	G1.1. Encourage higher density through general plan appropriately in targeted areas.	**No Conflict.** The Project takes advantage of higher density options (additional 25 percent density bonus) by providing affordable housing on-site.
	G1.2. Encourage higher density through zoning code appropriately in targeted areas.	**No Conflict.** The Project is located in the Very High Density Residential zone (R-6) and is designated at Very High Density Residential in the General Plan.
	G1.3 Increase housing density near transit.	**No Confict.** The Project provides increased housing density near three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2).
	G3.1. Encourage Transit Accessibility through General Plan.	**No Conflict.** The Project is located in the Very High Density Residential area of the General Plan and provides increased housing density near three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2).
	G3.1. Encourage Transit Accessibility through zoning code.	**No Conflict.** The Project is located in the Very High Density Residential zone (R-6) and provides increased housing density near three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2).
	G4.1. Encourage policies that promote a mix of housing types.	**No Conflict.** The Project will provide 17 affordable residences in the development that will increase the mix of housing types in the City.
Energy Efficiency	E1.2. Require low-irrigation landscaping.	**No Conflict.** The Project will comply with Title 24 and CALGreen requirements for low-irrigation landscaping
	F1.1. Encourage tree planting at plan check.	**No Conflict.** The Project's tree planting plan will be evaluated at the plan check phase.
Source: City of Gardena, Climate Action Plan (Final), 2017.		

Gardena General Plan

As noted earlier on page 25, the City has two Elements of the General Plan that discuss climate change policy. While the Community Safety Element and its Public Safety Plan do not include policies germane to development projects, the Environmental Justice Element calls for promoting infill development, reduced reliance on single-occupancy vehicle trips, and improved multi-modal transportation networks, with the goal of reducing greenhouse gas emissions. The Project would be located in a high-density housing zone and would be served by three local bus lines (Torrance Transit Line 13, Metro Line 344, GTrans Line 2). As such, the Project would be consistent with the General Plan's relevant policies for development projects.

Conclusion

In summary, the plan consistency analysis provided above demonstrates that the Project complies with the applicable plans, policies, regulations and GHG emissions reduction actions/strategies outlined in the *Climate Change Scoping Plan and Update*, the 2020-2045 RTP/SCS, and the City's CAP. Consistency with the above plans, policies, regulations, and GHG emissions reduction actions/strategies would reduce the Project's incremental contribution of GHG emissions. Thus, the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing emissions of GHG emissions. Furthermore, because the Project is consistent and does not conflict with these plans, policies, and regulations, the Project's incremental increase in GHG emissions as described above would not result in a significant impact on the environment. Therefore, Project-specific impacts regarding climate change would be less than significant.

Project Emissions

In support of the consistency analysis above that describes the Project's compliance with, or exceedance of performance-based standards included in the regulations and policies outlined in the applicable portions of the *Climate Change Scoping Plan*, the 2020-2045 RTP/SCS, and the City's CAP, quantitative calculations are provided below, for informational purposes only.

The Project would generate direct and indirect GHG emissions because of different types of emissions sources, including the following:

- Construction: emissions associated with demolition of the existing uses and parking areas, shoring, excavation, grading, and construction-related equipment and vehicular activity;
- Area source: emissions associated with landscape equipment;
- Energy source (building operations): emissions associated with electricity and natural gas use for space heating and cooling, water heating, energy consumption, and lighting;
- Stationary source: emissions associated with stationary equipment (e.g., emergency generators);
- Mobile source: emissions associated with vehicles accessing the Project Site;
- Solid Waste: emissions associated with the decomposition of the waste, which generates methane based on the total amount of degradable organic carbon;
- Water/Wastewater: emissions associated with energy used to pump, convey, deliver, and treat water; and
- Refrigerants: These are substances used in equipment for air conditioning and refrigeration. Most refrigerants are HFCs or blends of them, which can have high GWP values.

The Project would generate an incremental contribution to and a cumulative increase in GHG emissions. However, when taking into account the existing automotive uses on the Project Site which would be removed as part of the Project, the Project would actually result in a reduction in GHG emissions at the Project Site. A specific discussion regarding potential GHG emissions associated with the construction and operational phases of the Project is provided below.

Construction

Project construction is anticipated to be completed in 2026 with occupancy the same year. A summary of construction details (e.g., schedule, equipment mix, and vehicular trips) and CalEEMod modeling output files are provided in the Technical Appendix. The GHG emissions associated with construction of the Project were calculated for each year of construction activity.

Construction of the Project is estimated to generate a total of 2,530 $MTCO_2e$ (Table 11). As recommended by the SCAQMD, the total GHG construction emissions were amortized over the 30-year lifetime of the Project (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate that can be added to the Project's operational emissions) to determine the Project's annual GHG emissions inventory.[68] This results in annual Project construction emissions of 84 $MTCO_2e$. A complete listing of the construction equipment by on-site and off-site activities, duration, and emissions estimation model input assumptions used in this analysis is included within the emissions calculation worksheets that are provided in the Technical Appendix.

Table 11
Combined Construction-Related Emissions ($MTCO_2e$)

Year	$MTCO_2e$[a]
2024	894
2025	1,037
2026	599
Total	**2,530**
Amortized Over 30 Years	**84**

[a] CO_2e was calculated using CalEEMod version 2022.1.1.20. Detailed results are provided in the Technical Appendix.
Source: DKA Planning, 2023.

Operation

Area Source Emissions

Area source emissions were calculated using the CalEEMod emissions inventory model, which includes landscape maintenance equipment, use of consumer products, and other everyday sources. As shown in Table 12, the Project would result in nine $MTCO_2e$ per year from area sources.

[68] SCAQMD Governing Board Agenda Item 31, December 5, 2008.

Table 12
Annual GHG Emissions Summary (Buildout)[a]
(metric tons of carbon dioxide equivalent [MTCO2e])

Year	$MTCO_2$[a]
Area[b]	9
Energy[c] (electricity and natural gas)	563
Mobile	1,458
Solid Waste[d]	75
Water/Wastewater[e]	28
Refrigerants	<1
Construction	84
Total Emissions	**2,218**
Existing Emissions	**-2,671**
Net Emissions	**-453**

[a] CO_2e was calculated using CalEEMod and the results are provided in the Technical Appendix.
[b] Area source emissions are from landscape equipment and other operational equipment only; hearths omitted.
[c] Energy source emissions are based on CalEEMod default electricity and natural gas usage rates.
[d] Solid waste emissions are calculated based on CalEEMod default solid waste generation rates.
[e] Water/Wastewater emissions are calculated based on CalEEMod default water consumption rates.
Source: DKA Planning, 2023.

Electricity and Natural Gas Generation Emissions

GHG emissions are emitted because of activities in buildings and proposed swimming pools and spa when electricity and natural gas are used as energy sources. Combustion of any type of fuel emits CO_2 and other GHG emissions directly into the atmosphere. When electricity is used in a building, the electricity generation typically takes place off-site at the power plant; electricity use in a building generally causes emissions in an indirect manner.

Electricity and natural gas emissions were calculated for the Project using the CalEEMod emissions inventory model, which multiplies an estimate of the energy usage by applicable emissions factors chosen by the utility company. GHG emissions from electricity use are directly dependent on the electricity utility provider. In this case, GHG emissions intensity factors for SCE were selected in CalEEMod. The carbon intensity ((pounds per megawatt an hour (lbs/MWh)) for electricity generation was calculated for the Project buildout year based on SCE projections. A straight-line interpolation was performed to estimate the SCE carbon intensity factor for the Project buildout year. SCE's carbon intensity projections also consider SB 350 RPS requirements for renewable energy.

This approach is conservative, given the 2018 chaptering of SB 100 (De Leon), which requires electricity providers to provide renewable energy for at least 60 percent of their delivered power by 2030 and 100 percent use of renewable energy and zero-carbon resources by 2045. SB 100 also increases existing renewable energy targets, called Renewables Portfolio Standard (RPS), to 44 percent by 2024 and 52 percent by 2027.

The 2022 Title 24 standards contain more substantial energy efficiency requirements for new construction, emphasizing the importance of building design and construction flexibility to establish performance standards that substantially reduce energy consumption for water hating, lighting, and insulation for attics and walls.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building, such as in plug-in appliances. CalEEMod calculates energy use from systems covered by Title 24 (e.g., HVAC system, water heating system, and lighting system); energy use from lighting; and energy use from office equipment, appliances, plug-ins, and other sources not covered by Title 24 or lighting.

CalEEMod electricity and natural gas usage rates are based on the CEC-sponsored California Commercial End-Use Survey (CEUS) and the California Residential Appliance Saturation Survey (RASS) studies.[69] The data are specific for climate zones; therefore, Zone 11 was selected for the Project Site based on the zip code tool.

As shown in Table 12, Project GHG emissions from electricity and natural gas usage would result in a total of 563 $MTCO_2e$ per year.

Mobile Source Emissions

Mobile-source emissions were calculated using the SCAQMD-recommended CalEEMod emissions inventory model. CalEEMod calculates the emissions associated with on-road mobile sources associated with residents, visitors, and delivery vehicles visiting the Project Site based on the number of daily trips generated and VMT. Mobile source operational GHG emissions were calculated using CalEEMod and are based on the Project's VMT analysis.

The Project represents an infill development within an urbanized area that would concentrate residential uses within an HQTA. The Project Site is in a dense mixed-use corridor with proximity to three bus lines, including Torrance Transit Line 13, Metro Line 344, and GTrans Line 2. The Project would also incorporate characteristics that would reduce trips and VMT as compared to standard ITE trip generation rates. The Project characteristics listed below are consistent with the CAPCOA guidance document, *Quantifying Greenhouse Gas Mitigation Measures*, which provides emission reduction values for transportation related design techniques.[70] These techniques would reduce vehicle trips and VMT associated with the Project relative to the standard ITE trip generation rates, which would result in a comparable reduction in VMT and associated GHG emissions. Techniques applicable to the Project include the following (a brief description of the Project's relevance to the measure is also provided):

- **CAPCOA Measure LUT-1 – Increase Density:** Increased density, measured in terms of persons, jobs, or dwelling units per unit area, reduces emissions associated with

[69] California Energy Commission, Commercial End-Use Survey, March 2006, and California Residential Appliance Saturation Survey, October 2010.

[70] CAPCOA, Quantifying Greenhouse Gas Mitigation Measures, 2010.

transportation as it reduces the distance people travel for work or services and provides a foundation for the implementation of other strategies, such as enhanced transit services.

- **CAPCOA Measure LUT-3 – Increase Diversity of Urban and Suburban Developments (Mixed-Use):** The Project would introduce new uses on the Project Site into an area with nearby amenities such as shopping and restaurants, creating more of a mixed-use environment along the Artesia Corridor. The increases on the Project Site would reduce vehicle trips and VMT by encouraging residents and visitors to walk and use non-automotive forms of transportation (i.e., public transit, biking), which would result in corresponding reductions in transportation-related emissions given the proximity of amenities.

- **CAPCOA Measure LUT-4 – Increase Destination Accessibility:** The Project Site is in a dense corridor, which is easily accessible by public transportation. Access to multiple destinations, and commercial and retail uses in proximity to the Project Site would reduce vehicle trips and VMT compared to the statewide average and encourage walking and non-automotive forms of transportation and would result in corresponding reductions in transportation-related emissions because of the Project.

- **CAPCOA Measure LUT-5 – Increase Transit Accessibility:** The Project would be located near three local bus routes and the Harbor Gateway Transit Center, which provides access to several local and express bus lines, including GTrans Lines 2 and 4; Torrance Transit Route 1, 4X, 6, and 13; as well as Metro J Line bus rapid transit service, and Metro Lines 205, 246, 344. The Project would also provide bicycle parking spaces to encourage utilization of alternative modes of transportation.

- **CAPCOA Measure LUT-9 – Improve Design of Development:** The Project would enhance the pedestrian and bicycle environment through an attractive open space component and improved sidewalk and streetscape, which would enhance walkability in the Project vicinity. The Project would also locate a development with a high level of street access, which improves street accessibility and connectivity.

CalEEMod calculates VMT based on the type of land use, trip purpose, and trip type percentages for each land use subtype in the project (primary, diverted, and pass-by). As shown in Table 12, the Project GHG emissions from mobile sources would result in a total of 1,458 $MTCO_2e$ per year. This estimate reflects reductions attributable to the Project's characteristics (e.g., infill project near transit that supports multi-modal transportation options), as described above.

Solid Waste Generation Emissions

Emissions related to solid waste were calculated using the CalEEMod emissions inventory model, which multiplies an estimate of the waste generated by applicable emissions factors provided in Section 2.4 of the USEPA's AP-42, Compilation of Air Pollutant Emission Factors. CalEEMod solid waste generation rates for each applicable land use were selected for this analysis. As

shown in Table 12, the Project is expected to result in a total of 75 $MTCO_2e$ per year from solid waste that accounts for a 50-percent recycling/diversion rate.[71]

Water Usage and Wastewater Generation Emissions

GHG emissions are related to the energy used to convey, treat, and distribute water, and treat wastewater. Thus, these emissions are generally indirect emissions from the production of electricity to power these systems. Three processes are necessary to supply potable water; these include (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. After use, energy is used as the wastewater is treated and reused as reclaimed water.

Emissions related to water usage and wastewater generation were calculated for the Project using the CalEEMod emissions inventory model, which multiplies an estimate of the water usage by the applicable energy intensity factor to determine the embodied energy necessary to supply potable water.[72] GHG emissions are then calculated based on the amount of electricity consumed multiplied by the GHG emissions intensity factors for the utility provider. In this case, embodied energy for Southern California supplied water and GHG emissions intensity factors for SCE were selected in CalEEMod. Water usage rates were calculated consistent with the requirements under the 2022 California Plumbing Code (which is based on the 2021 Uniform Plumbing Code), 2022 CALGreen, and reflect an approximately 20-percent reduction as compared to the base demand. As shown in Table 12, Project GHG emissions from water/wastewater usage would result in a total of 28 $MTCO_2e$ per year.

Refrigerants

Emissions related to cooling structures and refrigeration needs were calculated using the CalEEMod emissions inventory model. As shown in Table 12, the Project is expected to result in less than one $MTCO_2e$ per year from use of refrigerants that used HFCs and have high GWP values.

Combined Emissions

As shown in Table 12, when taking into consideration implementation of project design features, including the requirements set forth in the City's Green Building Code and the full implementation of current state mandates, the GHG emissions for the Project would equal 2,218 $MTCO_2e$ annually (as amortized over 30 years). When considering emissions from the existing auto repair facility (2,671 $MTCO_2e$ annually, as shown in Table 4), the Project would result in a net decrease of 453 $MTCO_2e$ annually, primarily because of the elimination of refrigerants associated with the existing auto repair facilities.

[71] AB 341 (2012) increased the Statewide waste diversion goal from 50 to 75 percent from baseline rates established by CalRecycle by 2020 and beyond. Further, SB 1383 (2016) requires jurisdictions to reduce 75 percent of organic waste disposal in landfills by 2030.

[72] The intensity factor reflects the average pounds of CO_2e per megawatt generated by a utility company.

As discussed previously on page 31, there are no GHG emissions thresholds that are applicable to the Project. In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.[73] Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 $MTCO_2e$ per year. Under this proposal, such commercial and residential projects would have been assumed to have a less than significant impact on climate change. However, this proposed screening threshold was not adopted by the SCAQMD. When considering emissions from the existing auto repair facility (2,671 $MTCO_2e$ annually, as shown in Table 4, above), the Project would result in a net decrease of 453 $MTCO_2e$ annually (as shown in Table 12, above), which is less than 3,000 $MTCO_2e$ per year. Thus, even if the SCAQMD interim GHG threshold of significance was adopted, the Project would have a less than significant impact based on such threshold.

Estimated Reduction of Project Related GHG Emissions Resulting from Consistency with Plans

As noted earlier, one approach to demonstrating a project's consistency with GHG plans is to show how a project will reduce its incremental contribution through a Project Without Reduction Features comparison. The analysis in this section includes potential emissions under a Project Without Reduction Features scenario and from the Project at build-out based on actions and mandates in force in 2026.

As shown in Table 13, the emissions for the Project and its associated CARB 2026 Project Without Reduction Features scenario are estimated to be 2,218 and 3,245 $MTCO_2e$ per year, respectively, which shows the Project would reduce emissions by 32 percent from CARB's 2026 Project Without Reduction Features scenario. It should be noted that this comparative analysis does not include the removal of emissions from the existing auto repair facility (Table 12).

Table 13
Estimated Reduction of Project-Related GHG Emissions Resulting from Consistency with Plans

Scenario and Source	Project Without Reduction Features Scenario*	As Proposed Scenario	Reduction from Project Without Reduction Features Scenario	Change from Project Without Reduction Features Scenario
Area Sources	9	9	-	0%
Energy Sources	971	563	-408	-42%
Mobile Sources	2,077	1,458	--619	-30%
Waste Sources	75	75	-	0%
Water Sources	28	28	-	0%
Refrigerants	<1	<1	-	0%
Construction	84	84	-	0%

Total Emissions	3,245	2,218	-1,027	-31.6%

Daily construction emissions amortized over 30-year period pursuant to SCAQMD guidance. Annual construction emissions derived by taking total emissions over duration of activities and dividing by construction period.
* Project Without Reduction Features scenario does not assume 30% reduction in in mobile source emissions from Pavley emission standards (19.8%), low carbon fuel standards (7.2%), vehicle efficiency measures 2.8%); does not assume 42% reduction in energy production emissions from the State's renewables portfolio standard (33%), natural gas extraction efficiency measures (1.6%), and natural gas transmission and distribution efficiency measures (7.4%).
Source: DKA Planning, 2023.

Post-2030 Analysis

Studies show that the State's existing and proposed regulatory framework will put the State on a pathway to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050 if additional appropriate reduction measures are adopted. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the 2050 target. Subsequent to the findings of these studies, SB 32 was passed on September 8, 2016, which would require CARB to ensure that Statewide GHG emissions are reduced to 40 percent below the 1990 level by 2030. These targets would build upon those originally established under AB 32 which required reducing statewide GHG emissions to 1990 levels by 2020. As discussed above, SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries. The Project's design features advance these goals by reducing VMT, increasing the use of electric vehicles, improving energy efficiency, and reducing water usage.

The emissions modeling in the 2022 Update to the Scoping Plan has projected 2030 statewide emissions, which take into account known commitments (reduction measures) such as SB 375, SB 350, and other measures. The emissions inventory identified an emissions gap, meaning that emissions reductions due to known commitments do not decline fast enough to achieve the 2030 target. In order to fill this gap, the 2022 Update to the Scoping Plan assumed a scenario in which cap-and-trade would deliver the reductions necessary to achieve the 2030 emissions target. Although the Project is consistent with the 2022 Update to the Scoping Plan, additional measures to achieve the 2030 targets and beyond are outside of the City or the Project's control. Executive Order S-3-05 establishes a goal to reduce GHG emissions to 80 percent below 1990 levels by 2050. This goal, however, has not been codified. Studies have shown that, in order to meet the 2050 target, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its 2008 Climate Change Scoping Plan, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail."

CARB has generally described the type of activities required to achieve the 2050 target: "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 rapid

market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." Although the Project's emissions level in 2050 cannot be reliably quantified, statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect the Project's emissions to decline as the regulatory initiatives identified by CARB in the Climate Change Scoping Plan are implemented, and other technological innovations occur. Such regulatory measures, which will further reduce GHG emissions, include the RPS under SB 100, which requires 100 percent renewable energy by 2045. As discussed above, the Project would be designed and operated to meet or exceed the applicable requirements of the CALGreen Code and would be subject to the 2022 Title 24 standards, which will assist the State in meeting the Zero Net Energy (ZNE) goal and the Executive Order's horizon-year (2050) goal.

The Project is the type of land use development that is encouraged by the 2020-2045 RTP/SCS to reduce VMT and expand multi-modal transportation options in order for the region to achieve the GHG reductions from the land use and transportation sectors required by SB 375, which, in turn, advances the State's long-term climate policies. As shown above, the reduction in VMT would further support the goal of reducing GHG emissions from passenger vehicles by 2035 in the 2020–2045 RTP/SCS. By furthering implementation of SB 375, the Project supports regional land use and transportation GHG reductions consistent with State climate targets for 2030 and beyond. For the reasons described above, the Project's post-2030 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets and Executive Orders S-3-05 and B-30-15.

The Governor's Executive Order B-55-18 (September 2018) establishes a new statewide goal to achieve carbon neutrality no later than 2045 and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB will work with relevant state agencies to develop a framework for implementation and accounting that tracks progress towards this goal, as well as ensuring that future scoping plans identify and recommend measures to achieve the carbon neutrality goal. Also discussed above, CARB has released a study evaluating three scenarios that achieve carbon neutrality in California by 2045. The scenarios analyzed to achieve carbon neutrality include a High Carbon Dioxide Removal (CDR) scenario, Zero Carbon Energy scenario, and a Balanced scenario.

Conclusion

Given the Project's consistency with State, SCAG, and City GHG emissions reduction goals and objectives, the Project is consistent with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. In the absence of adopted standards and established significance thresholds, and given this consistency, it is concluded that the Project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable.

Cumulative Impacts

As explained above, the analysis of a project's GHG emissions is inherently a cumulative impacts analysis, because climate change is a global problem, and the emissions from any single project

alone would be negligible. Accordingly, the analysis above considered the potential for the Project to contribute to the cumulative impact of global climate change.

The analysis shows that the Project is consistent with CARB's *Climate Change Scoping Plan*, particularly its emphasis on the identification of emission reduction opportunities that promote economic growth while achieving greater energy efficiency and accelerating the transition to a low-carbon economy. The analysis also shows that the Project would be consistent with the 2020-2045 RTP/SCS, which would serve to reduce regional GHG emissions from the land use and transportation sectors by 2020 and 2035. In addition, the Project would be consistent with the City's CAP, which emphasizes improving energy conservation and energy efficiency, increasing renewable energy generation, and changing transportation and land use patterns to reduce auto dependence. It is also consistent with the City's General Plan Elements that related to climate change. Given the Project's consistency with statewide, regional, and local plans adopted for the reduction of GHG emissions, it is concluded that the Project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable. For these reasons, the Project's cumulative contribution to global climate change is less than significant.

TECHNICAL APPENDIX

DouglasKim+Associates,LLC

EXISTING EMISSIONS

1610 Artesia Boulevard (Existing) Detailed Report

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1.1. Basic Project Information

Data Field	Value
Project Name	1610 Artesia Boulevard (Existing)
Operational Year	2023
Lead Agency	City of Gardena
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	17.4
Location	1610 W Artesia Square, Gardena, CA 90248, USA
County	Los Angeles-South Coast
City	Gardena
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4626
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Automobile Care Center	31.5	1000sqft	3.43	39,510	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	70.6	7,801	7,871	7.48	0.29	8,220	16,365
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	70.6	7,499	7,569	7.50	0.30	8,192	16,039
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	70.6	7,583	7,654	7.50	0.31	8,204	16,136
Annual (Max)	—	—	—	—	—	—	—
Unmit.	11.7	1,255	1,267	1.24	0.05	1,358	2,671

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	—	6,870	6,870	0.33	0.27	29.1	6,988
Area	—	7.07	7.07	< 0.005	< 0.005	—	7.09
Energy	—	904	904	0.08	0.01	—	908
Water	5.68	19.3	25.0	0.58	0.01	—	43.8
Waste	64.9	0.00	64.9	6.48	0.00	—	227
Refrig.	—	—	—	—	—	8,191	8,191

Total	70.6	7,801	7,871	7.48	0.29	8,220	16,365
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	—	6,576	6,576	0.35	0.28	0.75	6,670
Area	—	—	—	—	—	—	—
Energy	—	904	904	0.08	0.01	—	908
Water	5.68	19.3	25.0	0.58	0.01	—	43.8
Waste	64.9	0.00	64.9	6.48	0.00	—	227
Refrig.	—	—	—	—	—	8,191	8,191
Total	70.6	7,499	7,569	7.50	0.30	8,192	16,039
Average Daily	—	—	—	—	—	—	—
Mobile	—	6,655	6,655	0.35	0.29	12.5	6,762
Area	—	4.84	4.84	< 0.005	< 0.005	—	4.86
Energy	—	904	904	0.08	0.01	—	908
Water	5.68	19.3	25.0	0.58	0.01	—	43.8
Waste	64.9	0.00	64.9	6.48	0.00	—	227
Refrig.	—	—	—	—	—	8,191	8,191
Total	70.6	7,583	7,654	7.50	0.31	8,204	16,136
Annual	—	—	—	—	—	—	—
Mobile	—	1,102	1,102	0.06	0.05	2.08	1,119
Area	—	0.80	0.80	< 0.005	< 0.005	—	0.80
Energy	—	150	150	0.01	< 0.005	—	150
Water	0.94	3.19	4.13	0.10	< 0.005	—	7.24
Waste	10.7	0.00	10.7	1.07	0.00	—	37.6
Refrig.	—	—	—	—	—	1,356	1,356
Total	11.7	1,255	1,267	1.24	0.05	1,358	2,671

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	362	362	0.03	< 0.005	—	364
Total	—	362	362	0.03	< 0.005	—	364
Daily, Winter (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	362	362	0.03	< 0.005	—	364
Total	—	362	362	0.03	< 0.005	—	364
Annual	—	—	—	—	—	—	—
Automobile Care Center	—	59.9	59.9	0.01	< 0.005	—	60.3
Total	—	59.9	59.9	0.01	< 0.005	—	60.3

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	542	542	0.05	< 0.005	—	543
Total	—	542	542	0.05	< 0.005	—	543
Daily, Winter (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	542	542	0.05	< 0.005	—	543

Total	—	542	542	0.05	< 0.005	—	543
Annual	—	—	—	—	—	—	—
Automobile Care Center	—	89.7	89.7	0.01	< 0.005	—	90.0
Total	—	89.7	89.7	0.01	< 0.005	—	90.0

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Landscape Equipment	—	7.07	7.07	< 0.005	< 0.005	—	7.09
Total	—	7.07	7.07	< 0.005	< 0.005	—	7.09
Daily, Winter (Max)	—	—	—	—	—	—	—
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Landscape Equipment	—	0.80	0.80	< 0.005	< 0.005	—	0.80
Total	—	0.80	0.80	< 0.005	< 0.005	—	0.80

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Automobile Care Center	5.68	19.3	25.0	0.58	0.01	—	43.8
Total	5.68	19.3	25.0	0.58	0.01	—	43.8
Daily, Winter (Max)	—	—	—	—	—	—	—
Automobile Care Center	5.68	19.3	25.0	0.58	0.01	—	43.8
Total	5.68	19.3	25.0	0.58	0.01	—	43.8
Annual	—	—	—	—	—	—	—
Automobile Care Center	0.94	3.19	4.13	0.10	< 0.005	—	7.24
Total	0.94	3.19	4.13	0.10	< 0.005	—	7.24

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Automobile Care Center	64.9	0.00	64.9	6.48	0.00	—	227
Total	64.9	0.00	64.9	6.48	0.00	—	227
Daily, Winter (Max)	—	—	—	—	—	—	—
Automobile Care Center	64.9	0.00	64.9	6.48	0.00	—	227
Total	64.9	0.00	64.9	6.48	0.00	—	227
Annual	—	—	—	—	—	—	—
Automobile Care Center	10.7	0.00	10.7	1.07	0.00	—	37.6
Total	10.7	0.00	10.7	1.07	0.00	—	37.6

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	8,191	8,191
Total	—	—	—	—	—	8,191	8,191
Daily, Winter (Max)	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	8,191	8,191
Total	—	—	—	—	—	8,191	8,191
Annual	—	—	—	—	—	—	—
Automobile Care Center	—	—	—	—	—	1,356	1,356
Total	—	—	—	—	—	1,356	1,356

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	822	822	822	300,030	8,220	8,220	8,220	3,000,300

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	59,265	19,755	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Automobile Care Center	379,009	349	0.0330	0.0040	1,691,105

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Automobile Care Center	2,964,496	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Automobile Care Center	120	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Automobile Care Center	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
–	–

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.08	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	0	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	0	0	0	N/A
Wildfire	0	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	81.4
AQ-DPM	78.2

Drinking Water	69.1
Lead Risk Housing	45.4
Pesticides	38.0
Toxic Releases	99.2
Traffic	68.5
Effect Indicators	—
CleanUp Sites	89.0
Groundwater	87.3
Haz Waste Facilities/Generators	67.0
Impaired Water Bodies	96.3
Solid Waste	91.0
Sensitive Population	—
Asthma	67.8
Cardio-vascular	66.2
Low Birth Weights	77.0
Socioeconomic Factor Indicators	—
Education	31.4
Housing	16.3
Linguistic	76.6
Poverty	33.2
Unemployment	2.73

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	74.48992686

Employed	96.16322341
Median HI	44.11651482
Education	—
Bachelor's or higher	57.65430515
High school enrollment	100
Preschool enrollment	51.48209932
Transportation	—
Auto Access	65.16104196
Active commuting	20.26177339
Social	—
2-parent households	79.14795329
Voting	26.57513153
Neighborhood	—
Alcohol availability	33.14513025
Park access	45.65635827
Retail density	75.59348133
Supermarket access	71.26908764
Tree canopy	22.73835493
Housing	—
Homeownership	72.97574747
Housing habitability	93.10920056
Low-inc homeowner severe housing cost burden	82.1891441
Low-inc renter severe housing cost burden	91.4282048
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	45.18157321
Arthritis	0.0

Asthma ER Admissions	22.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	84.1
Cognitively Disabled	95.5
Physically Disabled	41.1
Heart Attack ER Admissions	23.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	67.2
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	62.5
Elderly	6.3
English Speaking	13.2

Foreign-born	90.3
Outdoor Workers	64.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.7
Traffic Density	57.1
Traffic Access	56.5
Other Indices	—
Hardship	41.8
Other Decision Support	—
2016 Voting	15.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	67.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Developer information

DouglasKim+Associates,LLC

FUTURE EMISSIONS

1610 Artesia Boulevard (Future) Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	1610 Artesia Boulevard (Future)
Construction Start Date	1/2/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	17.4
Location	1610 Artesia Blvd, Gardena, CA 90248, USA
County	Los Angeles-South Coast
City	Gardena
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4626
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments Mid Rise	300	Dwelling Unit	3.43	263,300	2,000	—	875	—
Enclosed Parking with Elevator	528	Space	0.00	208,100	0.00	—	—	—
Recreational Swimming Pool	4.03	1000sqft	0.00	4,032	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	—	20,295	20,295	0.97	2.78	40.7	21,188
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	—	20,287	20,287	0.97	2.78	1.06	21,140
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	—	6,155	6,155	0.27	0.57	6.57	6,266
Annual (Max)	—	—	—	—	—	—	—
Unmit.	—	1,019	1,019	0.04	0.09	1.09	1,037

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2024	—	20,295	20,295	0.97	2.78	40.7	21,188

2025	—	8,737	8,737	0.36	0.46	21.2	8,904
2026	—	11,196	11,196	0.46	0.51	23.3	11,383
Daily - Winter (Max)	—	—	—	—	—	—	—
2024	—	20,287	20,287	0.97	2.78	1.06	21,140
2025	—	8,758	8,758	0.38	0.47	0.55	8,908
2026	—	9,558	9,558	0.41	0.49	0.58	9,716
Average Daily	—	—	—	—	—	—	—
2024	—	5,217	5,217	0.24	0.57	4.45	5,398
2025	—	6,155	6,155	0.27	0.33	6.57	6,266
2026	—	3,556	3,556	0.15	0.18	3.49	3,616
Annual	—	—	—	—	—	—	—
2024	—	864	864	0.04	0.09	0.74	894
2025	—	1,019	1,019	0.04	0.05	1.09	1,037
2026	—	589	589	0.03	0.03	0.58	599

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	152	12,710	12,863	16.0	0.44	32.8	13,427
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	152	12,245	12,397	16.0	0.46	2.71	12,937
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	152	12,186	12,338	16.0	0.45	14.9	12,887
Annual (Max)	—	—	—	—	—	—	—
Unmit.	25.2	2,017	2,043	2.65	0.07	2.47	2,134

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	—	9,168	9,168	0.44	0.36	30.9	9,317
Area	0.00	82.7	82.7	< 0.005	< 0.005	—	83.0
Energy	—	3,386	3,386	0.31	0.02	—	3,401
Water	21.9	73.9	95.8	2.25	0.05	—	168
Waste	130	0.00	130	13.0	0.00	—	456
Refrig.	—	—	—	—	—	1.91	1.91
Total	152	12,710	12,863	16.0	0.44	32.8	13,427
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	—	8,785	8,785	0.46	0.38	0.80	8,911
Area	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	—	3,386	3,386	0.31	0.02	—	3,401
Water	21.9	73.9	95.8	2.25	0.05	—	168
Waste	130	0.00	130	13.0	0.00	—	456
Refrig.	—	—	—	—	—	1.91	1.91
Total	152	12,245	12,397	16.0	0.46	2.71	12,937
Average Daily	—	—	—	—	—	—	—
Mobile	—	8,669	8,669	0.45	0.37	13.0	8,804
Area	0.00	56.7	56.7	< 0.005	< 0.005	—	56.9
Energy	—	3,386	3,386	0.31	0.02	—	3,401
Water	21.9	73.9	95.8	2.25	0.05	—	168
Waste	130	0.00	130	13.0	0.00	—	456
Refrig.	—	—	—	—	—	1.91	1.91
Total	152	12,186	12,338	16.0	0.45	14.9	12,887

Annual	—	—	—	—	—	—	—
Mobile	—	1,435	1,435	0.07	0.06	2.15	1,458
Area	0.00	9.38	9.38	< 0.005	< 0.005	—	9.41
Energy	—	561	561	0.05	< 0.005	—	563
Water	3.62	12.2	15.9	0.37	0.01	—	27.8
Waste	21.6	0.00	21.6	2.15	0.00	—	75.4
Refrig.	—	—	—	—	—	0.32	0.32
Total	25.2	2,017	2,043	2.65	0.07	2.47	2,134

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	404	404	0.02	< 0.005	—	405
Demolition	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	66.8	66.8	< 0.005	< 0.005	—	67.0
Demolition	—	—	—	—	—	—	—

Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	212	212	0.01	0.01	0.84	215
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	2,061	2,061	0.10	0.33	4.80	2,167
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	—	24.0	24.0	< 0.005	< 0.005	0.04	24.3
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	243	243	0.01	0.04	0.24	255
Annual	—	—	—	—	—	—	—
Worker	—	3.97	3.97	< 0.005	< 0.005	0.01	4.03
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	40.2	40.2	< 0.005	0.01	0.04	42.2

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—

Off-Road Equipment	—	72.5	72.5	< 0.005	< 0.005	—	72.8
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	12.0	12.0	< 0.005	< 0.005	—	12.1
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	247	247	0.01	0.01	0.97	251
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	3,092	3,092	0.15	0.50	7.19	3,251
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	—	3.26	3.26	< 0.005	< 0.005	0.01	3.30
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	42.4	42.4	< 0.005	0.01	0.04	44.5
Annual	—	—	—	—	—	—	—
Worker	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.55
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	7.01	7.01	< 0.005	< 0.005	0.01	7.36

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	494	494	0.02	< 0.005	—	496
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	81.9	81.9	< 0.005	< 0.005	—	82.1
Dust From Material Movement	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	212	212	0.01	0.01	0.84	215
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	17,125	17,125	0.85	2.75	39.8	18,004
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	201	201	0.01	0.01	0.02	203
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	17,128	17,128	0.85	2.75	1.03	17,968

Average Daily	—	—	—	—	—	—	—
Worker	—	34.0	34.0	< 0.005	< 0.005	0.06	34.5
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	2,862	2,862	0.14	0.46	2.88	3,005
Annual	—	—	—	—	—	—	—
Worker	—	5.64	5.64	< 0.005	< 0.005	0.01	5.71
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	474	474	0.02	0.08	0.48	498

3.7. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	286	286	0.01	< 0.005	—	287
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	47.4	47.4	< 0.005	< 0.005	—	47.5
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	4,083	4,083	0.18	0.15	0.44	4,133

Vendor	—	2,157	2,157	0.09	0.30	0.15	2,248
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	495	495	0.02	0.02	0.88	501
Vendor	—	257	257	0.01	0.04	0.30	269
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	81.9	81.9	< 0.005	< 0.005	0.14	83.0
Vendor	—	42.6	42.6	< 0.005	0.01	0.05	44.5
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	1,713	1,713	0.07	0.01	—	1,719
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	284	284	0.01	< 0.005	—	285
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	4,218	4,218	0.18	0.14	15.4	4,281
Vendor	—	2,121	2,121	0.09	0.30	5.80	2,217
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	3,999	3,999	0.18	0.15	0.40	4,049
Vendor	—	2,121	2,121	0.09	0.30	0.15	2,212
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	2,898	2,898	0.13	0.10	4.77	2,937
Vendor	—	1,515	1,515	0.06	0.21	1.80	1,582
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	480	480	0.02	0.02	0.79	486
Vendor	—	251	251	0.01	0.04	0.30	262
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	849	849	0.03	0.01	—	852
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	141	141	0.01	< 0.005	—	141
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	4,134	4,134	0.17	0.14	14.0	4,195
Vendor	—	2,084	2,084	0.09	0.30	5.63	2,180
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	3,919	3,919	0.18	0.14	0.36	3,967
Vendor	—	2,085	2,085	0.09	0.30	0.15	2,176
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	1,409	1,409	0.06	0.05	2.14	1,428
Vendor	—	738	738	0.03	0.11	0.86	771
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	233	233	0.01	0.01	0.35	236
Vendor	—	122	122	0.01	0.02	0.14	128
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	1,350	1,350	0.05	0.01	—	1,355
Paving	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	159	159	0.01	< 0.005	—	160
Paving	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	26.3	26.3	< 0.005	< 0.005	—	26.4
Paving	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	271	271	0.01	0.01	0.92	275
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	—	30.7	30.7	< 0.005	< 0.005	0.05	31.1
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	5.08	5.08	< 0.005	< 0.005	0.01	5.15

Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	47.2	47.2	< 0.005	< 0.005	—	47.3
Architectural Coatings	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	7.81	7.81	< 0.005	< 0.005	—	7.84
Architectural Coatings	—	—	—	—	—	—	—
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	—	827	827	0.03	0.03	2.80	839
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	784	784	0.04	0.03	0.07	793
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	281	281	0.01	0.01	0.43	285
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	46.5	46.5	< 0.005	< 0.005	0.07	47.2
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Trenching (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	207	207	0.01	< 0.005	—	208
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	24.8	24.8	< 0.005	< 0.005	—	24.8
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	4.10	4.10	< 0.005	< 0.005	—	4.11

Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	32.8	32.8	< 0.005	< 0.005	< 0.005	33.2
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	3.97	3.97	< 0.005	< 0.005	0.01	4.02
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	0.66	0.66	< 0.005	< 0.005	< 0.005	0.67
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Trenching (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	—	207	207	0.01	< 0.005	—	208
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	—	36.5	36.5	< 0.005	< 0.005	—	36.7
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Off-Road Equipment	—	6.05	6.05	< 0.005	< 0.005	—	6.07
Onsite truck	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	—	32.1	32.1	< 0.005	< 0.005	< 0.005	32.5
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	—	5.74	5.74	< 0.005	< 0.005	0.01	5.82
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	—	0.95	0.95	< 0.005	< 0.005	< 0.005	0.96
Vendor	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	1,043	1,043	0.10	0.01	—	1,049
Enclosed Parking with Elevator	—	729	729	0.07	0.01	—	733
Recreational Swimming Pool	—	3.12	3.12	< 0.005	< 0.005	—	3.13
Total	—	1,775	1,775	0.17	0.02	—	1,785
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	1,043	1,043	0.10	0.01	—	1,049
Enclosed Parking with Elevator	—	729	729	0.07	0.01	—	733
Recreational Swimming Pool	—	3.12	3.12	< 0.005	< 0.005	—	3.13
Total	—	1,775	1,775	0.17	0.02	—	1,785
Annual	—	—	—	—	—	—	—
Apartments Mid Rise	—	173	173	0.02	< 0.005	—	174
Enclosed Parking with Elevator	—	121	121	0.01	< 0.005	—	121
Recreational Swimming Pool	—	0.52	0.52	< 0.005	< 0.005	—	0.52
Total	—	294	294	0.03	< 0.005	—	296

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	1,068	1,068	0.09	< 0.005	—	1,071
Enclosed Parking with Elevator	—	0.00	0.00	0.00	0.00	—	0.00

Recreational Swimming Pool	—	543	543	0.05	< 0.005	—	545
Total	—	1,611	1,611	0.14	< 0.005	—	1,616
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	1,068	1,068	0.09	< 0.005	—	1,071
Enclosed Parking with Elevator	—	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	543	543	0.05	< 0.005	—	545
Total	—	1,611	1,611	0.14	< 0.005	—	1,616
Annual	—	—	—	—	—	—	—
Apartments Mid Rise	—	177	177	0.02	< 0.005	—	177
Enclosed Parking with Elevator	—	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	—	89.9	89.9	0.01	< 0.005	—	90.2
Total	—	267	267	0.02	< 0.005	—	267

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Landscape Equipment	—	82.7	82.7	< 0.005	< 0.005	—	83.0
Total	0.00	82.7	82.7	< 0.005	< 0.005	—	83.0

Daily, Winter (Max)	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Total	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	—	—	—	—	—	—
Architectural Coatings	—	—	—	—	—	—	—
Landscape Equipment	—	9.38	9.38	< 0.005	< 0.005	—	9.41
Total	0.00	9.38	9.38	< 0.005	< 0.005	—	9.41

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	21.4	72.4	93.8	2.20	0.05	—	165
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	0.46	1.54	2.00	0.05	< 0.005	—	3.51
Total	21.9	73.9	95.8	2.25	0.05	—	168
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	21.4	72.4	93.8	2.20	0.05	—	165
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00

Recreational Swimming Pool	0.46	1.54	2.00	0.05	< 0.005	—	3.51
Total	21.9	73.9	95.8	2.25	0.05	—	168
Annual	—	—	—	—	—	—	—
Apartments Mid Rise	3.55	12.0	15.5	0.36	0.01	—	27.3
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	0.08	0.25	0.33	0.01	< 0.005	—	0.58
Total	3.62	12.2	15.9	0.37	0.01	—	27.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	118	0.00	118	11.8	0.00	—	412
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	12.4	0.00	12.4	1.24	0.00	—	43.3
Total	130	0.00	130	13.0	0.00	—	456
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	118	0.00	118	11.8	0.00	—	412
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	12.4	0.00	12.4	1.24	0.00	—	43.3
Total	130	0.00	130	13.0	0.00	—	456

Annual	—	—	—	—	—	—	—
Apartments Mid Rise	19.5	0.00	19.5	1.95	0.00	—	68.2
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	—	0.00
Recreational Swimming Pool	2.05	0.00	2.05	0.20	0.00	—	7.17
Total	21.6	0.00	21.6	2.15	0.00	—	75.4

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	1.89	1.89
Recreational Swimming Pool	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	1.91	1.91
Daily, Winter (Max)	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	1.89	1.89
Recreational Swimming Pool	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	1.91	1.91
Annual	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	0.31	0.31
Recreational Swimming Pool	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	0.32	0.32

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/1/2024	7/31/2024	5.00	43.0	—
Site Preparation	Site Preparation	8/1/2024	8/7/2024	5.00	5.00	—
Grading	Grading	8/8/2024	10/31/2024	5.00	61.0	—
Building Construction	Building Construction	11/1/2024	6/30/2026	5.00	433	—
Paving	Paving	5/1/2026	6/30/2026	5.00	43.0	—
Architectural Coating	Architectural Coating	1/1/2026	6/30/2026	5.00	129	—
Trenching	Trenching	11/1/2025	3/31/2026	5.00	107	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2

Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	14.8	40.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	22.2	40.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	123	40.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	305	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	66.8	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	61.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT

Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	2.50	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	533,183	177,728	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,600	—
Site Preparation	—	556	7.50	0.00	—
Grading	—	60,000	61.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Enclosed Parking with Elevator	0.00	100%
Recreational Swimming Pool	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	349	0.03	< 0.005
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	1,367	1,367	1,131	486,649	11,636	11,636	9,627	4,142,385

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	300
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
533182.5	177,728	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,099,750	346	0.0330	0.0040	3,332,053
Enclosed Parking with Elevator	768,187	346	0.0330	0.0040	0.00
Recreational Swimming Pool	3,286	346	0.0330	0.0040	1,695,202

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	11,182,140	34,282
Enclosed Parking with Elevator	0.00	0.00
Recreational Swimming Pool	238,465	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	219	—
Enclosed Parking with Elevator	0.00	—
Recreational Swimming Pool	23.0	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Recreational Swimming Pool	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Recreational Swimming Pool	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.08	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	0	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	0	0	0	N/A
Wildfire	0	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	81.4
AQ-DPM	78.2
Drinking Water	69.1
Lead Risk Housing	45.4
Pesticides	38.0
Toxic Releases	99.2
Traffic	68.5
Effect Indicators	—
CleanUp Sites	89.0
Groundwater	87.3

Haz Waste Facilities/Generators	67.0
Impaired Water Bodies	96.3
Solid Waste	91.0
Sensitive Population	—
Asthma	67.8
Cardio-vascular	66.2
Low Birth Weights	77.0
Socioeconomic Factor Indicators	—
Education	31.4
Housing	16.3
Linguistic	76.6
Poverty	33.2
Unemployment	2.73

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	74.48992686
Employed	96.16322341
Median HI	44.11651482
Education	—
Bachelor's or higher	57.65430515
High school enrollment	100
Preschool enrollment	51.48209932
Transportation	—
Auto Access	65.16104196

Active commuting	20.26177339
Social	—
2-parent households	79.14795329
Voting	26.57513153
Neighborhood	—
Alcohol availability	33.14513025
Park access	45.65635827
Retail density	75.59348133
Supermarket access	71.26908764
Tree canopy	22.73835493
Housing	—
Homeownership	72.97574747
Housing habitability	93.10920056
Low-inc homeowner severe housing cost burden	82.1891441
Low-inc renter severe housing cost burden	91.4282048
Uncrowded housing	62.10701912
Health Outcomes	—
Insured adults	45.18157321
Arthritis	0.0
Asthma ER Admissions	22.9
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	84.1

Cognitively Disabled	95.5
Physically Disabled	41.1
Heart Attack ER Admissions	23.3
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	67.2
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	62.5
Elderly	6.3
English Speaking	13.2
Foreign-born	90.3
Outdoor Workers	64.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	9.7
Traffic Density	57.1
Traffic Access	56.5
Other Indices	—
Hardship	41.8

Other Decision Support	—
2016 Voting	15.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	67.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Based on SCAG's average 2016 persons-per-household rate for the City of 2.91 persons per household, the Project would add a net residential population of approximately 875 people to the Project Site based on the 300 dwelling units proposed. Pool area based on 1,200 sf and 1,920 sf pool vaults on Level 1 and 912 sf pool RR on Level 2.
Construction: Construction Phases	Developer information
Construction: Off-Road Equipment	—

Construction: Trips and VMT	10 CY capacity haul truck; 40 miles to Brea landfill
Operations: Hearths	Project plans
Operations: Energy Use	Assumes 2 pools at 847,601kBTu/year each per EnergyStar Portfolio Manager Technical Reference; Swimming Pools and the ENERGY STAR Score in the United States and Canada; Figure 3; https://www.energystar.gov/sites/default/files/tools/Swimming_Pool_August_2018_508.pdf. Assumes "All Other Property Types" with Recreational size.

DouglasKim+Associates,LLC

GREENHOUSE GAS EMISSIONS OVERVIEW

1610 Artesia Boulevard Project
GHG Emissions Impact Compared to "Project Without Reduction Features" Scenario

Source	Project Without Reduction Features (2026)	As Proposed (2026)	Reduction from Project Without Reduction Features	Change from Project Without Reduction Features Scenario
Area	9	9	-	0%
Energy	971	563	(408)	-42%
Mobile	2,077	1,458	(619)	-30%
Waste	75	75	-	0%
Water	28	28	-	0%
Refrigerants	0	0	-	0%
Construction	84	84	-	0%
Total Emissions	3,245	2,218	(1,027)	-31.6%