

4.7 GREENHOUSE GAS EMISSIONS

4.7.1 INTRODUCTION

This section of the Draft Environmental Impact Report (Draft EIR) evaluates the significance of the greenhouse gas (GHG) emissions that would be generated by the proposed Inglewood Transit Connector Project (proposed Project).

The section contains: (1) a description of the local setting to establish baseline conditions; (2) a summary of the relationship between GHG emissions and global climate change; (3) an overview of applicable plans, policies, and regulations related to GHG emissions; (4) an assessment of current GHG emissions at the City, State, national, and global levels; (5) a quantitative analysis of future GHG emissions associated with construction and operation of the proposed Project; and (6) an analysis of the consistency of the proposed Project with applicable regulations, plans, and policies to reduce GHGs as set forth by the State of California, South Coast Air Quality Management District (SCAQMD), Southern California Association of Governments (SCAG) and the City of Inglewood (City).

The proposed Project's GHG emissions are considered within the context of the City's planning for the reduction of GHG emissions. The sustainable design features of the proposed Project that would reduce GHG emissions are compared to measures identified in the *Inglewood Energy and Climate Action Plan* to determine the consistency of the proposed Project with the City's plans to reduce GHG emissions.

A quantified estimate of GHG emissions is provided for both construction and operations of each phase of the proposed Project. GHG emissions were analyzed using a variety of modeling techniques and are detailed within: **Appendix 4.2.1: Air Quality and Health Risk Assessment Technical Report for the Inglewood Transit Connector Project**, RCH Group, November 2020.

Please see **Section 8.0** for a glossary of terms, definitions, and acronyms used in this Draft EIR.

4.7.2 OVERVIEW OF GREENHOUSE GAS EMISSIONS

4.7.2.1 Global Context

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however, current data increasingly indicate that the current global conditions differ from past climate changes in rate and magnitude. Global climate change attributable to anthropogenic (human) GHG emissions is currently one of the most important and widely debated scientific, economic and political issues in the United States and the world.

The extent to which increased concentrations of GHGs have caused or will cause climate change and the appropriate actions to limit and/or respond to climate change are the subject of significant and rapidly evolving regulatory efforts at the federal and State levels of government.

GHGs are global pollutants that have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for a long enough time to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO₂ is currently emitted into the atmosphere than is avoided or sequestered. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through photosynthesis and dissolution, respectively. These are two of the most common processes of CO₂ sequestration. Of the total annual human-caused CO₂ emissions, approximately 54 percent is sequestered within a year through ocean uptake, northern hemisphere forest regrowth, and other terrestrial sinks; the remaining 46 percent of human-caused CO₂ emissions are stored in the atmosphere.

Similarly, the effects of GHGs are borne globally (sea-level rise, hurricanes, droughts, etc.), as opposed to the localized air quality effects of criteria air pollutants and toxic air contaminants (TACs). The quantity of GHGs that it takes to ultimately result in climate change is not precisely known, but that quantity is enormous. No single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or microclimates. However, it is the combined GHG contributions per project that create an impact.

Not all GHGs possess the same capacity to induce atmospheric warming; as a result, the warming contribution of a GHG is commonly quantified in the common unit of carbon dioxide equivalent (CO₂e) over a 100-year period, by applying the appropriate global warming potential (GWP) value. GHGs with lower emissions rates than carbon dioxide (CO₂) may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than carbon dioxide.¹ By using the applicable GWP for each GHG, project-related emissions can be tabulated in the common unit of metric tons per year carbon dioxide equivalent (CO₂e). GWP ratios are provided by the Intergovernmental Panel on Climate Change (IPCC). Historically, GHG emission inventories were calculated using the GWPs from the IPCC's Second Assessment Report (SAR), published in 1996. The IPCC has since updated the GWP values based

1 The measure of carbon dioxide equivalent (CO₂e) is used to account for the different potentials of GHGs to absorb infrared radiation. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

on the latest science in its Fourth Assessment Report (AR4)² and Fifth Assessment Report (AR5),³ published in 2007 and 2014, respectively. California Air Resources Board (CARB) uses the AR4 GWPs in the Statewide GHG emissions inventory,⁴ in the current Climate Change Scoping Plan,⁵ and in the current version of the California Emissions Estimator Model (CalEEMod)⁶ that is used to calculate CO₂e values for construction as well as operations for existing and proposed Project build-out conditions.

Methane (CH₄) and nitrous oxide (N₂O) are generally much lower than those of carbon dioxide (CO₂) and are associated with anaerobic microbial activity resulting from agricultural practices, flooded soils, and landfills. Methane and nitrous oxide have approximately 23 and 296 times the GWP of carbon dioxide, respectively.

4.7.2.2 Effects of Global Climate Change

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 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 and inability to accurately model Earth's climate system, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the IPCC's Fifth AR5⁷ states that is extremely likely that the dominant cause of the observed warming since the mid-20th century is the anthropogenic increase in GHG concentrations.⁸ A report from the National Academy of Sciences concluded that 97 to 98 percent of

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- 2 Intergovernmental Panel on Climate Change, 2007. *Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Available: <https://www.ipcc.ch/assessment-report/ar4/>. Accessed August 11, 2020.
 - 3 Intergovernmental Panel on 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*. Available: [www.ipcc.ch/report/ar5/syrhttps:/](http://www.ipcc.ch/report/ar5/syrhttps/). Accessed August 11, 2020.
 - 4 Intergovernmental Panel on 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*. Available: [www.ipcc.ch/report/ar5/syrhttps:/](http://www.ipcc.ch/report/ar5/syrhttps/). Accessed August 4, 2020.
 - 5 California Air Resources Board, 2017. *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*. Available: www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed August 4, 2020.
 - 6 California Emissions Model (CalEEMod®), <http://www.aqmd.gov/caleemod/home>. Accessed August 4, 2020
 - 7 Intergovernmental Panel on 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*. Available: [www.ipcc.ch/report/ar5/syrhttps:/](http://www.ipcc.ch/report/ar5/syrhttps/). Accessed August 11, 2020.
 - 8 Intergovernmental Panel on 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*. Available: [www.ipcc.ch/report/ar5/syrhttps:/](http://www.ipcc.ch/report/ar5/syrhttps/). Accessed August 4, 2020.

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

The Fourth California Climate Change Assessment (AR4),¹⁰ found that the potential impacts in California due to global climate change include: loss in snow pack; sea-level rise; more extreme heat days per year; more high ozone days; more extreme forest fires; more severe droughts punctuated by extreme precipitation events; increased erosion of California’s coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation.¹¹ The Fourth Assessment’s findings are consistent with climate change studies published by the California Natural Resources Agency (CNRA) since 2009, starting with the California Climate Adaptation Strategy 10 as a response to the Governor’s Executive Order S-13-2008.¹² In 2014, the CNRA rebranded the first update of the 2009 adaptation strategy as the Safeguarding California Plan.¹³ The 2018 update to Safeguarding California Plan identifies hundreds of ongoing actions and next steps State agencies are taking to safeguard Californians from climate impacts within a framework of 81 policy principles and recommendations.¹⁴

Temperature Increase

The primary effect of adding GHGs to the atmosphere has been a rise in the average global temperature. The impact of human activities on global temperature is readily apparent in the observational record. Since 1895, the contiguous US has observed an average temperature increase of 1.5 degrees Fahrenheit (°F) per century. The last 5-year period (2014–2018) is the warmest on record for the contiguous US,¹⁵ while the

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

10 Intergovernmental Panel on Climate Change, 2007. *Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Available: <https://www.ipcc.ch/assessment-report/ar4/>. Accessed August 11, 2020.

11 California Governor’s Office of Planning and Research, Scripps Institution of Oceanography, CEC, California Public Utilities Commission. 2018. *Statewide Summary Report. California’s Fourth Climate Change Assessment*. Publication number: SUMCCA4-2018-013. Available: <http://www.climateassessment.ca.gov/state/docs/20190116-StatewideSummary.pdf>. Accessed August 6, 2020.

12 California Office of the Governor, California Executive Order S-13-08 Requiring State Adaptation Strategy, November 14, 2008.

13 California Natural Resources Agency, 2014. *Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy*. Available: <http://resources.ca.gov/climate/safeguarding/>. Accessed August 4, 2020.

14 California Natural Resources Agency, 2018. *Safeguarding California Plan: 2018 Update*. Available: <http://resources.ca.gov/climate/safeguarding/>

15 National Oceanic and Atmospheric Association, Assessing the US Climate in 2018. <https://www.ncei.noaa.gov/news/national-climate-201812>. Accessed April 25, 2019. Published February 6, 2019

20 warmest years have occurred over the past 22-year period.¹⁶ The Fourth Assessment (AR4)¹⁷ indicates that average temperatures in California could rise 5.6°F to 8.8°F by the end of the century, depending on the global trajectory of GHG emissions. According to the Cal-Adapt website, the portion of the State in which the Project area is located could result in an average increase in temperature of approximately 4.2° to 6.9°F by 2070–2090, compared to the baseline period of 1961–1990.¹⁸

With climate change, extreme heat conditions and heat waves are predicted to impact larger areas, last longer, and have higher temperatures. Heat waves, defined as three or more days with temperatures above 90°F, are projected to occur more frequently by the end of the century. Extreme heat days and heat waves can negatively impact human health. Heat-related illness includes a spectrum of illnesses ranging from heat cramps to severe heat exhaustion and life-threatening heat stroke.¹⁹

Wildfires

The hotter and dryer conditions expected with climate change will make forests more susceptible to extreme wildfires. One study found that, if GHG emissions continue to rise, the frequency of extreme wildfires burning over approximately 25,000 acres would increase by nearly 50 percent, and the average area burned Statewide each year would increase by 77 percent, by the year 2100. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18 percent by 2055 and the fraction of property insured would decrease.²⁰

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California and make it more difficult for the State to achieve air quality standards. Climate change may increase the concentration of ground-level ozone in particular, which can cause breathing problems, aggravate lung diseases such as asthma, emphysema, chronic bronchitis, and cause chronic obstructive pulmonary disease (COPD) but the magnitude of the effect, and therefore, its indirect effects, are uncertain. Emissions

16 Climate Central, 2019. Available: <https://www.climatecentral.org/gallery/maps/2018-global-temp-review-land-ocean>. Accessed April 25, 2019. Published February 6, 2019.

17 Intergovernmental Panel on Climate Change, 2007. *Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Available: <https://www.ipcc.ch/assessment-report/ar4/>. Accessed August 11, 2020.

18 Cal-Adapt, “Climate Tools,” Maps of Projected Changes, Available: <https://cal-adapt.org/tools/>. Accessed October 19, 2020.

19 California Environmental Protection Agency, 2013. *Preparing California for Extreme Heat: Guidance and Recommendations*. Available: <https://toolkit.climate.gov/reports/preparing-california-extreme-heat-guidance-and-recommendations>.

20 Westerling, Anthony LeRoy. (2018). *Wildfire Simulations for the Fourth California Climate Assessment: Projecting Changes in Extreme Wildfire Events with a Warming Climate*. California’s Fourth Climate Change Assessment, California Energy Commission. Publication number: CCA4-CEC-2018-014.

from wildfires can lead to excessive levels of particulate matter, ozone, and volatile organic compounds.²¹ 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.²²

Precipitation and Water Supply

There is a high degree of uncertainty with respect to the overall impact of global climate change on future water supplies in California. Studies indicate considerable variability in predicting precise impacts of climate change on California hydrology and water resources. Increasing uncertainty in the timing and intensity of precipitation will challenge the operational flexibility of California’s water management systems. 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.²³

Hydrology and Sea-Level Rise

Climate changes 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 sea water 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. Sea level could rise as much as 2 feet along most of the US coastline. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.²⁴

Agriculture

California has a massive agricultural industry that represents 11.3 percent of total US agricultural revenue. Higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency. However, a changing climate presents significant risks to agriculture due to “potential changes to water

21 Kenward, A, et al. (2013). *Wildfires and Air Pollution: The Hidden Health Hazards of Climate Change*. Climate Central. Available: <http://assets.climatecentral.org/pdfs/WildfiresAndAirPollution.pdf>.

22 California Environmental Protection Agency, 2013. *Preparing California for Extreme Heat: Guidance and Recommendations*. Available: <https://toolkit.climate.gov/reports/preparing-california-extreme-heat-guidance-and-recommendations>.

23 California Natural Resources Agency, 2014. *Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy*. Available: <http://resources.ca.gov/climate/safeguarding/>.

24 California Natural Resources Agency, 2014. *Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy*. Available: <http://resources.ca.gov/climate/safeguarding/>.

quality and availability; changing precipitation patterns; extreme weather events including drought, severe storms, and floods; heat stress; decreased chill hours; shifts in pollinator lifecycles; increased risks from weeds, pest and disease; and disruptions to the transportation and energy infrastructure supporting agricultural production.”²⁵

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. Increased 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.²⁶ Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. With climate change, ecosystems and wildlife will be challenged by the spread of invasive species, barriers to species migration or movement in response to changing climatic conditions, direct impacts to species health, and mismatches in timing between seasonal life-cycle events such as species migration and food availability.²⁷

4.7.2.3 Climate Change Effects for California

In 2016, the CNRA released *Safeguarding California: Implementation Action Plans*²⁸ in accordance with Executive Order B-30-15,²⁹ identifying a lead agency to lead adaptation efforts in each sector. In accordance with the 2009 California Climate Adaptation Strategy,³⁰ 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. The information provided on the Cal-Adapt website³¹ represents a projection of potential future climate scenarios comprised of local average values for temperature, sea-level rise, snowpack and other data representative of a variety of models and scenarios, including potential social and economic factors.

26 National Research Council, 2010. *Advancing the Science of Climate Change*. Available: <http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/Science-Report-Brief-final.pdf>.

26 National Research Council, 2010. *Advancing the Science of Climate Change*. Available: <http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/Science-Report-Brief-final.pdf>.

27 California Natural Resources Agency, 2014. *Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy*. Available: <http://resources.ca.gov/climate/safeguarding/>.

28 California Natural Resources Agency, *Safeguarding California: Implementation Action Plans*, Available: <https://resources.ca.gov/CNRALegacyFiles/docs/climate/safeguarding/Safeguarding%20California-Implementation%20Action%20Plans.pdf>.

29 California Office of the Governor, California EO B-30-15: Establishing 2030 CA emissions target, Adaptation initiatives. April 29, 2015.

30 California Natural Resources Agency, 2009 *California Climate Adaptation Strategy, A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. https://resources.ca.gov/CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf

31 Cal-Adapt. Available: <http://cal-adapt.org>.

Climate change could affect environmental conditions in California in a variety of ways. One effect of climate change is rising sea levels. Sea levels along the California coast rose approximately 7 inches during the last century, and they are predicted to rise an additional 7 to 22 inches by 2100, depending on the future levels of GHG emissions. The effects of a rise in sea level could include increased coastal flooding, saltwater intrusion (especially a concern in the low-lying Sacramento–San Joaquin Delta, where pumps delivering potable water to Southern California could be threatened), and disruption of wetlands.

As the State’s climate changes over time, the range of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the State if suitable conditions are no longer available. Additional concerns associated with climate change include a reduction in the snowpack, leading to less overall water storage in the mountains (the largest “reservoir” in the State), and increased risk of wildfires caused by changes in rainfall patterns and plant communities. Changes in the climate can also impact California’s weather patterns and rainfall, causing droughts in certain areas and flooding in others.

4.7.2.4 Sources of Greenhouse Gas Emissions

GHGs are the result of both natural and anthropogenic activities. With respect to anthropogenic activities, motor vehicle travel, air travel, consumption of fossil fuels for power generation, industrial processes, heating and cooling, landfills, agriculture, and wildfire are the primary sources of GHG emissions. Additionally, land use decisions can affect the generation of GHG emissions from multiple sectors, resulting in direct or indirect GHG emissions. For example, electricity consumed in the lighting and heating of buildings is an indirect source of GHG emissions because it requires electricity from power plants, which emits GHGs directly into the atmosphere. Conversely, tailpipe emissions from the use of vehicles generate direct GHG emissions.

GHGs are a group of emissions that include CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, and nitrogen trifluoride (NF₃). Carbon dioxide is the most abundant GHG. As Stated above, other GHGs are less abundant, but have higher global warming potential than CO₂. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO₂; denoted as CO₂e. A general description of GHGs discussed is provided in **Table 4.7-1: Description of Identified Greenhouse Gases.**

Table 4.7-1
Description of Identified Greenhouse Gases

GHG	General Description
Carbon Dioxide (CO ₂)	An odorless, colorless GHG that has both natural and anthropogenic 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 ₂ O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N ₂ O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, 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 ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, 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 substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
Perfluorinated Chemicals (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 are able to 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-conduction manufacturing.
Sulfur Hexafluoride (SF ₆)	An inorganic, odorless, colorless, nontoxic, and nonflammable 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, nontoxic, odorless, nonflammable gas. NF ₃ is used in the manufacture of semiconductors, as an oxidizer of high energy fuels, for the preparation of tetrafluoro hydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.

^a GHGs identified in this table are ones identified in the Kyoto protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.

4.7.3 METHODOLOGY

4.7.3.1 Methodologies for Evaluating Significance

GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.³²

It is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature, and thus no typical single project would result in emission of such a magnitude that it, in and of itself, would be significant on a project basis. A typical single project's GHG emission will be small relative to the total global or even Statewide GHG emissions. Thus, the analysis of significance of potential impacts from GHG emissions related to a single project is already representative of long-term impacts on a cumulative basis.

As such, the assessment of significance is based on a determination of whether the GHG emissions from the proposed Project represent a cumulatively considerable contribution to global climate change. The analysis of the Project's GHG emissions consists of a quantitative analysis of the GHG emissions generated by the Project and a qualitative analysis of the Project's consistency with adopted GHG-related legislation, plans, and policies. This approach is in accordance with CEQA Guidelines Section 15064.4(a), which affirms the discretion of a lead agency to determine, in the context of a particular project, whether to use quantitative and/or qualitative methodologies to determine the significance of a project's impacts.

4.7.3.1 Emissions Inventory Modeling

Project development would generate GHG emissions from a number of individual sources during both construction and post-construction (operational) use of the proposed Project. Intermittent, short-term construction emissions that occur from activities such as demolition, site-grading, construction, paving, and architectural coatings were evaluated. Regulatory models used to estimate GHG impacts include:

- CARB's EMFAC³³ emissions inventory model. EMFAC is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.

32 California Air Pollution Control Officers Association, CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, January 2008, p. 35, Accessed August 2020 at: <http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf>.

33 California Air Resources Board, *EMFAC2017 User's Guide*, March 1, 2018, Accessed July 23, 2020 at: <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf> and <https://www.arb.ca.gov/emfac/2017/>.

- The California Emissions Estimator Model (CalEEMod),³⁴ is the CARB–approved computer program model recommended by SCAQMD for use in the quantification of air quality and GHG emissions. CalEEMod was developed by SCAQMD, with input from other California air districts. CalEEMod utilizes widely accepted models for emissions estimates combined with appropriate data that can be used if site-specific information is not available. For example, CalEEMod incorporates USEPA-developed emission factors; CARB’s on-road and off-road equipment emission models, such as EMFAC and OFFROAD; and studies commissioned by other California agencies, such as the California Energy Commission and CalRecycle.

4.7.3.2 Construction

The proposed Project Construction Scenarios are provided in **Appendix 3.0.4: Construction Scenario** and were used to estimate construction GHG associated with the proposed Project.

Construction of the proposed Project would have the potential to temporarily emit GHG emissions through the use of heavy-duty construction equipment and through vehicle trips generated from workers and haul trucks traveling to and from the proposed Project carrying demolition debris, building material and soils.

Construction Schedule

Pre-construction of the proposed Project would begin in late 2021 with demolition activities starting early 2022. Construction of the proposed Project would occur over approximately 45 months, from approximately early 2022 through mid-2026. The phasing would include:

- **Phase 1** would include, but not be limited to, demolition of buildings and site improvements on properties acquired for construction of the Project and the beginning of construction of the MSF. The properties where existing buildings and site improvements will be demolished include at the existing retail commercial center at Market Street and Regent Street (CVS plaza), the commercial buildings located at 500 and 501 E. Manchester Avenue (retail commercial site and gas station buildings), and the commercial building at 150 S. Market Street on the northeast corner of Manchester and Market Street. Phase 1 would include utility relocations, if required, construction of cast-in-place (CIP) columns and slabs, foundations for the initial construction of the MSF facility. After demolition, the remaining asphalt flatwork areas at 500 E. Manchester (retail commercial site), the commercial plaza at Market Street and Regent Street (CVS Plaza) and the commercial building at 150 S. Market Street will provide suitable space for construction staging, including but not limited to, space for equipment storage, material staging and storage, contractor jobsite trailers, and on-site parking for construction staff throughout the entire project duration. The first phase of construction would occur between approximately 2022 and 2023.
- **Phase 2** would include activities to enable the construction sequence of the guideway along Prairie Avenue from the Hardy Street intersection to Manchester Boulevard including the demolition of

34 California Emissions Model (CalEEMod®), <http://www.aqmd.gov/caleemod/home>. Accessed August 4, 2020

sidewalks, roadways and landscaping as needed, utility relocations, if necessary, foundations, CIP columns, straddle bents and the precast trapezoidal troughs and girders, and the construction of the MSF. The second phase of construction would occur between approximately 2023 and 2025.

- **Phase 3** would include construction of an above-ground passenger access walkway from the Market Street/Florence Avenue Station to the Metro Crenshaw/LAX Line Downtown Inglewood Station, property acquisitions, building demolition, utility relocation (if necessary), foundations, CIP columns, straddle bents and the precast trapezoidal troughs and girders. This phase includes site work completion of the MSF. The third phase of construction would occur between approximately 2024 and 2026.
- **Phase 4** would include completion of the aerial guideway construction elements including the installation of the operation and control systems, track work, station platform equipment and systems, completion of the TPSSs, testing and commissioning of the APM trains, completion of all surface construction activities including electrical, mechanical and utilities energizations, and all surface parking lots. Phase 4 will also include final roadway improvements and modifications, and re-striping of streets as required. The fourth phase of construction would occur between approximately 2022 and 2026.

Construction activity would occur 24-hours a day seven days a week with primarily heavy construction activities (those involving large equipment use on site) would occur over a 16 hour/day schedule with two shifts, either a morning shift from approximately 7:00 AM to 3:00 PM and an evening shift from approximately 3:00 PM to 11:00 PM, or a morning shift from approximately 7:00 AM to 3:00 PM and a night shift from approximately 11:00 PM to 7:00 AM. The night shift would be used for material deliveries, export of soil and debris and other light construction activities.

Combinations of these shifts would be referred to “Morning/Evening” or “Morning/Night.” Other minimal construction work could occur during other hours at a reduced intensity. Delivery of construction materials would occur during the night shift, as would most lane closures.

4.7.3.3 Operation

Analysis of the Project’s operational emissions considers three types of sources: 1) area; 2) energy; 3) solid waste; 4) water and wastewater; and 5) mobile. A description of the proposed Project’s various operational components is detailed in **Section 3.5: Project Characteristics**.

Area

The operational area emissions from the proposed Project were estimated using the CalEEMod³⁵ software. Area source emissions associated with normal operations for the proposed Project include on-site activities and upkeep including landscaping equipment. The emissions were estimated using

³⁵ CalEEMod, <http://www.caleemod.com/>.

CalEEMod, based on the size of the proposed Project stationary uses (MSF and stations), and the GHG emission factors for fuel combustion.

Energy

The operational energy emissions from the proposed Project were estimated using the CalEEMod³⁶ software and Southern California Edison's (SCE) average CO₂e intensity factors. Energy source emissions are generated as a result of activities associated with the MSF and stations which would utilize electricity and natural gas utility infrastructure. Moreover, electricity will be used for propulsion of the APM system. Propulsion power (i.e. the power to run the APM train on a guideway and operate the stations) is provided via two TPSS' located along the guideway.

Solid Waste

The operational emissions from solid waste associated with the proposed Project's MSF and stations were estimated using the CalEEMod³⁷ software. Solid waste generation and associated emissions are calculated based on building square-footage, using default data found in CalEEMod for the proposed land uses.

Water and Wastewater

The operational emissions from water consumption and wastewater generation associated with the proposed Project were estimated using the CalEEMod³⁸ software. California's water conveyance system is energy intensive, with electricity used to pump and treat water. The Project would result in indirect GHG emissions due to water consumption and wastewater generation. Water consumption and wastewater generation, and their associated emissions, are calculated based on building square-footage, using default CalEEMod data.

Mobile

Operation of the proposed Project would generate GHG emissions from mobile sources from Project-generated vehicle trips traveling to and from the MSF and other facilities. Mobile emissions were calculated based on the data provided in the proposed Project's Traffic Study (see **Appendix 4.12.1: Transportation Assessment Study**) which is further discussed in **Section 4.12: Transportation**. Under the Traffic Study, vehicle miles traveled (VMT) was chosen as the primary performance metric used to identify impacts. VMT's associated with trips to and from all areas within the City were included in the Traffic Study and were utilized to calculate operational GHG emissions from mobile sources. Emissions from motor vehicles are dependent on vehicle type. Thus, the emissions were calculated using a representative motor

36 CalEEMod, <http://www.caleemod.com/>

37 CalEEMod, <http://www.caleemod.com/>

38 CalEEMod, <http://www.caleemod.com/>

vehicle fleet mix for the proposed Project and EMFAC2017 default fuel type. Note that mobile emission estimates did not account for the recently issued Executive Order N-79-20 which sets forth a state goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035, among other goals.

The Adjusted Baseline Environmental Setting is described in **Section 4.0: Environmental Analysis**. Project operations are expected to commence in 2026. Consistent with the Traffic Study, six operational scenarios were analyzed to evaluate the proposed Project's indirect operational emissions, as follows:

1. Adjusted Baseline,
2. Adjusted Baseline with the proposed Project,
3. Year 2026 with Event Weekday without the proposed Project,
4. Year 2026 with Event Weekday with the proposed Project,
5. Year 2045 with Event Weekday without the proposed Project, and
6. Year 2045 with Event Weekday with the proposed Project.

Details of each of the above scenarios are provided in **Section 4.12** and in **Appendix 4.12.1**.

Backup Generators

To assure the ability to allow APM trains to reach the nearest stations to offload riders in the event of loss of electrical supply, each TPSS will be equipped with backup power generators. The proposed Project would include up to two stationary standby generators, one at each of the two TPSS sites, with an estimated total capacity rated at approximately 4,000 kilowatts (kW) to provide emergency power primarily for APM train operation, lighting and other emergency systems. Emergency generator emissions were calculated based on compliance with applicable federal emissions standards and compliance with SCAQMD Rule 1470³⁹ (Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines) mandated emission limits and operating hour constraints.

A standby internal combustion engines (ICEs) greater or turbine for nonutility power generation that does not operate more than 200 hours a year and is only operated in the event of an emergency power failure or for routine testing and maintenance is considered an emergency backup generator for power generation. The SCAQMD allows for the use of backup generators thru specific permits prior to installation.⁴⁰

39 SCAQMD, *Rule 1470 - Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines*.

40 SCAQMD, *Permits, Emergency Generators*. <http://www.aqmd.gov/home/permits/emergency-generators>.

The proposed Project would implement the following operational equipment requirements and operation protocols for operating backup generators. These would include the following:

- All backup generators would be selected from the SCAQMD certified generators list and meet applicable federal standards for diesel emissions. For after-treatment of engine exhaust air, a diesel particulate filter would be provided to meet the emission level requirements of SCAQMD;
- The proposed Project would have two standby generators, each could operate up to two hours per day and a total of 50 hours per year for testing and maintenance (per SCAQMD Rule 1470 limit) to ensure reliability in the case of a power outage; and
- The proposed Project would conduct maintenance and/or testing on the two standby generators on separate days.

As such, each standby generators would operate for 2 hours per day during 24 days per year (twice a month) for a total of not more than 50 hours per year. Each standby generator would be tested during different days; if needed for emergency operation, both generators would operate up to 2 hours each and could occur simultaneously.

4.7.4 REGULATORY FRAMEWORK

4.7.4.1 International and Federal

International Governmental Panel on Climate Change (IPCC)

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess “the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaption and mitigation.” The initial task for the IPCC was to prepare a comprehensive review and recommendations with respect to the state of knowledge of the science of climate change; the social and economic impact of climate change, and possible response strategies and elements for inclusion in a possible future international convention on climate. Since its inception, the IPCC has delivered five comprehensive scientific reports about climate change, with the latest (the Fifth Assessment Report) released in four parts between September 2013 and November 2014.⁴¹

Federal Clean Air Act

The US Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*⁴² that CO₂ and other GHGs are pollutants under the federal Clean Air Act (CAA), which the US Environmental Protection Agency

41 Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014-Mitigation of Climate Change, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014, p. 439.

42 *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007).

(USEPA) must regulate if it determines they pose an endangerment to public health or welfare.⁴³ The Court did not mandate that the USEPA enact regulations to reduce GHG emissions. Instead, the Court found that the USEPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a “reasonable explanation” for not determining that GHGs contribute to climate change.

On April 17, 2009, the USEPA issued a proposed finding that GHGs 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-2009-0171.⁴⁴ The USEPA Stated that high atmospheric levels of GHGs “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 final rule was effective on January 14, 2010.⁴⁵ While these findings alone did not impose any requirements on industry or other entities, this action was a prerequisite to regulatory actions by the EPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

In response, the USEPA promulgated a regulation to require reporting of all GHG emissions from all sectors of the economy. The final rule applies to fossil fuel suppliers and industrial gas suppliers, direct greenhouse gas emitters and manufacturers of heavy-duty and off-road vehicles and engines. The rule does not require control of greenhouse gases; rather, it requires only that sources above certain threshold levels monitor and report emissions.⁴⁶

USEPA Actions

USEPA has taken the following actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the USEPA issued a rule for mandatory reporting of GHGs from large GHG emissions sources in the United States.⁴⁷ In general, this national reporting requirement provides USEPA

43 Perry W. Payne and Sara Rosenbaum, “Massachusetts et al. v Environmental Protection Agency: Implications for Public Health Policy and Practice,” *Public Health Reports* 122 No. 6 (2007): 817–819, Accessed April 2020, <https://doi.org/10.1177/003335490712200614>.

44 Federal Register, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, Accessed April 2020, <https://www.federalregister.gov/documents/2009/12/15/E9-29537/endangerment-and-cause-or-contribute-findings-for-greenhouse-gases-under-section-202a-of-the-clean>.

45 United States Environmental Protection Agency (USEPA), *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*, Accessed April 2020, <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean/>.

46 Federal Register, *Mandatory Reporting of Greenhouse Gases*, Accessed April 2020, <https://www.gpo.gov/fdsys/pkg/FR-2009-10-30/pdf/E9-23315.pdf>.

47 United States Environmental Protection Agency, *Greenhouse Gas Reporting Program (GHGRP)*, accessed June 2020, <https://www.epa.gov/ghgreporting/additional-information-2009-proposed-rule>.

with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO₂ per year and allows the operators of these facilities to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. An estimated 85 percent of the total US GHG emissions from approximately 10,000 facilities are covered by this rule.

Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA

On December 7, 2009, USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Compliance Certification Application (Endangerment Finding).⁴⁸ These include:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the proposed USEPA GHG standards for light-duty vehicles. These standards were jointly proposed by USEPA and the Department of Transportation National Highway Traffic Safety Administration (NHTSA), and the final rule became effective January 14, 2010. In collaboration with the NHTSA, USEPA finalized emission standards for light-duty vehicles (2012–2016 model years) in May 2010 and for heavy-duty vehicles (2014–2018 model years) in August 2011. Furthermore, the agencies finalized standards to extend the light-duty vehicle GHG National Program for model years 2017–2025. The standards are estimated to cut GHG emissions from cars and light trucks in half by 2025, reducing emissions by 6 billion metric tons over the life of the program—more than the total amount of CO₂ emitted by the United States in 2010.

Greenhouse Gases and Fuel Efficiency Standards

Passenger Cars and Light-Duty Trucks

In October 2012, the USEPA and NHTSA finalized the second phase of a coordinated National Program to establish GHG standards and Corporate Average Fuel Economy (CAFE) standards for new model years 2017

⁴⁸ United States Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*, accessed June 2020, <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.

through 2021 passenger cars, light-duty trucks, and medium-duty passenger vehicles, and issued standards for model year 2022 through 2025 following direction from the Obama Administration.⁴⁹ The agencies developed the second phase of the coordinated National Program for GHG emissions and fuel efficiency standards following the successful adoption of the first phase for model year 2012-2016 light-duty vehicles in April 2010. Under the second phase standards, CO₂ emission limits would decrease from 250 grams per mile (g/mi) in model year 2016 to 163 g/mi in model year 2025 for a combined fleet of cars and light trucks, equivalent to 54.5 mpg if this level were achieved solely through fuel efficiency improvements. If all of the necessary emission reductions were made from fuel economy improvements, then the standards would correspond to a combined fuel economy of 40.3-41 mpg in 2021 for the first phase of NHTSA rulemaking action and 48.7-49.7 mpg in 2025 for the second phase. In March 2020, the Trump Administration issued the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule), setting fuel economy and carbon dioxide standards that increase 1.5 percent in stringency each year from model years 2021 through 2026.⁵⁰

Medium- and Heavy-Duty Engines and Vehicles

In October 2016, the USEPA and NHTSA announced a comprehensive Phase 2 Heavy-Duty (HD) National Program to reduce GHG emissions and to improve fuel efficiency for medium- and heavy-duty vehicles through model year 2027, with interim standards for model years 2021 and 2024.⁵¹ The agencies developed the second phase of the HD National Program following the early success of and broad support for the first phase National Program for model years 2014-2018 new medium and heavy-duty vehicles in August 2011, which set to reduce GHG emissions by 270 million metric tons and oil consumption by 530 million barrels over the life of the affected vehicles. On October 17, 2017, USEPA announced it would revisit these standards; however, no changes to the 2016 standards have been made as of October 2020.

Federal Energy Policy and Conservation Acts

The Federal Energy Policy and Conservation Act of 1975, the Federal Energy Policy Act of 2005, and the Energy Independence and Security Act of 2007 require the U.S. Department of Energy (DOE) to set electrical efficiency standards for various appliances, fixtures, and equipment. Specifically, the Energy Independence and Security Act of 2007 includes standards for an increased CAFE standard of 35 miles per

49 U.S. Environmental Protection Agency (USEPA), *Regulations for Emissions from Vehicles and Engines*, “Final Rule for Model Year 2017 and Later Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards,” October 15, 2012, <https://www.gpo.gov/fdsys/pkg/FR-2012-10-15/pdf/2012-21972.pdf>, accessed July 25, 2018.

50 National Highway Traffic Safety Administration, “The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks,” August 24, 2018, accessed June 2020, <https://www.nhtsa.gov/corporate-average->, accessed November 11, 2018.

51 USEPA, *Regulations for Emissions from Vehicles and Engines*, “Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2,” October 25, 2016, <https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf>, accessed July 25, 2018.

gallon (mpg) for the combined fleet of cars and light trucks by the 2020 model year, in addition to the following provisions: Renewable Fuel Standard (RFS) (Section 202), Appliance and Lighting Efficiency Standards (Sections 301–325), and Building Energy Efficiency (Sections 411–441). The Act includes standards for general service lighting that will require lightbulbs to consume 60 percent less energy by 2020. This standard is leading to the phasing out of incandescent lightbulbs to be replaced by more efficient lighting. Additional provisions of the Act address energy savings in government and public institutions, promote research for alternative energy, carbon capture, and international energy programs, and create green jobs.

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 USEPA and 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 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.”⁵²

52 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

4.7.4.2 State Regulations and Directives

Executive Orders

Executive Order S-03-05

Executive Order S-3-05, signed by Governor Arnold Schwarzenegger and issued in June 2005, proclaimed that California is vulnerable to the impacts of climate change.⁵³ It declared that increased temperatures could reduce the Sierra snowpack, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established the following total GHG emission targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-3-05 also created the California Climate Action Team (CAT), an initiative of the Office of the Governor comprised of members from 14 State agencies, in order to coordinate climate policy and meeting agency targets at the State level. CAT has identified strategies that integrate transportation and land-use decisions, termed “smart land use.” 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.⁵⁴

Executive Order S-01-07

Executive Order S-1-07, the Low Carbon Fuel Standard (issued on January 18, 2007), requires a reduction of at least 10 percent in the carbon intensity of California’s transportation fuels by 2020.⁵⁵ Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to CARB. The Low Carbon Fuel Standard has been identified by CARB as a discrete early action item in the adopted Climate Change Scoping Plan (discussed below). CARB expects the Low Carbon Fuel Standard to achieve the

53 National Resources Conservation Service, *Emerging Issues Committee Members*, https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_008701.pdf.

54 California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature* (March 2006), 58, <http://s3-us-west-2.amazonaws.com/uclidc-nuxeo-ref-media/0bdec21c-ca2b-4f4d-9e11-35935ac4cf5f>, accessed August 2018.

55 Office of the Governor, *Executive Order S-01-07*, (January 18, 2007), <https://www.arb.ca.gov/fuels/lcfs/eos0107.pdf>.

minimum 10 percent reduction goal; however, many of the early action items outlined in the Climate Change Scoping Plan work in tandem with one another. Other specific emission reduction measures included are the Million Solar Roofs Program⁵⁶ and Assembly Bill (AB) 1493 (Pavley I), Vehicle Emissions: Greenhouse Gases, which establishes motor vehicle GHG emissions standards.⁵⁷ To avoid the potential for double-counting emission reductions associated with AB 1493, the Climate Change Scoping Plan has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent. CARB released a draft version of the Low Carbon Fuel Standard in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the Low Carbon Fuel Standard became effective on the same day.

Executive Order B-30-15

Executive Order B-30-15, signed by Governor Edmund Gerald “Jerry” Brown and issued on April 29, 2015, established a new Statewide policy goal to reduce GHG emissions to 40 percent below their 1990 levels by 2030. Furthering advancing the targets of AB 32, reducing GHG emissions by 40 percent below 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 to limit global warming to less than 2 degrees Celsius.⁵⁸

Executive Order N-79-20

On September 23, 2020 Governor Gavin Newsom issued Executive Order N-79-20 which relates to issues surrounding GHG emissions generated from vehicular transportation and fossil fuel production in California. This Executive Order builds on previous orders issued by former Governor Jerry Brown in 2012 and 2018, which set state goals, respectively of 1.5 million zero-emission vehicles by 2025 and 5 million zero-emission vehicles by 2030. Executive Order N-79-20 sets the following goals in addition to current state goals:

- 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035;
- 100 percent of medium- and heavy-duty vehicles in the State will be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks; and

56 US Department of Energy, “Laying the Foundation for Solar America: The Million Solar Roofs Initiative” (October 2016), <https://www.nrel.gov/docs/fy07osti/40483.pdf>.

57 The standards enacted in Pavley I are the first GHG standards in the nation for passenger vehicles and took effect for model years starting in 2009 to 2016. Pavley I could potentially result in 27.7 million metric tons CO₂e reduction in 2020. Pavley II will cover model years 2017 to 2025 and potentially result in an additional reduction of 4.1 million metric tons CO₂e.

58 California Office of the Governor, *Governor Brown Established Most Ambitious Greenhouse Gas Reduction Target in North America*, (April 29, 2015), <https://www.gov.ca.gov/2015/04/29/news18938/>.

- 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.⁵⁹

Assembly Bill 32, California Global Warming Solutions Act of 2006

AB 32, the Global Warming Solutions Act of 2006, required a sharp reduction of GHG emissions to 1990 levels by 2020. To achieve these goals, AB 32 mandated that CARB establish a quantified emissions cap and institute a schedule to meet the cap; implement regulations to reduce Statewide GHG emissions from stationary sources consistent with the California Climate Action Team strategies; and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. To reach the reduction targets, AB 32 required CARB to adopt—in an open, public process—rules and regulations that achieve the maximum technologically feasible and cost-effective GHG reductions.

Assembly Bill 197 and Senate Bill 32: Statewide Reductions in GHG Emissions

On September 8, 2016, Governor Brown signed AB 197, which requires CARB to approve a Statewide GHG emissions limit equivalent to the Statewide GHG emission level in 1990 to be achieved by 2030. AB 197 requires the CARB to prepare and approve a scoping plan for achieving the maximum technologically feasible and cost-effective reductions in GHG emissions. The bill became effective on January 1, 2017.

On September 8, 2016, Governor Brown also signed SB 32, which extends AB 32 another 10 years to 2030 and updates the State’s objectives. SB 32 calls for Statewide reductions in GHG emissions to 40 percent below 1990 levels by 2030. The bill became effective on January 1, 2017.⁶⁰

Assembly Bill 1493 – Pavley

Enacted on July 22, 2002, the California's Greenhouse Gas Vehicle Emission Standards under Assembly Bill 1493 of 2002 (Pavley)⁶¹ required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB apply to 2009 through 2016 vehicles. CARB estimated that the regulation would reduce GHG emissions from the light-duty and passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030. In 2011, the U.S. Department of Transportation, USEPA, and State of California announced a single timeframe for proposing fuel and economy standards, thereby aligning the Pavley standards with the federal standards for

59 California Office of the Governor, Executive Order N-79-20, Available: <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>.

60 California Legislative Information, *Senate Bill No. 32*, Accessed April 2020, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.

61 CARB, *California's Greenhouse Gas Vehicle Emission Standards under Assembly Bill 1493 of 2002* (Pavley) <https://ww2.arb.ca.gov/californias-greenhouse-gas-vehicle-emission-standards-under-assembly-bill-1493-2002-pavley>.

passenger cars and light-duty trucks.⁶² Emission estimates included in this analysis account for the Pavley standards.

Senate Bill 375, Sustainable Communities and Climate Protection Act

SB 375, signed into law in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations.⁶³ The act requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) that prescribes land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with MPOs, provided regional reduction targets for GHGs for the years 2020 and 2035.

Senate Bill X1-2: 2020 Renewable Portfolio Standard

On April 12, 2011, California Governor Jerry Brown signed SB X1-2.⁶⁴ This bill supersedes the 33 percent by RPS created by Executive Order S-14-08, previously signed by Governor Schwarzenegger. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. A number of significant changes are made in SB X1-2. It extends application of the RPS to all electric retailers in the State, including municipal and public utilities, and community choice aggregators.

SB X1-2 creates a three-stage compliance period for electricity providers to meet renewable energy goals: 20 percent of retail sales must be renewable energy products by 2013, 25 percent of retail sales must be renewable energy products by 2016, and 33 percent of retail sales must be renewable energy products by 2020. The 33 percent level must be maintained in the years that follow. This three-stage compliance period requires the RPS to be met increasingly with renewable energy that is supplied to the California grid and is located within or directly proximate to California. SB X1-2 mandates that renewables from this category make up:

- At least 50 percent for the 2011–2013 compliance period;
- At least 65 percent for the 2014–2016 compliance period; and
- At least 75 percent for 2016 and beyond.

SB X1-2 sets rules for the use of Renewable Energy Credits (RECs) as follows:

62 U.S. Department of Transportation, "EPA, DOT and California Align Timeframe for Next Generation of Clean Cars," April 18, 2012, available at <https://www.transportation.gov/briefing-room/epa-dot-and-california-align-timeframe-proposing-standards-next-generation-clean-cars>, accessed August 7, 2018.

63 California Legislative Information, *Senate Bill No. 375*, Accessed April 2020, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=200720080SB375.

64 California Energy Commission, *Renewable Portfolio*, Accessed April 2020, <http://www.energy.ca.gov/portfolio>.

- Establishes a cap of no more than 25 percent unbundled RECs going toward the RPS between 2011 and 2013, 15 percent from 2014 to 2016, and 10 percent thereafter;
- Does not allow for the grandfathering of tradable REC contracts executed before 2010, unless the contract was (or is) approved by the California Public Utilities Commission (CPUC);
- Allows banking of RECs for 3 years only; and
- Allows energy service providers, community choice aggregators, and investor-owned utilities with 60,000 or fewer customers to use 100 percent RECs to meet the RPS.

SB X1-2 also eliminates the Market Price Referent, which was a benchmark to assess the above-market costs of RPS contracts based on the long-term ownership, operating, and fixed-price fuel costs for a new 500-megawatt (mW) natural-gas-fired, combined-cycle gas turbine.

Senate Bill 350: Clean Energy and Pollution Reduction Act

SB 350, the Clean Energy and Pollution Reduction Act of 2015, was signed on October 7 of that year.⁶⁵ SB 350 implements some of the goals of Executive Order B-30-15 described above. The objectives of SB 350 are: (1) to increase the procurement of our electricity from renewable sources from 33 percent to 50 percent; and (2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.⁶⁶

Senate Bill 1078 and Senate Bill 107

Established in 2002 under SB 1078, the California Renewables Portfolio Standards (RPS) were accelerated in 2006 under SB 107, which required that, by 2010, at least 20 percent of electricity retail sales come from renewable sources. In April 2016, the CEC updated the RPS pursuant to SB 350, intended to set the new target 50 percent renewables by 2030.⁶⁷

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledged that climate change is an environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the CNRA guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. SB 97 required the CNRA to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency

65 California Legislative Information, *Senate Bill No. 350*, Accessed April 2020, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

66 Senate Bill 350 (2015–2016 Reg, Session) Stats 2015, ch. 547.

67 California Energy Commission, *Enforcement Procedures for the Renewables Portfolio Standards for Local Publicly Owned Electric Utilities: Amended Regulations*, Accessed April 2020, <http://www.energy.ca.gov/2016publications/CEC-300-2016-002/CEC-300-2016-002-CMF.pdf>.

adopted amendments to the CEQA Guidelines. The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

CEQA Guidelines

CEQA Guidelines section 15064.4 addresses the significance of GHG emissions, directing that a lead agency shall make a “good-faith effort” to “describe, calculate or estimate” GHG emissions in CEQA environmental documents.⁶⁸ Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project GHG emissions would exceed a threshold of significance that the lead agency determines applies to the project, and (3) the extent to which the project would comply with “regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.”

The CEQA Guidelines focus on the effects of GHG emissions as cumulative impacts, and direct that they should be analyzed in the context of CEQA’s requirements for cumulative impact analysis.⁶⁹ CEQA Guidelines section 15064.4 states that “the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project’s emissions to the effects of climate change. A project’s incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency’s analysis should consider a timeframe that is appropriate for the project. The agency’s analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes.” The CEQA Guidelines also establish that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines section 15064(h)(3)).

The CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions, nor do they set a numerical threshold of significance for GHG emissions. Guideline 15064.7(c) clarifies that in adopting or using thresholds of significance, a lead agency may appropriately consider thresholds developed by other public

68 California Natural Resources Agency, CEQA Guidelines Amendments, Sections 15064.4, 15183.5, 15364.5. Available: http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf.

69 California Natural Resources Agency, Final Statement of Reasons for Regulatory Action, December 2009, pp. 20-26. Available: http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf.

agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

When GHG emissions are found to be significant, CEQA Guidelines section 15126.4(c) includes the following direction on measures to mitigate GHG emissions:

Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

- (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
- (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
- (4) Measures that sequester greenhouse gases; and
- (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

In late 2018, the CNRA finalized amendments to the CEQA Guidelines, including changes to CEQA Guidelines section 15064.4, which addresses the analysis of GHG emissions. The amendments were approved by the Office of Administrative Law and filed with the Secretary of State. The amendments became effective on December 28, 2018. The revision of CEQA Guidelines section 15064.4 clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects.
- The focus of the lead agency's analysis should be on the project's effect on climate change, rather than simply focusing on the quantity of emissions and how that quantity of emissions compares to statewide or global emissions.
- The impacts analysis of GHG emissions is global in nature and thus should be considered in a broader context. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions.
- Lead agencies should consider a timeframe for the analysis that is appropriate for the project.

- A lead agency's analysis must reasonably reflect evolving scientific knowledge and state regulatory schemes.
- Lead agencies may rely on plans prepared pursuant to section 15183.5 (Plans for the Reduction of Greenhouse Gases) in evaluating a project's greenhouse gas emissions.
- In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the state's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies.
- The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

Senate Bill 862 (Transit and Intercity Rail Capital Program)

The Transit and Intercity Rail Capital Program (TIRCP) was created by Senate Bill (SB) 862 (Chapter 36, Statutes of 2014) and modified by Senate Bill 9 (Chapter 710, Statutes of 2015) to provide grants from the Greenhouse Gas Reduction Fund to fund transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems to reduce emissions of greenhouse gases by reducing congestion and vehicle miles traveled throughout California. The goal of the TIRCP is to provide monies to fund transformative capital improvements that modernize California's intercity rail, bus, ferry and rail transit systems to achieve the following objectives:

- Reduction in greenhouse gas emissions;
- Expand and improve rail service to increase ridership;
- Integrate the rail service of the State's various rail operations, including integration with the high-speed rail system; and
- Improve safety

Climate Change Scoping Plan

CARB approved a Climate Change Scoping Plan (Scoping Plan) on December 11, 2008, as required by AB 32. The 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.”⁷⁰ The Scoping Plan had a range of GHG reduction actions, including direct regulations; alternative compliance mechanisms; monetary and nonmonetary incentives; voluntary actions; market-based mechanisms, such as a cap-and-trade system; and an AB 32 implementation regulation to fund the program.

The Scoping Plan called for a “coordinated set of strategies” to address all major categories of GHG emissions.⁷¹ Transportation emissions were to be addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard,⁷² 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 implement energy efficiency practices. Utility energy supplies will change to include more renewable energy sources through implementation of the Renewables Portfolio Standard. This will be complemented with emphasis on local generation, including rooftop photovoltaics and solar hot water installations. Additionally, the 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.

CARB updated the Scoping Plan in May 2014 (2014 Scoping Plan). The 2014 Scoping Plan⁷³ adjusted the 1990 GHG emissions levels to 431 million metric tons of carbon dioxide equivalents (MMTCO₂e); the updated 2020 GHG emissions forecast is 509 MMTCO₂e, which credited for certain GHG emission reduction measures already in place (e.g., the RPS). The 2014 Scoping Plan also recommended a 40 percent reduction in GHG emissions from 1990 levels by 2030, and a 60 percent reduction in GHG emissions from 1990 levels by 2040.

The 2017 Scoping Plan,⁷⁴ approved on December 14, 2017, builds on previous programs and takes aim at the 2030 target established by the SB 32 (Pavley), which is further discussed below. The 2017 Scoping Plan outlines options to meet California’s aggressive goals to reduce GHGs by 40 percent below 1990 levels by 2030. In addition, the plan incorporates the State’s updated RPS requiring utilities to procure 50 percent of their electricity from renewable energy sources by 2030. It also raises the State’s Low Carbon Fuel

70 CARB, *Climate Change Scoping Plan: A Framework for Change*, Accessed April 2020, https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

71 CARB, *Climate Change Scoping Plan*, p. ES-7.

72 Office of the Governor, Executive Order S-01-07, (January 18, 2007), <https://www.arb.ca.gov/fuels/lcfs/eos0107.pdf>.

73 CARB, *First Update to the Climate Change Scoping Plan: Building on the Framework (May 2014)*.

74 CARB, *California’s 2017 Climate Change Scoping Plan*, Accessed April 2020, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

Standard⁷⁵ and aims to reduce emissions of methane and hydrofluorocarbons by 40 percent from 2013 levels by 2030 and emissions of black carbon by 50 percent from 2013 levels.

The 2017 Scoping Plan⁷⁶ advises that absent conformity with a qualified GHG reduction plan, projects should incorporate all feasible GHG reduction measures and that achieving “no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development.”

Cap-and-Trade Program

AB 32 established the goal of reducing GHG emissions Statewide to 1990 levels by 2020. To help achieve this goal, CARB adopted a regulation to establish a cap-and-trade program that places a “cap” on the aggregate GHG emissions from entities responsible for roughly 85 percent of the State’s GHG emissions. As part of the cap-and-trade program, CARB conducts quarterly auctions where it sells emission allowances. Revenues from the sale of these allowances fund projects that support the goals of AB 32, including transit and rail investments.

On October 20, 2011, CARB’s board adopted the final cap-and-trade regulation; the program began on January 1, 2012. The scope of GHG emission sources subject to cap-and-trade in the first compliance period (2013–2014) included all electricity generated and imported into California, and large industrial facilities emitting more than 25,000 metric tons of carbon dioxide equivalents (MTCO₂e) per year (e.g., oil refineries and cement manufacturers). The scope of GHG emission sources subjected to cap-and-trade during the second compliance period (2015–2017) expands to include distributors of transportation fuels (including gasoline and diesel), natural gas, and other fuels.

California Advanced Clean Cars/Zero Emission Vehicle Program

In 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for vehicle model years 2017–2025. The program combines the control of smog, soot, and GHGs with requirements for greater number of zero-emission vehicles. By 2025, when the rules will be fully implemented, automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog forming emissions.⁷⁷

75 Office of the Governor, Executive Order S-01-07, (January 18, 2007), <https://www.arb.ca.gov/fuels/lcfs/eos0107.pdf>.

76 California Air Resources Board, 2017. *California’s 2017 Climate Change Scoping Plan*. pp. 100-101. Available: www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

77 CARB, *The Advanced Clean Cars Program*, (January 18, 2017), <https://www.arb.ca.gov/msprog/acc/acc.htm>

California Energy Commission

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

California’s Energy Efficiency Standards for Residential and Nonresidential Buildings, found in Title 24, Part 6 of the California Code of Regulations (CCR) 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 components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.⁷⁸

An update to Title 24 was adopted by the CEC on April 23, 2008. The 2008 Title 24 standards applied to building permits for which an application was submitted on or after January 1, 2010. The CEC adopted the changes made in 2008 to the Building Energy Efficiency Standards to respond to the mandates of AB 32 and to pursue California energy policy that energy efficiency is the resource of first choice for meeting California’s energy needs. The CEC adopted the Title 24 standards as well as the 2019 Title 24 standards, which became effective on January 1, 2020, and are applicable to the proposed Project.⁷⁹

California Green Building Standards (Title 24, Part 11)

The California Green Building Standards Code, which is Part 11 of the CCR, is commonly referred to as the CALGreen Code.⁸⁰ The 2008 edition, the first edition of the CALGreen Code, contained only voluntary standards. The 2010 CALGreen Code contains mandatory requirements for State-regulated buildings and structures throughout California beginning on January 1, 2011. The 2010 CALGreen Code contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The 2010 CALGreen Code provides for design options, allowing the designer to determine how best to achieve compliance for a given site or building condition. The 2010 CALGreen Code also requires building commissioning, which is a process for verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

The most current version of the CALGreen building code went into effect in January 2020. The purpose is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design,

78 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>.

79 See California Energy Commission, *2019 Building Energy Efficiency Standards* for additional information.

80 California Buildings Standards Commission, *California Green Building Standards Code (Cal. Code Regs., Title 24, Part 11)*, Accessed April 2020, <http://www.bsc.ca.gov/Home/CALGreen.aspx>.

construction, quality of materials, outdoor lighting standards, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

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

The 2016 Appliance Efficiency Regulations, adopted by the CEC, include standards for new appliances, equipment, and lighting 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.⁸¹

4.7.4.3 Regional

Southern California Association of Governments

SCAG 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS)

SCAG is the MPO for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally-designated MPO for the Southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, and air quality. Pursuant to California Health and Safety Code Section 40460(b),⁸² SCAG has the responsibility for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. SCAG is also responsible under the CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

With regard to GHG emissions, SCAG has prepared and adopted the 2020–2045 RTP/SCS,⁸³ which includes a Sustainable Communities Strategy that addresses regional development and growth forecasts. The SCAG 2020–2045 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals, with a specific goal of achieving an 8 percent reduction in passenger vehicle GHG emissions on a per capita basis by 2020, 19 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level.

81 California Energy Commission, *2016 Appliance Efficiency Regulations*, Accessed April 2020. <http://www.energy.ca.gov/2017publications/CEC-400-2017-002/CEC-400-2017-002.pdf>.

82 California Health and Safety Code, *Division 26. Air Resources, PART 3. Air Pollution Control Districts, Chapter 5.5. South Coast Air Quality Management District, ARTICLE 5. Plan, Section 40460(b)*. https://leginfo.ca.gov/faces/codes_displaySection.xhtml?sectionNum=40460.&lawCode=HSC.

83 Southern California Association of Governments (SCAG), *Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft, "Chapter 1,"* <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>, Accessed on July 10, 2020.

South Coast Air Quality Management District

Policy on Global Warming and Stratospheric Ozone Depletion and General Guidance

In October 2008, the South Coast Air Quality Management District (SCAQMD) released draft guidance regarding interim CEQA GHG significance thresholds. SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MT of GHG per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where SCAQMD is the Lead Agency.⁸⁴

However, SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). While it formed a GHG Significance Threshold Working Group to evaluate potential GHG significance thresholds, it failed to reach consensus; as a result, the SCAQMD has never adopted a formal threshold of significance.

SCAQMD adopted a “Policy on Global Warming and Stratospheric Ozone Depletion” on April 6, 1990.⁸⁵ The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan (AQMP). 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.

California Air Pollution Control Officers Association (CAPCOA) Guidance

CAPCOA published a white paper to provide a common platform of information and tools to address climate change in CEQA analyses, including the evaluation of mitigation of GHG emissions from proposed Projects and identifying significance thresholds options. The white paper addresses issues inherent in

84 SCAQMD, *Greenhouse Gases: CEQA Significance Thresholds*, Accessed April 2020, <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>.

85 SCAQMD, *SCAQMD’s Historical Activity on Climate Change*, Accessed April 2020, <http://www.aqmd.gov/nav/about/initiatives/climate-change>.

establishing CEQA thresholds, evaluates tools, catalogues mitigation measures, and provides air districts and lead agencies with options for incorporating climate change into their programs.⁸⁶

4.7.4.4 Local

City General Plan

General Plan

California State law requires every city and county to adopt a comprehensive General Plan to guide its future development. The proposed Project is located entirely within the City. The City General Plan⁸⁷ includes the following elements: Land Use, Circulation, Safety, Noise, Housing, Open Space, Conservation, and Environmental Justice.

Land Use Element

The following goal from the Land Use Element⁸⁸ of the City General Plan are relevant to air pollutant emissions.

Circulation Goal: Promote and support adequate public transportation within the City and the region.

Circulation Goal: Develop a safe and adequate pedestrian circulation system which is barrier free for the handicapped.

Conservation Element

The City's General Plan Conservation Element addresses the conservation, development, and use of natural resources.⁸⁹ Five specific areas of conservation and/or protection that are identified in the Conservation Element include (1) oil and gas production, (2) water production and provision for domestic use, (3) storm water runoff and waste water, (4) hazardous waste and solid waste disposal, and (5) air pollution. The Conservation Element notes the following pollution-reducing measures:

- Reducing volatile emissions from factories and refineries;
- Reducing airborne particulate matter from factories and construction sites;

86 California Air Pollution Control Officers Association, CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, January 2008, Available: <http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf>.

87 City of Inglewood, Department of Community Development and Housing, General Plan. January 1980

88 City of Inglewood, Department of Community Development and Housing, 1980. Land Use Element of the Inglewood General Plan. January 1980. Amended September 14, 2016.

89 City of Inglewood General Plan, "Conservation Element" (1997), General Plan. January 1980.

- Reducing numbers of vehicles being driven while increasing the utilization of high occupancy vehicles and alternative transportation;
- Requiring improvements to engine efficiency to decrease emissions; and
- Increasing the use of clean fuel vehicles.

Inglewood Energy and Climate Action Plan

The City adopted an Energy and Climate Action Plan⁹⁰ (ECAP) in 2013 to guide Citywide GHG emissions reduction efforts. The ECAP established four primary compliance paths which projects may choose to adhere to, including: ministerial and exempt project status, implementation of a combination of sustainable development standards, performance-based compliance, or payment of an in-lieu fee. These measures were developed on a points-based system, which were chosen because they have been demonstrated by various studies to directly reduce GHG emissions or support changes in activities that lead to GHG emissions reductions. Each Climate-Ready Development Standard has a point value associated with it that reflects its general effectiveness at reducing GHG emissions. The standards apply to various types of projects, and a qualifier is included denoting which types of projects may implement the standard. Applicants have discretion regarding which measures that they would want their project to comply with; however, for a project to be fully compliant with the goals of the ECAP it must incorporate features meeting the standards sufficient to accrue a total of 20 points.

The ECAP quantifies GHG reductions from the following five implementing strategies and actions:

- Strategy 1: Lead by Example with Municipal Government Actions
 - Continue Building and Facility Energy Upgrades to reduce energy use
 - Replace all City-owned street, park, and traffic lights with light-emitting diode (LED) lights
 - Accelerate city vehicle fleet replacement
 - Continue commute trip reduction program
 - Planning for electric vehicle infrastructure
- Strategy 2: Increase Energy Efficiency
 - Make commercial buildings more efficient
 - Increase the energy efficiency of residential buildings
 - Increase the energy efficiency of street and traffic lights

⁹⁰ City of Inglewood, *Inglewood Energy and Climate Action Plan*, March 2013, <https://www.cityofinglewood.org/DocumentCenter/View/148/Inglewood-Energy-and-Climate-Action-Plan-ECAP-Adopted-2013-PDF>, accessed July 30, 2020.

- Strategy 3: Support Renewable Energy Generation
 - Remove barriers to renewable energy generation
 - Make renewable energy generation more affordable
 - Educate potential customers
- Strategy 4: Improve Transportation Options and Manage Transportation Demand
 - Make roadways more efficient
 - Improve transit
 - Improve bicycle facilities
 - Make parking more efficient
 - Reduce commute trips
 - Encourage land use intensification and diversity
- Strategy 5: Reduce Consumption and Waste
 - Use less water
 - Produce less waste
 - Promote local food production

City Green Building Code

In December 2019, the Inglewood City Council approved Ordinance No. 20-05, which amended Chapter 11-2 of the Municipal Code.⁹¹ As such, the City’s Green Building Code adopted by reference the 2019 CALGreen⁹² and associated standards.

Envision Inglewood

The City, through Envision Inglewood,⁹³ is developing a comprehensive transportation infrastructure plan and multimodal improvement program to connect the City’s activity centers directly to the regional Metro Rail and Bus System, implement state-of-the-art transportation technologies and traffic demand management strategies to improve both daily and event commutes, and overall traffic management, reduce vehicular trips and enhance pedestrian, bike, and other transit amenities designed to improve air

91 City of Inglewood, Municipal Code, Article 2, Section 11-2 California Building Code. Established. Ordinance No. 20-05 approved December 2019.

92 California Code of Regulations (CCR), Title 24, Part 11 - CALGreen, 2019 California Green Building Standards Code, Effective January 1, 2020.

93 Envision Inglewood. <http://envisioninglewood.org/>.

quality, and reduce overall greenhouse gas emissions, and support the economic revitalization already underway while simultaneously developing neighborhood protection programs.

As noted in the City's plan,⁹⁴ Inglewood is committed to providing world class transportation connections to its new State-of-the-art sports and entertainment centers and is working diligently to define and propose a last-mile fixed guideway transit connector. Mobility and direct transit access to the City's new activity centers are critical top priorities, especially given local and regional goals to increase transportation choices, reduce greenhouse gas emissions, improve air quality and human health, and encourage sustainable development patterns.

Transit and Intercity Rail Capital Program

The City applied for and received a Transit and Intercity Rail Capital Improvement Program (TIRCP) grant⁹⁵ from the California State Transportation Agency (CALSTA). The application required that the City demonstrate the effectiveness to reduce GHG emissions using the TIRCP Benefits Calculator.⁹⁶ The CARB developed the TIRCP Benefits Calculator Tool to estimate the GHG emissions and selected co-benefits of eligible grant applications. The Benefits Calculator Tool estimates GHG emissions using methods described in CARB's Co-Benefit Assessment Methodologies, and utilizes motor vehicle emission factors (in grams per mile) to estimate GHG emissions (reported as carbon dioxide or CO₂ in metric tons). The emission factors are based on the CARB's EMFAC2017⁹⁷ emissions inventory model. Emission factors are based on information associated with the Los Angeles County and the City within the South Coast Air Basin.

The goal of the TIRCP is to provide monies to fund transformative capital improvements that modernize California's intercity rail, bus, ferry and rail transit systems to achieve the following objectives:

- Reduction in greenhouse gas emissions;
- Expand and improve rail service to increase ridership;
- Integrate the rail service of the State's various rail operations, including integration with the high-speed rail system; and
- Improve safety.

94 City of Inglewood, Envision Inglewood, 2018, <http://envisioninglewood.org/wp-content/uploads/2018/07/Envision->

95 City of Inglewood, Transit and Intercity Rail Program (TIRCP) Application for the City of Inglewood Transit Connector Project, January 16, 2020.

96 CALSTA, 2020 Transit and Intercity Rail Capital Program Formal Draft Guidelines, TIRCP Quantification Methodology and Calculator Tool, <https://calsta.ca.gov/subject-areas/transit-intercity-rail-capital-prog>

97 California Air Resources Board, EMFAC2017 User's Guide, March 1, 2018, Accessed July 6, 2020 at: <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf> and <https://www.arb.ca.gov/emfac/2017/>

4.7.5 EXISTING CONDITIONS

4.7.5.1 Existing Greenhouse Gas Emissions

In 2018, the United States emitted about 6,677 million metric tons of CO₂. Emissions increased from 2017 to 2018 by 3.1 percent. Greenhouse gas emissions in 2018 (after accounting for sequestration from the land sector) were 10.2 percent below 2005 levels. This increase was largely driven by an increase in emissions from fossil fuel combustion, which was a result of multiple factors, including more electricity use due to greater heating and cooling needs due to a colder winter and hotter summer in 2018 in comparison to 2017.⁹⁸

State Emissions

California is the second largest contributor of GHGs in the United States and the 16th largest in the world.⁹⁹ In 2018, California produced 425.4 million metric tons of carbon dioxide equivalents (MMTCO_{2e}), including imported electricity and excluding combustion of international fuels and carbon sinks or storage. The major source of GHGs in California is transportation, contributing to 40 percent of the State's total GHG emissions. The Statewide inventory of GHGs by sector is shown in **Table 4.7-2: California GHG Inventory 2010-2018**.

**Table 4.7-2
California GHG Inventory 2010–2018**

Main Sector	Emissions (MMTCO _{2e})								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Transportation ^a	165.1	161.8	161.4	161.2	162.6	166.2	169.8	171.0	169.5
Electric Power	90.3	89.2	98.2	91.4	88.9	84.8	68.6	62.1	63.1
Industrial ^b	91.0	89.3	88.9	91.6	92.4	90.1	88.9	88.7	89.2
Commercial and Residential	45.9	46.0	43.5	44.2	38.2	38.8	40.6	41.3	41.4
Agriculture	33.7	34.4	35.5	33.8	34.8	33.4	33.2	32.3	32.6
High GWP ^{c,d}	13.5	14.5	15.5	16.8	17.7	18.6	19.3	20.0	20.5
Recycled and waste	8.7	8.7	8.7	8.7	8.8	8.8	8.9	9.0	9.1
Total Emissions	448.2	443.9	451.7	447.7	443.4	440.7	429.3	424.4	425.4

Source: CARB, GHG Current California Emission Inventory Data, Accessed November 2020, <https://ww2.arb.ca.gov/ghg-inventory-data>

^a Includes equipment used in construction, mining, oil drilling, industrial and airport ground operations.

^b Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions.

^c These categories are listed in the Industrial sector of CARB's GHG Emission Inventory sectors.

^d This category is listed in the Electric Power sector of CARB's GHG Emission Inventory sectors.

Note: MMTCO_{2e} - million metric tons of carbon dioxide equivalent emissions

98 United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, Accessed July 6, 2020 at <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>.

99 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, Staff Final Report*, CEC-600-2006-013-SF (December 2006).

Local Emissions

City Greenhouse Gas Emissions Inventory

The South Bay Cities Council of Governments (SBCCOG) received funding from SCE's 2013-2014 Local Government Partnership Strategic Plan Pilots Program¹⁰⁰ to assist local governments within the South Bay sub-region to prepare inventories of local GHG emissions and develop GHG reduction programs and policies. As a member of the SBCCOG, the City collaborated with the SBCCOG to develop inventories of community-wide GHG emissions for the years 2005 and 2007.¹⁰¹ Additionally, the City developed a community-wide inventory for 2010 as reported in the 2013 Inglewood ECAP.¹⁰²

The ECAP includes a business-as-usual (BAU) forecast that estimates future emissions in 2020 and 2035 from six sectors: Transportation, Residential Energy, Commercial/Municipal Energy, Industrial Energy, Solid Waste, and Water. The BAU forecast assumes GHG emissions that would occur in the future under regulatory conditions as they existed in 2010; the BAU forecast does not include the effects of updates to Title 24,¹⁰³ the Renewables Portfolio Standard,¹⁰⁴ and the Pavley Clean Car Standards¹⁰⁵ on future GHG emissions.

The City's GHG inventories and forecasts are summarized in **Table 4.7-3: City of Inglewood Community GHG Emissions by Sector**. Under the ECAP's BAU forecast,¹⁰⁶ Inglewood's total GHG emissions are expected to increase approximately 14 percent from 2010 (594,273 MTCO₂e) to 2035 (678,283 MTCO₂e). On a per-service population (SP) basis, the increase is shown to be just 4.5 percent, from 4.22 MTCO₂e/SP in 2010 to 4.41 MTCO₂e/SP in 2035.

ECAP establishes an emissions reduction target of 15 percent below 2005 levels by 2020 and an emissions reduction goal of 32.5 percent below 2005 levels by 2035. As shown, State-level actions, such as the Pavley

100 Southern California Edison's (SCE) 2013-2014 Local Government Partnership Strategic Plan Pilots Program
<https://www.sce.com/partners/partnerships>

101 South Bay Cities Council of Governments, 2011. *City of Inglewood Community Greenhouse Gas Emissions Inventory Report*.
http://www.southbaycities.org/sites/default/files/documents/inventories/Inglewood_Community_Inventory.pdf.

102 City of Inglewood, 2013, *Inglewood Energy and Climate Action Plan*. Available:
<https://www.cityofinglewood.org/225/Sustainability>

103 California Buildings Standards Commission, *California Green Building Standards Code (Cal. Code Regs., Title 24, Part 11)*, Accessed April 2020, <http://www.bsc.ca.gov/Home/CALGreen.aspx>.

104 California Energy Commission, *Enforcement Procedures for the Renewables Portfolio Standards for Local Publicly Owned Electric Utilities: Amended Regulations*, Accessed April 2020, <http://www.energy.ca.gov/2016publications/CEC-300-2016-002/CEC-300-2016-002-CMF.pdf>.

105 California's Greenhouse Gas Vehicle Emission Standards under Assembly Bill 1493 of 2002 (Pavley).

106 City of Inglewood, 2013, *Inglewood Energy and Climate Action Plan*. Available:
<https://www.cityofinglewood.org/225/Sustainability>

Clean Cars legislation,¹⁰⁷ the Low Carbon Fuel Standard,¹⁰⁸ the Renewables Portfolio Standard,¹⁰⁹ and Title 24¹¹⁰ upgrades are expected to reduce community emissions by 121,139 MTCO₂e per year by 2020, and 160,002 MTCO₂e by year 2035.

Table 4.7-3
City of Inglewood Community GHG Emissions by Sector
(MTCO₂e)

Sector	2005	2007	2010	2020	2035
Transportation	320,245	311,853	322,042	327,998	337,552
Residential Energy	124,872	123,062	122,429	134,843	156,574
Commercial/Municipal Energy	97,176	99,458	95,261	106,041	124,749
Industrial Energy	34,940	31,272	26,100	26,376	26,830
Solid Waste	19,855	16,841	16,448	16,782	17,555
Water	13,813	13,272	11,993	14,707	15,044
Total	610,910	595,758	594,273	626,748	678,284
Target/Goal (change from 2005)				519,273 (-15%)	412,364 (-32.5%)
Reductions from State-level actions				-121,139	-160,002
Forecasts with implementation of State-level actions				505,609	518,282
Reductions from Local Actions				-9,803	-10,994
Forecasts with ECAP Implementation				495,806	499,208
Resulting Change from 2005				-18.8%	-18.3%
Meet target/goal?				Yes	No

Source: City, 2013. Inglewood Energy and Climate Action Plan.

Note: MTCO₂e = metric tons of carbon dioxide equivalent emissions

Local measures in the CAP are expected to reduce community emissions an additional 9,803 MTCO₂e per year by 2020, and 10,994 MTCO₂e per year by year 2035.

The City's Community-wide emissions were categorized in six sectors:

- **Transportation** includes emissions from vehicles traveling (wholly or partially) within the City, and emissions from operating off-road vehicles and equipment (e.g., lawn and garden equipment, construction equipment, industrial equipment, and light commercial equipment).

107 California's Greenhouse Gas Vehicle Emission Standards under Assembly Bill 1493 of 2002 (Pavley).

108 Office of the Governor, *Executive Order S-01-07, (January 18, 2007)*, <https://www.arb.ca.gov/fuels/lcfs/eos0107.pdf>.

109 California Energy Commission, *Enforcement Procedures for the Renewables Portfolio Standards for Local Publicly Owned Electric Utilities: Amended Regulations*, Accessed April 2020, <http://www.energy.ca.gov/2016publications/CEC-300-2016-002/CEC-300-2016-002-CMF.pdf>.

110 California Buildings Standards Commission, *California Green Building Standards Code (Cal. Code Regs., Title 24, Part 11)*, Accessed April 2020, <http://www.bsc.ca.gov/Home/CALGreen.aspx>.

- **Residential Energy** includes emissions from electricity and natural gas consumption in residential buildings.
- **Commercial/Municipal Energy** includes emissions from electricity and the on-site combustion of natural gas and fuel use in nonresidential buildings and city facilities (including outdoor lighting).
- **Industrial Energy** includes emissions from electricity and the on-site combustion of natural gas and fuel use in industrial buildings and facilities.
- **Solid Waste** includes emissions from solid waste that is generated in the community and sent to landfills.
- **Water** includes emissions from the electricity used to source, treat, and deliver imported water in the community that is not accounted for in the community utility data.

As shown, the transportation sector was the largest contributor to the most recent inventory (2010) at over 54 percent of the total. Residential Energy consumption is the second-largest contributor to emissions at 20.6 percent of the total, followed by Commercial/Municipal Energy (16 percent), Industrial Energy (4.4 percent), Solid Waste (2.8 percent), and Water (2 percent).

Existing Uses

The proposed Project includes approximately 7.7 acres of land with a total of 19 parcels that are currently out of the public right-of-way and will be converted to Project-related uses. Presently, a variety of commercial, restaurant, and retail uses that exist at the northwest corner of Market Street and Regent Avenue at an existing commercial center (CVS plaza - approximately 126,912 SF) and at 500 E. Manchester (retail commercial site - 76,402 square-foot grocery store and 202 square-foot gas station) will be removed prior to construction of the proposed Project. The proposed Project would also include the demolition of 16,575 SF of retail space located at 150 S. Market Street. These existing uses currently generate greenhouse gas emissions from building operation.

Existing operations at the current uses that will be removed as part of the proposed Project generate GHG emissions from energy (electricity and natural gas), on-road motor vehicles (mobile), solid waste, water and wastewater, and area sources, as described further below.

The existing operations consume energy (electricity and natural gas) for multiple purposes including, but not limited to, building heating and cooling, lighting, and electronics. These existing buildings were built before 2005. Thus, building energy consumption for these facilities was based on CalEEMod historical (pre-2005) electricity and natural gas usage rates per CalEEMod instructions.¹¹¹ For pre-2005 buildings,

¹¹¹ California Air Pollution Control Officers Association, *California Emissions Estimator Model User's Guide*, 2017.
http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4,

CalEEMod bases its energy usage estimates on the CEC's California Commercial End-Use Survey (CEUS), which lists energy demand by building type based on data from 2002.¹¹²

For on-site existing land uses, electricity is supplied by SCE and natural gas is supplied by Southern California Gas Company (SoCal Gas). CalEEMod provides default CO₂e intensity factors for natural gas and for SCE-supplied electricity. The CalEEMod default CO₂e intensity factor for SCE-provided electricity, 705 pounds CO₂e/MWh (0.320 MTCO₂e/MWh), is based on the SCE portfolio in 2012.¹¹³ However, California's Renewables Portfolio Standard, mandates that publicly owned electric utilities procure an increasing percentage of their total sales from renewable power sources, with a 2020 goal of 33 percent qualifying renewables. SCE's average power mix in 2017 included 32 percent qualified as renewable under the RPS.¹¹⁴ SCE's progress in meeting its 2020 RPS obligation is reflected in its decreasing average CO₂e intensity factor since 2012. For 2016 and 2017, SCE reports average CO₂e intensity factors for its total electricity mix as 0.259 and 0.232 MTCO₂e/MWh, respectively.¹¹⁵ Thus, the analysis of on-site existing operations emissions used SCE's 2017 CO₂e intensity factor for electricity rather than the CalEEMod default, because that was the most recent SCE emission factor available.

Table 4.7-4: Existing Uses Greenhouse Gas Emissions identifies the existing emissions from the existing uses within the area of the proposed Project that will be converted. As shown, the existing uses currently generate 58,890 MTCO₂e per year.

Table 4.7-4
Existing Uses Greenhouse Gas Emissions (Metric Tons per Year)

Source	MTCO ₂ e
Area (Consumer Products, Landscaping)	<1
Energy (Natural Gas)	291
Energy (Electrical)	1,511
Solid Waste	485
Water and Waste Water	155
Motor Vehicles	54,819
Total	57,262

Source: RCH Group, 2020, **Appendix 4.2.1**.

Notes:

MTCO₂e = metric tons of carbon dioxide equivalent emissions

Area sources, water, waste, and energy (Natural Gas and electrical) values based on CalEEMod calculations. Motor vehicle values based EMFAC calculations.

112 California Energy Commission, *California Commercial End-Use Survey*, <http://capabilities.itron.com/CeusWeb/ChartsSF/Default2.aspx>.

113 Southern California Edison, 2012. 2012 Corporate Responsibility and Sustainability Report. Available: https://www1.sce.com/wps/wcm/connect/68145014-2eba-40c2-8587-6482ce056977/CRR_08202013.pdf?MOD=AJPERES&ContentCache=NONE.

114 California Energy Commission, 2017. 2017 Power Content Label. Available: <https://www.energy.ca.gov/pcl/>.

115 Southern California Edison, 2018. ESG/Sustainability Template. Report date: September 27, 2018. Available: <https://www.edison.com/content/dam/eix/documents/sustainability/eix-esg-pilot-quantitative-section-sce.pdf>.

4.7.5.2 Adjusted Baseline

The Air Quality and Transportation analyses, including the analysis of VMT, assume the Adjusted Baseline Environmental Setting as described in **Section 4.0: Environmental Analysis**; see **Table 4.0-1** for the details of the Adjusted Baseline. Analysis of GHG emissions is cumulative in nature because global climate change effects are caused by cumulative global emissions. Although the Hollywood Park Specific Plan (HPSP) project will be constructed and in operation prior to opening of the proposed Project, its potential impact on global emissions would not affect the the impact analysis regarding GHG emissions from the proposed Project. No other changes to the existing environmental setting related to GHG emissions would occur under the Adjusted Baseline.

4.7.6 THRESHOLDS OF SIGNIFICANCE

Criteria outlined in CEQA Guidelines were used to determine the level of significance of greenhouse gas emissions impacts. Appendix G of State CEQA Guidelines indicates that a project would have a significant impact in relation to greenhouse gas emissions if it were to:

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

Pursuant to State CEQA Guidelines Section 15064.4,¹¹⁶ the methods suitable for analysis of GHG emissions are:

1. Use a model or methodology to quantify greenhouse gas emissions resulting from a project. The Lead Agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The Lead Agency should explain the limitation of the particular model or methodology selected for use.
2. Rely on a qualitative analysis or performance-based standards.

The City has not adopted a numerical significance threshold for assessing impacts related to GHG emissions and has not formally adopted a qualified local plan for reducing GHG emissions. Nor have SCAQMD, OPR, CARB, CAPCOA, or any other State or regional agency adopted a numerical significance threshold for assessing GHG emissions that is applicable to the proposed Project. Assessing the significance of a project's contribution to cumulative global climate change involves: (1) developing

¹¹⁶ California Code of Regulations Title 14, Section 15064.4. *Determining the Significance of Impacts from Greenhouse Gas Emissions.*

pertinent inventories of GHG emissions, and (2) considering project consistency with applicable emission reduction strategies and goals, such as those set forth in the ECAP.

4.7.7 IMPACT ANALYSIS FOR THE PROPOSED PROJECT

Impact GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

For the purposes of this impact discussion, the Project would generate GHG emissions that may have a significant impact on the environment if the Project's GHG emissions would exceed a net-zero threshold.

The proposed Project is a new electrically powered APM system that will expand the regional Metro Rail system's transit access by providing three new stations with direct connectivity to one of the highest growing housing and employment centers in LA County, new regionally serving sports and entertainment venues in the City, new plan areas with adopted land use policies/zoning promoting greater housing density and transit-oriented developments, and new planned bicycle/pedestrian infrastructure connections.

The following analysis of the impact on climate change focuses on the proposed Project's contribution to cumulatively significant GHG emissions.

Construction

The modeling for the proposed Project construction includes **MM AQ-1** through **MM AQ-4** from the proposed Project's Construction Commitment Program. **MM AQ-1** would require the use equipment that meets the USEPA's Final Tier 4 emissions standards for off-road diesel-powered construction equipment with 50 hp or greater, for all phases of construction activity. Additionally, **MM AQ-2** would require smaller pieces of equipment to be electric or alternative-fueled (i.e., non-diesel) to the maximum extent feasible. **MM AQ-3** would require construction vendors, contractors, and/or haul truck operators commit to using 2010 model year trucks. **MM AQ-4** would require the use of electric or alternatively fueled (e.g., natural gas) sweepers with HEPA filters.

Construction of the proposed Project would result in GHG emissions of CO₂ and smaller amounts of CH₄ and N₂O from construction equipment and mobile sources such as haul trucks and worker vehicles (see **Section 4.2: Air Quality** for construction emissions). Construction emissions were calculated for each year of construction activity using CalEEMod and applying emission factors from EMFAC2017 to calculate mobile source emissions. Construction emissions were forecasted based on an expectation that construction of the proposed Project would occur in several overlapping phases over an approximately

five year period, from 2022 through 2026. This is a conservative approach that assumes all construction occurs at the earliest feasible date.

GHG emissions from construction were amortized over the 30-year lifetime of the proposed Project.

The estimated construction GHG emissions for the proposed Project are 14,348 metric tons of CO₂e.¹¹⁷ Given the five-year construction period, the annual construction GHG emissions for the proposed Project are 2,870 metric tons of CO₂e. As indicated, 30-year amortized construction related GHG emissions would be approximately 478 metric tons of CO₂e per year. The results are presented in **Table 4.7-5: Estimated Construction Greenhouse Gas Emissions for the Proposed Project**.

Table 4.7-5
Estimated Construction Greenhouse Gas Emissions for the Proposed Project (Metric Tons per Year)

Construction Year	MTCO ₂ e
2022	4,698
2023	4,328
2024	3,521
2025	1,361
2026	440
Total Construction Emissions	14,348
Total 30-Year Amortized Construction Emissions per Year	478

Source: RCH Group, 2020, Appendix 4.2.1.

MTCO₂e = metric tons of carbon dioxide equivalent emissions

Operation

As discussed previously, the operational life of the proposed Project is assumed to be 30 years. Operational emissions were estimated for the anticipated start of operations in late 2026 and a milestone year of 2045. It is assumed that due to advances in technology and regulations to reduce GHG emissions, that operational emissions would continue to decline by 2056, and thereafter. CalEEMod and EMFAC 2017 were used to estimate GHG emissions from area, energy, solid waste, water and wastewater, and mobile sources.

The normal operation of the proposed Project would generate GHG emissions from the operation of the MSF, stations, and other facilities. **Table 4.7-6: Estimated Annual GHG Emissions for Proposed Project**

¹¹⁷ Fuel usage is estimated using the output for CO₂ and a 10.15 kg-CO₂/gallon conversion factor, as cited in the U.S. Energy Information Administration Voluntary Reporting of Greenhouse Gases Program, [https://www.eia.gov/environment/pdfpages/0608s\(2009\)index.php](https://www.eia.gov/environment/pdfpages/0608s(2009)index.php)

Components presents the annual GHG emissions to operate these facilities. As shown, emissions from normal operations would be 7,742 MTCO₂e per year.

As discussed previously, each TPSS will be equipped with backup power generators. The proposed Project would include up to two stationary standby generators, one at each of the two TPSS sites, with an estimated total capacity rated at approximately 4,000 kilowatts (kW) to provide emergency power primarily for APM train operation, lighting and other emergency systems. As shown in **Table 4.7-6**, GHG emissions for the backup generators are estimated to be 311 MTCO₂e per year, bringing total operations to 8,053 MTCO₂e per year. The backup generators would only run for emergency conditions when the main electrical power is not available, and for regular testing. The emissions would be limited to only those periods and would not be an ongoing operational activity.

Table 4.7-6
Estimated Annual GHG Emissions for Proposed Project Components

Source	Annual GHG MTCO ₂ e
Employee Trips	559
Deliveries	90
Area (Consumer Products, Landscaping)	<1
Energy (Natural Gas)	114
Energy (Electrical) ^a	6,800
Solid Waste	49
Water and Waste Water	130
Total Project (Typical Operations)	7,742
Backup Generators	311
Total Project (Typical Operations + Backup Generators)	8,053

Source: RCH Group, 2020, **Appendix 4.2.1**.

MTCO₂e = metric tons of carbon dioxide equivalent emissions

^a Based on CalEEMod for MSF plus APM usage of 27,114,390 kWh along with an SCE emission factor of 535 pounds per MWh.

Vehicle GHG Emissions

The proposed Project has been designed to reduce VMTs for local and regional travel by shifting demand from the general public from autos to public transit. As discussed **Section 3.0: Project Description** this includes connection to regional rail and light rail transit and other means. Mobility, connectivity, and VMT reduction benefits of the proposed Project include:

- The proposed Project would provide direct connections for passengers throughout the region to the City's housing and employment centers, and new sports and entertainment venues;

- The proposed Project would help manage and support the City’s projected growth by providing transit within a safe and accessible walking distance to thousands of new residents, housing units and jobs, including the new residents, housing units, and jobs at the LASED property in Hollywood Park;
- The proposed Project will provide a direct connection to the regional Metro Rail system and would close the “last mile” gap of approximately 1.5-miles from Metro’s Downtown Inglewood station to the City’s major activity centers; and
- The proposed Project would be located within close proximity to bus lines serving the area and would provide new opportunities to increase bus service ridership.

See **Section 4.12** for further discussion of transit opportunities within the proposed Project vicinity.

Mobile GHG emissions from fleetwide shifts from auto use to public transit were calculated based on EMFAC2017 data and Project-specific VMT data which is presented in **Section 4.12** and is provided in **Appendix 4.12.1**.

Table 4.7-7: Daily and Annual VMT for the Six Operational Scenarios presents the daily and annual VMT for the Adjusted Baseline and the operational scenarios for 2026 and 2045 with and without the proposed Project.

Table 4.7-7
Daily and Annual VMT for the Six Operational Scenarios

Scenario	Daily VMT	Annual VMT
Adjusted Baseline	3,159,055	1,007,356,937
Adjusted Baseline with proposed Project	3,138,289	1,000,735,086
Year 2026 with Event Weekday without proposed Project	5,275,088	1,346,432,106
Year 2026 with Event Weekday with proposed Project	5,047,349	1,316,518,609
Year 2045 with Event Weekday without proposed Project	5,662,297	1,469,905,139
Year 2045 with Event Weekday with proposed Project	5,365,217	1,433,075,931

Source: Raju Associates, Inc., 2020, **Appendix 4.2.1**

VMT – vehicle miles traveled

As shown, the proposed Project daily and annual VMT are less than the daily and annual VMT in each “Build” scenario than without the proposed Project. For the Adjusted Baseline, the reduction for VMT with and without the proposed Project the VMT decrease is 20,766 VMT daily and 6,621,851 VMT annually. For the 2026 opening year, the reduction in VMT with and without the proposed Project is 227,739 VMT daily and 29,913,497 VMT annually. For the 2045 future year, the reduction for VMT with and without the proposed Project is 297,080 VMT daily and 36,829,208 VMT annually.

Table 4.7-8: Estimated Annual Operational GHG Emissions for Proposed Project for Motor Vehicles presents the annual GHG emissions for the Adjusted Baseline and the operational scenarios for 2026 and 2045 with and without the proposed Project.

As shown, annual MTCO_{2e} would be reduced by 2,831 MTCO_{2e} when compared to the Adjusted Baseline without proposed Project, 9,809 MTCO_{2e} when compared to the 2026 opening year without proposed Project, and 9,778 MTCO_{2e} when compared to the 2045 future year without proposed Project.

Table 4.7-8
Estimated Annual Operational Emissions for Proposed Project for Motor Vehicles

Scenario	MTCO _{2e}
Adjusted Baseline (2016)	430,621
Adjusted Baseline (2016) with proposed Project	427,791
Year 2026 with Event Weekday without proposed Project	441,490
Year 2026 with Event Weekday with proposed Project	431,682
Year 2045 with Event Weekday without proposed Project	390,262
Year 2045 with Event Weekday with proposed Project	380,484
Incremental Change	MTCO _{2e}
Adjusted Baseline with proposed Project vs Adjusted Baseline	-2,831
Year 2026 with Event Weekday with proposed Project vs Year 2026 with Event Weekday without proposed Project	-9,809
Year 2045 with Event Weekday with proposed Project vs Year 2045 with Event Weekday without proposed Project	-9,778

Source: RCH Group, 2020, Appendix 4.2.1.

Numbers may not add up due to rounding

MTCO_{2e} = metric tons of carbon dioxide equivalent emissions

Combined Source Proposed Project GHG Emissions

Table 4.7-9: Estimated Annual GHG Emission Reductions for Proposed Project presents the GHG emissions under normal operations including the directly emissions from employee trips, deliveries, area sources, energy sources (natural gas), while accounting for the reduction in motor vehicle as a result of the demolition of existing development. The GHG emissions account for the normal operations of the proposed Project and also provide consideration for use of the backup generators and construction emissions amortized over a 30-year period. The total annual GHG emissions of the normal operations of the proposed Project would be 8,220 MTCO_{2e}.

When the reduction in 2026 vehicle emissions of -9,809 MTCO_{2e} and the existing uses to be removed of -57,262 MTCO_{2e} is considered, the result of the proposed Project is a net reduction of 58,540 MTCO_{2e} annually. When the reduction in 2045 vehicle emissions of -9,778 MTCO_{2e} and the existing uses to be

removed of -57,262 MTCO₂e is considered, the result of the proposed Project is a net reduction of 58,509 MTCO₂e annually.

Finally, the City will publish annual performance reviews to demonstrate progress toward the benefits enabled by the TIRCP program, as defined by the CalSTA Call for Project Guidelines. The annual performance review will include tracking metrics and will be conducted by the City. This will include annual reports for GHG reductions measured by MTCO₂e and decrease in criteria pollutants.

Table 4.7-9
Estimated Annual GHG Emissions for Proposed Project

Source	Annual GHG Emissions (MTCO ₂ e)	
	2026	2045
Employee Trips	559	559
Deliveries	90	90
Area (Consumer Products, Landscaping)	0	0
Energy (Natural Gas)	114	114
Energy Source (Electrical)	6,800	6,800
Solid Waste	49	49
Water and Wastewater	130	130
Construction (30-Year Annual Amortized Rate)	478	478
Subtotal Project (Typical Operations)	8,220	8,220
Emergency Generators	<u>311</u>	<u>311</u>
Subtotal Project (Typical Operations + O&M)	8,531	8,531
Motor Vehicle GHG Emissions ^a	<u>-9,809</u>	<u>-9,778</u>
Subtotal (Project with Motor Vehicle Reductions)	-1,278	-1,247
Existing Conditions GHG Emissions ^b	<u>-57,262</u>	<u>-57,262</u>
Grand Total (Project)	-58,540	-58,509

Source: RCH Group, 2020, **Appendix 4.2.1**

Notes:

a – See **Table 4.7-8**

b – see **Table 4.7-3**

MTCO₂e = metric tons of carbon dioxide equivalent emissions

As such, the proposed Project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

Mitigation Measures

Construction

Mitigation measures that have been identified for air quality **Impact AQ-2 (MM AQ-1 to MM AQ-4)** have been accounted for in the estimate of construction-related GHG emissions. In addition, implementation

of mitigation measures **MM AQ-7** through **MM AQ-11** would be applied to the proposed Project and would further reduce fuel combustion-related criteria pollutants that generate GHG emissions.

Operation

No mitigation is required.

Level of Significance after Mitigation

The proposed Project will generate a net GHG emission reduction of 58,540 MTCO₂e annually by 2026, and 58,509 MTCO₂e annually by 2045.¹¹⁸ These net reductions in GHG emissions are consistent with the net-zero significance thresholds established in this analysis. As a result, operational GHG emissions would not be cumulatively considerable and impacts would be considered beneficial.

Impact GHG-2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

A significant impact would occur if the proposed Project would conflict with applicable regulations, plans and policies that were adopted to reduce GHG emissions that contribute to global climate change. For the proposed Project, this analysis considers the proposed Project's consistency with the following applicable plans, policies and regulations to reduce GHG emissions:

- The 2017 Climate Change Scoping Plan Update, CARB's plan for achieving a 40 percent reduction on GHG emissions from 1990 levels by 2030, Statewide, as mandated by SB 32;
- SCAG's 2020-2045 RTP/SCS, the regional plan for achieving sustainable land use patterns that reduce passenger vehicle GHG emissions, as mandated by SB 375;
- The City General Plan; and
- The City's ECAP.

CARB 2017 Scoping Plan Update

As directed by Executive Order B-30-15, CARB's 2017 Scoping Plan Update¹¹⁹ describes how the State plans to achieve the 2030 GHG emission reduction goal for California of 40 percent below 1990 levels by 2030, as mandated by SB 32. The 2017 Scoping Plan Update strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and State-developed plans that have relevance to the year

118 CEQA Guideline, Section 15064.3(b), *Determining Significant Impacts of Transportation Projects*.

119 CARB, California's 2017 Climate Change Scoping Plan, Accessed April 2020, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

2030, including the LCFS, SB 350, the 2016 Mobile Source Strategy, the Sustainable Freight Action Plan, SB 1383, and the Cap-and-Trade Program (AB 398).

The proposed Project would be consistent with key State plans and regulatory requirements referenced in the 2017 Scoping Plan Update designed to reduce Statewide emissions. According to the 2017 Scoping Plan Update, reductions needed to achieve the 2030 target are expected to be achieved by increasing the RPS to 50 percent of the State's electricity by 2030, greatly increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting high-speed rail and other alternative transportation options, and increasing the use of high-efficiency appliances, water heaters, and HVAC systems. The proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Crenshaw/LAX line, and other transit providers as well as the City's major activity centers, such as the Forum, the LASED and HPSP including SoFi stadium, and IBEC. Implementation of the proposed Project would increase transit mode split, reduce vehicle trips, and reduce per-capita VMT. For these reasons, the proposed Project would not conflict with CARB's 2017 Scoping Plan Update.

Executive Order S-3-05

Executive Order No. S3-05 established a long-term goal of reducing California's GHG emissions to 80 percent below the 1990 level by the year 2050. The proposed Project GHG emissions would result in a net decrease of over 60,000 MTCO₂e of GHG annually starting in 2026.

Even though the State has not provided a clear regulatory and technological roadmap to achieve the 2050 goal, it has demonstrated the potential pace at which emission reductions can be achieved through new regulations, technology deployments, and market developments. In developing the 2017 Scoping Plan Update, CARB, CEC, CPUC, and the California Independent System Operator (CAISO) commissioned a study to evaluate the feasibility and cost of meeting the 2030 target along the way to reaching the State goal of reducing GHG emissions to 80 percent below 1990 levels by 2050. With input from the agencies, the California State Agencies' PATHWAYS Project explores scenarios for meeting the State long-term GHG emissions targets, encompassing the entirety of California economy with detailed representations of the buildings, industry, transportation, and electricity sectors.¹²⁰ While acknowledging the inherent uncertainty associated with its modeling assumptions, the PATHWAYS study emphasizes the need for significant action and continued policy development by the State to support low-carbon technologies and markets for energy efficiency, building electrification, renewable electricity, zero emission vehicles, and renewable liquid fuels. The study underscores the need for a periodic review of State policies and

120 Energy + Environmental Economics (E3), 2015. Summary of the California State Agencies' PATHWAYS Project: Long-term Greenhouse Gas Reduction Scenarios. Available: https://www.ethree.com/public_proceedings/summary-california-state-agencies-pathways-project-long-term-greenhouse-gas-reduction-scenarios/.

programs for reducing GHG emissions, as was anticipated by AB 32 in its directive to update the Scoping Plan at least every 5 years.

Statewide efforts are underway to facilitate the achievement of the EO S-3-05 goals. As discussed herein, the proposed Project GHG would provide net benefits in GHG reductions. Given the net reduction GHG emissions that would result from the proposed Project, it would not conflict with the ability of the State to achieve the 2050 horizon-year goal of EO S-3-05.

SCAG 2020-2045 RTP/SCS

A detailed consistency analysis for proposed Project with the RTP/SSCS is provided in **Section 4.9: Land Use and Planning**. The SCAG RTP/SCS¹²¹ is the primary planning document for regional transportation infrastructure in the greater Los Angeles area. With a horizon year of 2045, this long-range plan, required by the federal government, is updated by SCAG every four years as demographic, economic, and policy circumstances change.

Although demographic growth in the six-county SCAG region is slowing, the overall regional population is expected to exceed 22.5 million by 2045 - an increase of nearly 4 million people from the 2016 baseline. According to SCAG, population, housing and employment growth are expected to be particularly strong in the cities of Los Angeles, Culver City, unincorporated areas of Los Angeles County, portions of the South Bay Cities, and Inglewood. The SCAG region is projected to experience a household growth rate of approximately 24 percent, and an employment growth rate of 23 percent. Currently, the City contains roughly 8,900 housing units and 14,414 employees within a ½ mile of the proposed Project's three stations. By 2040, these areas are projected to increase to roughly 12,875 households, and 38,326 employees. These increases represent a growth rate of approximately 45 percent in households and 166% in employment. In comparison to the SCAG region, these projections translate into the City (within a ½ mile of the proposed Project's three stations) experiencing almost twice as much growth rate in housing, and more than seven times as much growth rate in employment by 2040.¹²²

As discussed in **Section 4.2** of this Draft EIR, the SCAQMD AQMPs includes land use and transportation strategies from the SCAG RTP/SCS¹²³ that are intended to reduce VMT and resulting regional mobile source emissions. The applicable land use strategies include planning for growth around livable corridors;

121 Southern California Association of Governments (SCAG), *Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft*, "Chapter 1," <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>, Accessed on July 10, 2020.

122 City of Inglewood, *Transit and Intercity Rail Program (TIRCP) Application for the City of Inglewood Transit Connector Project*, January 16, 2020.

123 Southern California Association of Governments (SCAG), *Connect SoCal: 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies Draft*, "Chapter 1," <https://www.connectsocial.org/Pages/Connect-SoCal-Draft-Plan.aspx>, Accessed on July 10, 2020.

providing more options for short trips/neighborhood mobility areas; supporting electric vehicles and expanding vehicle charging stations; supporting local sustainability planning.

The proposed Project spans the length of approximately 1.6 miles and would be located near existing restaurant, retail, and commercial land uses which generate vehicle trips on local roadways within the area of the proposed Project. The proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Crenshaw/LAX line, and other transit providers as well as the City's major activity centers, such as the Forum, the LASED and HPSP including SoFi stadium, and IBEC. Implementation of the proposed Project would increase transit mode split, reduce vehicle trips, and reduce per-capita VMT. A reduction in VMTs would result in reduced GHG emissions from mobile sources.

According to SCAG 2020-2045 RTP/SCS, approximately 8,389,000 jobs were available in 2016 across industries in the region and the number of jobs available will increase to 10,050,000 by 2045, an increase of approximately 0.62 percent or approximately 52,700 annually in jobs.¹²⁴ Similarly, SCAG projects the population in the region will increase from approximately 18,832,418 in 2016 to 22,507,188 in 2045, resulting in an increase of approximately 0.61 percent or approximately 115,290 population annually.

The proposed Project would generate approximately 150 full-time jobs for the operation and maintenance of the APM trains, tracks, and stations. This results in a net decrease of 343 jobs at the proposed Project from the existing workforce of 493 employees. However, the reduction of jobs at existing commercial and retail uses to accommodate the proposed Project would not result in a reduction in jobs in the local job market.

Other ongoing and proposed developments and construction in downtown Inglewood and the nearby area, such as the HPSP and the LASED, which are both adjacent to the proposed Project, would provide additional job and employment opportunities. As such, the net loss of jobs resulting from the proposed Project can be absorbed by adjacent development.

An adequate workforce exists and is projected to remain in existence, creating capacity to meet the employment needs of the proposed Project during operation. Further, with the current development of new employment opportunities in the City as well as the region, displacement of any existing workers can be absorbed. Therefore, this growth would not conflict with the 2020-2014 RTP/SCS.

The proposed Project would be consistent with a number of SCAG's goals including the following: 1) improving mobility, accessibility, reliability, and travel safety for people and goods; 2) increasing person

124 SCAG. *Draft 2020-2045 ConnectSoCal Demographics And Growth Forecast*.
https://www.connectsocial.org/Documents/Draft/dConnectSoCal_Demographics-And-Growth-Forecast.pdf. Accessed July 27, 2020.

and goods movement and travel choices within the transportation system; 3) reducing GHG emissions and improving air quality; and 4) encouraging development of diverse housing types in areas that are supported by multiple transportation options. In addition, the proposed Project is a prime example of one of SCAG's primary strategies which is to link future growth with more transportation choices, specifically around high-quality transit areas (i.e. the ½ mile surrounding rail transit stops or bus stops/corridors that have peak headways of 15 minutes or less), such as the proposed Project's stations.

As part of its vision, the 2020-2045 RTP/SCS includes Connect SoCal;¹²⁵ Connect SoCal charts a path toward a more mobile, sustainable and prosperous region by making connections between transportation networks, between planning strategies and between the people whose collaboration can improve the quality of life for Southern Californians. Connect SoCal builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. To augment the Core Vision of the plan, Connect SoCal includes new initiatives at the intersection of land use, transportation and technology to close the gap and reach our greenhouse gas reduction goals. As part of the planning vision, Connect SoCal looks to complete "last mile" mobility as part of its sustainability goals. Connect SoCal builds upon with regional initiatives that link the built environment and transportation system with policies, projects and programs that strengthen and enhance each other beyond what each would accomplish in isolation.¹²⁶

As part of the State's mandate to reduce per-capita GHG emissions from automobiles and light trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the State-mandated reductions in GHG emissions at the regional level through reduced per-capita VMT. These strategies identify how the SCAG region can implement Connect SoCal and achieve related GHG reductions. SCAG works to support local jurisdictions and partnerships by identifying ways to implement SCS in a way that fits the vision and needs of each local community.

The following Connect SoCal strategies are intended to be supportive of implementing the regional Sustainable Communities Strategy and are applicable to the proposed Project:

125 Southern California Association of Governments (SCAG), *Connect SoCal, The 2020-2045 Regional Transportation Plan/Sustainable Community Strategy of the Southern California Association of Governments*, <https://www.connectsocial.org/Pages/Connect-SoCal-Final-Plan.aspx>, Accessed on July 10, 2020.

126 Southern California Association of Governments (SCAG), *Connect SoCal, The 2020-2045 Regional Transportation Plan/Sustainable Community Strategy of the Southern California Association of Governments*, p. 4 <https://www.connectsocial.org/Pages/Connect-SoCal-Final-Plan.aspx>, Accessed on July 10, 2020.

Focus Growth Near Destinations & Mobility Options

- Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets.
- Encourage design and transportation options that reduce the reliance on and number of solo car trips.

Support Implementation of Sustainability Policies

- Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions.

The proposed Project's is approximately 1.6 miles in length and would be located near existing residential, office, retail, and commercial land uses which generate vehicle trips on local roadways within the City. The proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Crenshaw/LAX line, and other transit providers as well as the City's major activity centers, such as The Forum, the LASED and HPSP. Implementation of the proposed Project would provide an alternate mode of transportation within the City and decrease vehicle ridership and thereby VMTs.

The 2020-2045 RTP/SCS States that expanding the transit network is central to the region's plan for meeting mobility and sustainability goals while continuing to grow the regional economy.¹²⁷ The proposed Project connects transit and achieves the last mile/first mile goals of the 2020-2045 RTP/SCS. Further, the proposed Project is consistent with and assists in achieving Connect SoCal strategies and incorporates best practices for achieving the State-mandated reductions in GHG emissions at the regional level through reduced per-capita VMT.

For these reasons, the proposed Project would not conflict with SCAG's 2020-2045 RTP/SCS.

City ECAP

ECAP¹²⁸ implementation is expected to reduce emissions by 18.8 percent below 2005 levels by 2020, enabling the City to meet its 2005 target. However, the City would need to reduce emissions by an additional 111,702 MTCO₂e per year by 2035 to meet its 2035 emissions reduction goal. The ECAP includes the following strategies and actions that are applicable to the proposed Project:

- Strategy 1: Lead by Example with Municipal Government Actions

¹²⁷ Southern California Association of Governments (SCAG), Connect SoCal, The 2020-2045 Regional Transportation Plan/Sustainable Community Strategy of the Southern California Association of Governments, Chapter 3. <https://www.connectsocial.org/Pages/Connect-SoCal-Final-Plan.aspx>, Accessed on July 10, 2020.

¹²⁸ City of Inglewood, Inglewood Energy and Climate Action Plan, March 2013, <https://www.cityofinglewood.org/DocumentCenter/View/148/Inglewood-Energy-and-Climate-Action-Plan-ECAP-Adopted-2013-PDF>, accessed July 30, 2020.

- Continue Building and Facility Energy Upgrades to reduce energy use
- Replace all City-owned street, park, and traffic lights with light-emitting diode (LED) lights
- Accelerate city vehicle fleet replacement
- Continue commute trip reduction program
- Planning for electric vehicle infrastructure
- Strategy 3: Support Renewable Energy Generation
 - Remove barriers to renewable energy generation
 - Make renewable energy generation more affordable
 - Educate potential customers
- Strategy 4: Improve Transportation Options and Manage Transportation Demand
 - Make roadways more efficient
 - Improve transit
 - Improve bicycle facilities
 - Make parking more efficient
 - Reduce commute trips
 - Encourage land use intensification and diversity

As discussed previously, the proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Crenshaw/LAX line, and other transit providers as well as the City's major activity centers, such as the Forum, the LASED and HPSP including SoFi stadium and IBEC. Implementation of the proposed Project would increase transit mode split, reduce vehicle trips, and reduce per-capita VMT. The proposed Project would be consistent with the City's ECAP.

The proposed Project's connection from the City's new housing and employment centers, and sports and entertainment venues, to the Metro Crenshaw/LAX Line and larger regional and State rail system will result in significant benefits for both the City and southern California region, including significant reductions in VMT and GHG emissions.

As a transit connector project, the proposed Project will generate a significant amount of ridership from throughout the region with nearly half of the trips originating from Metro's regional light-rail transit system including the Crenshaw Line/LAX and its connection to South Los Angeles, the Metro Green Line and its connections to the South Bay region and Norwalk, the Expo Line and its connections to Santa Monica, Union Station (connection to California High-Speed Rail), East Los Angeles, Pasadena, and the San Gabriel

and San Fernando Valleys. The proposed Project will attract passengers throughout the region by providing a direct transit connection to the City's housing and employment centers, and new sports and entertainment venues.

In addition to rail integration, the proposed Project provides opportunities to increase bus service ridership. Rail and bus integration are symbiotic – bus service is enhanced by urban transit and vice versa. The proposed Project will be located within close proximity to twenty-two municipal bus lines serving the area, including eighteen bus lines operated by Metro, one line operated by Santa Monica Big Blue, one operated by Culver City Bus, one operated by Los Angeles County, and other operated by the Los Angeles Department of Transportation (LADOT).

The ECAP also reflects a commitment to increasing energy efficiency and implementing energy conservation measures to reduce wasteful, inefficient, and unnecessary consumption. The proposed Project would incorporate a number of sustainability features as listed in **Table 3.0-5: Proposed Sustainability Guidelines**. The City has committed to implementing, if feasible, various sustainability measures for different proposed Project elements that meet or exceed CALGreen requirements, including energy and water conservation measures.

As a result, the benefits of completing the proposed Project will generate significant GHG emission reductions. Without the proposed Project, these VMT reductions and air quality improvements would not be realized.

City General Plan

The City General Plan¹²⁹ includes the following elements: Land Use, Circulation, Safety, Noise, Housing, Open Space, and Conservation.

Land Use Element

The following goal from the Land Use Element¹³⁰ of the City General Plan are relevant to GHG emissions.

Circulation Goal: Promote and support adequate public transportation within the City and the region.

Circulation Goal: Develop a safe and adequate pedestrian circulation system which is barrier free for the handicapped.

129 City of Inglewood, Department of Community Development and Housing, General Plan. January 1980

130 City of Inglewood, Department of Community Development and Housing, 1980. Land Use Element of the Inglewood General Plan. January 1980. Amended September 14, 2016.

Conservation Element

The City's General Plan Conservation Element addresses the conservation, development, and use of natural resources.¹³¹ Five specific areas of conservation and/or protection that are identified in the Conservation Element include (1) oil and gas production, (2) water production and provision for domestic use, (3) storm water runoff and waste water, (4) hazardous waste and solid waste disposal, and (5) air pollution.¹³² The Conservation Element notes the following pollution-reducing measures, which would also reduce GHGs:

- Reducing numbers of vehicles being driven while increasing the utilization of high occupancy vehicles and alternative transportation;
- Requiring improvements to engine efficiency to decrease emissions; and
- Increasing the use of clean fuel vehicles.

As discussed previously, the proposed Project would comply with **MM AQ-1** through **MM AQ-4** from the proposed Project's Construction Commitment Program. **MM AQ-1** would require the use equipment that meets the USEPA's Final Tier 4 emissions standards for off-road diesel-powered construction equipment with 50 hp or greater, for all phases of construction activity. Additionally, **MM AQ-2** would require smaller pieces of equipment to be electric or alternative-fueled (i.e., non-diesel) to the maximum extent feasible. **MM AQ-3** would require construction vendors, contractors, and/or haul truck operators commit to using 2010 model year trucks. **MM AQ-4** would require the use of electric or alternatively fueled (e.g., natural gas) sweepers with HEPA filters. Furthermore, the proposed Project would comply with fleet rules to reduce on-road truck emissions under CARBs Truck and Bus regulation.¹³³ Compliance with these measures and requirements would be consistent with the goals and policies of the Conservation Element.

Once in operation, the proposed Project would result in a decrease in GHG emissions pollutants (see **Impact GHG-1**). As shown on **Table 4.7-3**, the GHG emissions would result in net reductions under normal operations.

As discussed previously, the proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Crenshaw /LAX line, and other transit providers as well as the City's major activity centers, such as the Forum, the LASED and HPSP. Implementation of the proposed Project would increase transit mode split, reduce vehicle trips, and reduce per-capita VMT.

131 City of Inglewood General Plan, "Conservation Element" (1997), General Plan. January 1980.

132 City of Inglewood General Plan, "Conservation Element" (1997), General Plan. January 1980.

133 California Air Resources Board, Truck and Bus Regulation. <https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation/about>

For these reasons, the proposed Project would not conflict with Inglewood General Plan policies related to GHG emissions.

Summary

The proposed Project would be consistent with and implement the goals, policies and regulations to reduce GHG emissions of the following:

- The 2017 Climate Change Scoping Plan Update, CARB's plan for achieving a 40 percent reduction on GHG emissions from 1990 levels by 2030, Statewide, as mandated by SB 32;
- SCAG's 2026-2045 RTP/SCS, the regional plan for achieving sustainable land use patterns that reduce passenger vehicle GHG emissions, as mandated by SB 375;
- The City General Plan; and
- The City's ECAP.

Impacts would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance after Mitigation

As discussed, the proposed Project would be consistent with and implement the goals, policies, and regulations of the applicable plans to reduce GHG emissions.¹³⁴

Impacts would be less than significant.

4.7.8 CUMULATIVE IMPACTS

As discussed previously in *Section 4.7.3* above, GHG impacts are exclusively cumulative impacts, hence an evaluation of cumulative GHG impacts is already provided above and no further analysis is necessary.

4.7.9 CONSISTENCY WITH CITY GENERAL PLAN

As discussed above under **Impact GHG-2**, the proposed Project would provide direct connections between regional transit provided by Metro, specifically at the Metro Crenshaw/LAX line, and other transit providers as well as the City's major activity centers, such as the Forum, the LASED and HPSP. Implementation of the proposed Project would increase transit mode split, reduce vehicle trips, and reduce per-capita VMT. For these reasons, the proposed Project would not conflict with Inglewood General Plan policies related to GHG emissions.

¹³⁴ CEQA Guidelines, Section 15064.3(b), *Determining Significant Impacts of Transportation Projects*.