5.3 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (EIR) evaluates the potential for implementation of the Eastside Neighborhood School Project (proposed project) to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because no single project is large enough to result in a measurable increase in global concentrations of GHG, climate change impacts of a project are considered on a cumulative basis.

This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (AQMD). GHG emissions modeling was conducted using the California Emissions Estimator Model (CalEEMod), version 2020.4, and model outputs are included as Appendix B of this Draft EIR. Transportation-sector impacts are based on trip generation as provided by Garland and Associates (Appendix H). Cumulative impacts related to GHG emissions are based on the regional boundaries of the South Coast Air Basin and California.

Terminology

The following are definitions for terms used throughout this section:

- **Greenhouse gases (GHG).** These are gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** This metric is used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO_2) over a given period of time (20, 100, and 500 years). CO_2 has a GWP of 1.
- **Carbon dioxide-equivalent (CO_2e).** This is the standard unit to measure the amount of GHGs in terms of the amount of CO_2 that would cause the same amount of warming. CO_2e is based on the GWP ratios between the various GHGs relative to CO_2.
- **Metric ton of carbon dioxide-equivalent ($MTCO_2e$).** This indicates the measurement of metric tons of CO_2e.
- **Million metric ton of carbon dioxide-equivalent ($MMTCO_2e$).** This indicates the measurement of million metric tons of CO_2e.

5.3.1 Environmental Setting

5.3.1.1 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four

major GHG—water vapor,[1] CO_2, methane (CH_4), and ozone—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride, hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[2] The following are major GHG applicable to the proposed project:

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.3-1, *GHG Emission and Their Relative Global Warming Potential Compared to Carbon Dioxide*. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under the IPCC Fifth Assessment Report (AR5), GWP values for CH_4 indicate that 10 MT of CH_4 would be equivalent to 280 MT of CO_2.

[1] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

[2] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter emitted from burning fuels such as coal, diesel, and biomass. The share of black carbon emissions from transportation is dropping rapidly and is expected to continue to do so between now and 2030 as a result of California's air quality programs. The remaining black carbon emissions will come largely from woodstoves/fireplaces, off-road applications, and industrial/commercial combustion (CARB 2022). However, state and national GHG inventories do not include black carbon due to ongoing work resolving the precise black carbon GWP. Guidance for CEQA documents does not yet include black carbon.

Table 5.3-1 GHG Emissions and Their Relative Global Warming Potential Compared to Carbon Dioxide

GHGs	SAR Global Warming Potential Relative to CO_2[1]	AR4 Global Warming Potential Relative to CO_2[1]	AR5 Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	1	1	1
Methane[2] (CH_4)	21	25	28
Nitrous Oxide (N_2O)	310	298	265

Source: IPCC 1995, 2007, 2013.
Notes: GHG = greenhouse gas; SAR = Second Assessment Report; CO_2 = carbon dioxide; AR4 = Fourth Assessment Report; AR5 = Fifth Assessment Report.
The Intergovernmental Panel on Climate Change published updated global warming potential (GWP) values in its AR5 that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in AR4 are used by South Coast Air Quality Management District to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the GWP values in AR4.
1 Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
2 The CH_4 GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere attributable to human activities. The recent Sixth Assessment Report (AR6) of the IPCC summarizes the latest scientific consensus on climate change. It finds that atmospheric concentrations of CO_2 have increased by 50 percent since the Industrial Revolution and continue to increase at a rate of two parts per million each year. By the 2030s, and no later than 2040, the world will exceed 1.5°C warming (CARB 2022). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the Earth's temperature changed the distribution of species, availability of water, etc. Human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic timeframe but within a human lifetime (IPCC 2007).

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for the following:

- Warmer and fewer cold days and nights over most land areas
- Warmer and more frequent hot days and nights over most land areas
- An increase in the frequency of warm spells and heat waves over most land areas

- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas
- Larger areas affected by drought
- Intense tropical cyclone activity increases
- Increased incidence of extreme high sea level (excluding tsunamis)

Potential Climate Change Impacts for California

There is at least a greater than 50 percent likelihood that global warming will reach or exceed 1.5°C in the near term, even for the very low GHG emissions scenario (IPCC 2022). Climate change is already impacting California and will continue to affect it for the foreseeable future. For example, the average temperature in most areas of California is already 1°F higher than historical levels, and some areas have seen average increases in excess of 2°F (CalOES 2020). The California Fourth Climate Change Assessment identifies the following climate change impacts under a business-as-usual scenario:

- Annual average daily high temperatures in California are expected to rise by 2.7°F by 2040, 5.8°F by 2070, and 8.8°F by 2100 compared to observed and modeled historical conditions. These changes are statewide averages. Heat waves are projected to become longer, more intense, and more frequent.
- Warming temperatures are expected to increase soil moisture loss and lead to drier seasonal conditions. Summer dryness may become prolonged, with soil drying beginning earlier in the spring and lasting longer into the fall and winter rainy season.
- High heat increases the risk of death from cardiovascular, respiratory, cerebrovascular, and other diseases.
- Droughts are likely to become more frequent and persistent through 2100.[3]
- Climate change is projected to increase the strength of the most intense precipitation and storm events affecting California.
- Mountain ranges in California are already seeing a reduction in the percentage of precipitation falling as snow. Snowpack levels are projected to decline significantly by 2100 due to reduced snowfall and faster snowmelt.
- Marine layer clouds are projected to decrease, though more research is needed to better understand their sensitivity to climate change.

[3] Overall, California has become drier over time, with 5 of the 8 years of severe to extreme drought occurring between 2007 and 2016, and with unprecedented dry years in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive 4 years occurring from 2012 to 2015 (OEHHA 2018).

- Extreme wildfires (i.e., fires larger than 10,000 hectares or 24,710 acres) would occur 50 percent more frequently. The maximum area burned statewide may increase 178 percent by the end of the century.
- Exposure to wildfire smoke is linked to increased incidence of respiratory illness.
- Sea level rise is expected to continue to increase erosion of beaches, cliffs, and bluffs. (CalOES 2020)

Global climate change risks to California are shown in Table 5.3-2, *Summary of Greenhouse Gas Emissions Risks to California*, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

Table 5.3-2 Summary of Greenhouse Gas Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves more frequent, hotter, and longer Fewer extremely cold nights Poor air quality worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snowpack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006, 2009; CCCC 2012; CNRA 2014; CalEOS 2020.

5.3.1.2 REGULATORY BACKGROUND

This section describes the national, state, and local regulations applicable to GHG emissions.

Regulation of Greenhouse Gas Emissions on a National Level

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 US Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not impose any emission reduction requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identified emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, according to guidance by the South Coast AQMD, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

United States Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 $MTCO_2e$ or more of per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2017–2026)

The federal government issued new Corporate Average Fuel Economy standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. On March 30, 2020, the EPA finalized an updated Corporate Average Fuel Economy and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient Vehicles Final Rule for Model Years 2021 to 2026. In response to Executive Order (EO) 13990, the National Highway Traffic Safety Administration (NHTSA) announced new proposed fuel standards on August 5, 2021. On December 21, 2021, under the direction of EO 13990, the NHTSA repealed Safer Affordable Fuel Efficient Vehicles Rule Part One, which had preempted state and local laws related to fuel economy standards. Fuel efficiency under the new standards proposed would increase 8 percent annually for model years 2024 to 2026 and increase estimate fleetwide average by 12 miles per gallon for model year 2026 compared to model year 2021 (NHTSA 2021).

United States Environmental Protection Agency Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has developed regulations for new, large, stationary sources of emissions such as power plants and refineries. Under former President Obama's 2013 Climate

Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy rule, which became effective on August 19, 2019. The Affordable Clean Energy rule was crafted under the direction of President Trump's Energy Independence EO. It officially rescinded the Clean Power Plan rule issued during the Obama Administration and set emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants. The Affordable Clean Energy rule was vacated by the United States Court of Appeals for the District of Columbia Circuit on January 19, 2021. The current administration is assessing options on potential future regulations.

Regulation of Greenhouse Gas Emissions on a State Level

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05, EO B-30-15, Assembly Bill (AB) 32, AB 1279, Senate Bill (SB) 32, and SB 375.

Executive Order S-03-05

EO S-03-05 was signed June 1, 2005, and set the following GHG reduction targets for the state:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in EO S-03-05. California Air Resources Board (CARB) prepared the 2008 Scoping Plan to outline a plan to achieve the GHG emissions reduction targets of AB 32.

Executive Order B-30-15

EO B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. EO B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in EO S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, *Safeguarding California*, to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the executive order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires CARB to prioritize direct emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

EO B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlined potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan established a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017c).

California's climate strategy will require contributions from all sectors of the economy, including an enhanced focus on zero-emissions (ZE) and near-zero emission vehicle technologies; continued investment in renewables such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH_4, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and toxic air contaminants emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include the following:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZE buses and trucks
- Low carbon fuel standard (LCFS), with an increased stringency (18 percent by 2030)
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZE trucks
- Implementing the Short-Lived Climate Pollutant Strategy, which focuses on reducing CH_4 and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030
- Post-2020 Cap-and-Trade Program that includes declining caps
- Continued implementation of SB 375
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink

To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled (VMT), and direct investments in GHG reductions within the project's region that contribute to potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be

effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits (CARB 2017a).

2022 Climate Change Scoping Plan Update

CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) on December 15, 2022, which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the State's anthropogenic GHG emissions (CARB 2022). The Scoping Plan was updated to address the carbon neutrality goals of EO B-55-18 (discussed below) and the ambitious GHG reduction target as directed by AB 1279. Previous Scoping Plans focused on specific GHG reduction targets for our industrial, energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. This plan expands upon earlier Scoping Plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Carbon neutrality takes it one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time.

The path forward was informed by the recent Sixth Assessment Report (AR6) of the IPCC and the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB's 2022 Scoping Plan identifies strategies as shown in Table 5.3-3, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State's carbon neutrality goals (see Table 4.8-4, *Priority Strategies for Local Government Climate Action Plans*).

Table 5.3-3 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
Transportation Electrification	Convert local government fleets to zero-emission vehicles (ZEV) and provide EV charging at public sites.
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans).
VMT Reduction	Reduce or eliminate minimum parking standards.
	Implement Complete Streets policies and investments, consistent with general plan circulation element requirements.
	Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.
	Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking.
	Implement parking pricing or transportation demand management pricing strategies.
	Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood).
	Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert "greenfield" land to urban uses (e.g., green belts, strategic conservation easements)

Table 5.3-3 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses.
	Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers).
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances
	Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)
	Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings).

Source: CARB 2022

For residential and mixed-use development projects, CARB recommends this first approach to demonstrate that these land use development projects are aligned with State climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing. Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

- Transportation Electrification:
  - Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.

- VMT Reduction:
  - Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
  - Does not result in the loss or conversion of the State's natural and working lands;
  - Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS);
  - Reduces parking requirements by:
    - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
    - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
    - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
  - At least 20 percent of the units are affordable to lower-income residents;
  - Result in no net loss of existing affordable units.

- Building Decarbonization
  - Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking.

The second approach to project-level alignment with State climate goals is net zero GHG emissions, especially for new residential development. The third approach to demonstrating project-level alignment with State climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022).

Assembly Bill 1279

On August 31, 2022, the California Legislature passed AB 1279, which requires California to achieve net-zero GHG emissions no later than 2045 and to achieve and maintain negative GHG emissions thereafter. Additionally, AB 1279 also establishes a GHG emissions reduction goal of 85 percent below 1990 levels by 2045. CARB will be required to update the scoping plan to identify and recommend measures to achieve the net-zero and GHG emissions-reduction goals.

Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act, was adopted in 2008 to connect the GHG emissions reduction targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excluding emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial counties. Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target.

2017 Update to the Senate Bill 375 Targets

CARB is required to update the targets for the MPOs every 8 years. In June 2017, CARB released updated targets and technical methodology and released another update in February 2018, which became effective in October 2018. CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks compared to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per-capita GHG emission reductions from SB 375 than are currently in place, which for 2035 translates into proposed targets that either match or exceed the emission reduction levels

in the MPOs' currently adopted SCSs. As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018).

Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy

SB 375 requires each MPO to prepare an SCS in its regional transportation plan (RTP). For the SCAG region, the draft 2020–2045 RTP/SCS (Connect SoCal) was adopted on May 7, 2020, for the limited purpose of transportation conformity (SCAG 2020). Connect SoCal was fully adopted in September 2020. In general, the SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light-duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land-use strategies in the development of the SCAG region through the horizon year 2045 (SCAG 2020). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. It also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent compared to baseline conditions for that year. Connect SoCal includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together and increasing investments in transit and complete streets (SCAG 2020).

Transportation Sector-Specific Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduced GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implemented the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that set even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles (see also the discussion on the update to the corporate average fuel economy standards under "Federal," above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG and 75 percent less smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. EO S-01-07 set a declining standard for GHG emissions measured in CO_2e gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015

and a reduction of at least 10 percent by 2020. The standard applied to refiners, blenders, producers, and importers of transportation fuels, and used market-based mechanisms to allow these providers to choose the most economically feasible methods for reducing emissions during the "fuel cycle."

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). EO B-16-2012 also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles would be ZE by 2015 and at least 25 percent by 2020. The executive order also established a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

Executive Order N-79-20

On September 23, 2020, Governor Newsom signed EO N-79-20, whose goal is that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for trucks are that 100 percent of drayage trucks are ZE by 2035, and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The EO's goal for the state is to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08

A major component of California's Renewable Energy Program is the RPS established under SB 1078 (Sher) and SB 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent to reach at least 20 percent by December 30, 2010. EO S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production decreases indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

SB 350 (de Leon) was signed into law in September 2015 and establishes tiered increases to the RPS (40 percent by 2024, 45 percent by 2027, and 50 percent by 2030). SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consists of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an

overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018, and went into effect on January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require the installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems, 2) updated thermal envelope standards (preventing heat transfer from the interior to the exterior and vice versa), 3) residential and nonresidential ventilation requirements, and 4) nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings are 30 percent more energy efficient than under the 2016 standards, and single-family homes are 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

Furthermore, on August 11, 2021, the CEC adopted the 2022 Building Energy Efficiency Standards, which were subsequently approved by the California Building Standards Commission in December 2021. The 2022 standards became effective on January 1, 2023and replaced the existing 2019 standards. The 2022 standards require mixed-fuel single-family homes to be electric-ready to accommodate replacement of gas appliances with electric appliances. In addition, the new standards include prescriptive photovoltaic system and battery requirements for high-rise, multifamily buildings (i.e., more than three stories) and noncommercial buildings such as hotels, offices, medical offices, restaurants, retail stores, schools, warehouses, theaters, and convention centers (CEC 2021).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. CalGreen (24 CCR, Part 11) was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal

air contaminants.[4] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2022. The 2022 Standards became effective on January 1, 2023.

Overall, the code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction. CALGreen 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 code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency (California Building Standards Commission 2022).

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR Sections 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

Assembly Bill 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code Section 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, AB 939 requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

Assembly Bill 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

Assembly Bill 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code Section 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. AB 1327 required the California Integrated Waste Management Board to develop a model ordinance for

[4] The green building standards became mandatory in the 2010 edition of the code.

adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Assembly Bill 1826

In October of 2014, Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

Senate Bill X7-7

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to SB 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of a 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

Assembly Bill 1881: Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves, to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during the incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in $CH_4$by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower

than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these charbroilers by over 80 percent (CARB 2017b). Additionally, South Coast AQMD Rule 445 limits the installation of new fireplaces in the South Coast Air Basin.

5.3.1.3 EXISTING CONDITIONS

California's Greenhouse Gas Sources and Relative Contribution

In 2021, the statewide GHG emissions inventory was updated for 2000 to 2019 emissions using the GWPs in IPCC's AR4 (IPCC 2013). Based on these GWPs, California produced 418.2 $MMTCO_2e$ GHG emissions in 2019. California's transportation sector was the single largest generator of GHG emissions, producing 39.7 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.1 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (10.5 percent), agriculture and forestry (7.6 percent), high GWP (4.9 percent), and recycling and waste (2.1 percent) (CARB 2021).

Since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. In 2016, California statewide GHG emissions dropped below the AB 32 target for year 2020 of 431 $MMTCO_2e$ and have remained below this target since then. In 2019, emissions from routine GHG-emitting activities statewide were almost 13 $MMTCO_2e$ lower than the AB 32 target for year 2020. Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 $MTCO_2e$ per person to 10.5 $MTCO_2e$ per person in 2019, a 25 percent decrease.

Transportation emissions continued to decline in 2019 statewide as they had done in 2018, with even more substantial reductions due to a significant increase in renewable diesel. Since 2008, California's electricity sector has followed an overall downward trend in emissions. In 2019, solar power generation continued its rapid growth since 2013. Emissions from high-GWP gases comprised 4.9 percent of California's emissions in 2019. This continues the increasing trend as the gases replace ozone-depleting substances being phased out under the 1987 Montreal Protocol. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) has declined 45 percent since the 2001 peak, though the state's gross domestic product grew 63 percent during this period (CARB 2021).

Existing Project Site Greenhouse Gas Emissions

The project site houses the Abraham Lincoln Continuation High School, Lincoln Park, and multiple residential buildings along 13th street and Park Avenue. The existing project site generates GHG emissions from transportation (staff, student, vendors and, visitor vehicle trips), area sources (consumer products and cleaning supplies), energy use, water use/wastewater generation, and solid waste disposal. Existing emissions associated with the project site are shown in Table 5.3-4, *Existing Greenhouse Gas Emissions Inventory*.

Table 5.3-4 Existing Greenhouse Gas Emissions Inventory

Sectors	GHG Emissions $MTCO_2e$ per Year
Area	4
Energy[1]	345
Mobile	867
Solid Waste	61
Water	27
Total All Sectors	**1,304**

Source: CalEEMod, version 2020.4.0.
Notes: GHG = greenhouse gas; $MTCO_2e$ = metric ton of carbon dioxide-equivalent.
Totals may not equal 100 percent due to rounding.
[1] Utilizes California Emissions Estimator Model (CalEEMod) historical energy rates.

5.3.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

South Coast Air Quality Management District

South Coast AQMD adopted a significance threshold of 10,000 $MTCO_2e$ per year for permitted (stationary) sources of GHG emissions for which South Coast AQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD convened a GHG CEQA Significance Threshold Working Group. Based on the last working group meeting in September 2010 (Meeting No. 15), South Coast AQMD Working Group identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010a). The following tiered approach has not been formally adopted by South Coast AQMD:

- **Tier 1.** If a project is exempt from CEQA, project-level and contribution to significant cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (e.g., city or county), project-level and contribution to significant cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level criterion, project-level and contribution to significant cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD Working Group requires an assessment of GHG emissions. Project-related GHG emissions include on-road transportation, energy use, water use, wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. The South Coast AQMD Working Group decided that because construction activities would result in a "one-time" net increase in GHG emissions, construction activities should be amortized into the operational phase GHG emissions inventory based on the service life of a building. For buildings in general, it is reasonable to look at a 30-year timeframe, since this is a typical interval before a new building requires the first major renovation. The South Coast AQMD Working Group identified a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types. The bright-line screening-level criteria are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a nominal and less than cumulatively considerable impact on GHG emissions. South Coast AQMD Working Group recommends use of the 3,000 $MTCO_2e$ interim bright-line screening-level criterion for all project types (South Coast AQMD 2010b).

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.[5]

  The South Coast AQMD Working Group identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan-level projects (e.g., program-level projects such as general plans) for the year 2020.[6] The per capita efficiency targets were based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[7] Therefore, these efficiency-based efficiency metrics are no longer applicable.

The South Coast AQMD Working Group's bright-line screening-level criterion of 3,000 $MTCO_2e$ per year is used as the significance threshold for this proposed project. If the project operation-phase emissions exceed this criterion, GHG emissions would be considered potentially significant without mitigation measures.

5.3.3 Plans, Programs, and Policies

Plans, programs, and policies (PPP), including applicable regulatory requirements and project design features for GHG emissions, are identified as follows:

[5] South Coast AQMD had identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan-level projects (e.g., general plans). Service population is generally defined as the sum of residential and employment population of a project. The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

[6] The working group also considered efficiency targets for 2035 for the first time in this working group meeting.

[7] South Coast AQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

PPP GHG-1 New buildings are required to achieve the current California Building Energy Efficiency Standards (Title 24, Part 6) and California Green Building Standards Code (CALGreen) (Title 24, Part 11). The 2022 Building Energy Efficiency Standards became effective on January 1, 2023. The Building Energy Efficiency Standards and CALGreen are updated triennially with a goal to achieve zero net energy for nonresidential buildings by 2030.

PPP GHG-2 New buildings are required to adhere to the California Green Building Standards Code (CALGreen) requirement to provide bicycle parking for new nonresidential buildings or meet local bicycle parking ordinances, whichever is stricter (CALGreen Sections 5.106.4.1, 14.106.4.1, and 5.106.4.1.2).

PPP GHG-3 California's Green Building Standards Code (CALGreen) requires recycling and/or salvaging for reuse for a minimum of 65 percent of the nonhazardous construction and demolition waste generated during most "new construction" projects (CALGreen Sections 4.408 and 5.408). Construction contractors are required to submit a construction waste management plan that identifies the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project, or salvaged for future use or sale and the amount (by weight or volume).

PPP GHG-4 Construction activities are required to adhere to Title 13 California Code of Regulations Section 2499, which requires that nonessential idling of construction equipment is restricted to 5 minutes or less.

PPP GHG-5 New buildings are required to adhere to the California Green Building Standards Code and Water Efficient Landscape Ordinance requirements to increase water efficiency and reduce urban per capita water demand.

5.3.4 Environmental Impacts

5.3.4.1 METHODOLOGY

This GHG emissions evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG emissions impacts are likely in conjunction with the proposed project. South Coast AQMD published guidelines intended to provide guidance to local governments for analyzing and mitigating environmental impacts; this analysis is based on those guidelines. The analysis in this section is based on buildout of the proposed project as modeled using CalEEMod, version 2020.4.0. Life cycle emissions are not included in the GHG analysis, consistent with California Natural Resources Agency directives.[8] Black carbon

[8] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions, found that lifecycle analysis was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials is also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

emissions are not included in the GHG analysis because CARB does not include this short-lived climate pollutant in the state's AB 32/SB 32 inventory but treats it separately.[9] GHG modeling is included in Appendix B of this Draft EIR.

Operational Phase

- **Transportation.** The existing project site generates 740 average daily vehicle trips during the weekday. Option 2 generates the most vehicle trips out of all the options with an additional 1,820 daily vehicle trips associated with the elementary school and 160 daily vehicle trips associated with the joint-use park and, therefore, was used for GHG emissions analysis (Appendix I). Project-related on-road criteria air pollutant emissions are based on year 2022 emission rates for existing conditions and 2028 emission rates for the project build-out year. Although the traffic study used a buildout year of 2029 as full operating year, operational modeling for criteria air pollutants was measured for year 2028 as a conservative modeling approach The primary source of mobile criteria air pollutant emissions is tailpipe exhaust emissions from fuel combustion (i.e., gasoline and diesel).

- **Area Sources.** Area sources generated from use of consumer products and cleaning supplies are based on CalEEMod default emission rates and on the assumed building and land use square footages

- **Energy.** GHG emissions from energy use (electricity and natural gas) are based on the CalEEMod defaults for electricity and natural gas usage for elementary school and high school land use. For purposes of this analysis, new buildings are modeled using the default CalEEMod energy rates, which are based on the 2019 Building Energy Efficiency Standards, and existing buildings are modeled using the CalEEMod historical energy rates. The multipurpose room and historical bungalow building would remain after buildout, and therefore, proposed energy emissions were adjusted to account for this. In addition, conservative assumptions were made regarding field lighting use for the playfields and hardcourts by the community under Option 2.

- **Solid Waste Disposal.** Indirect emissions from waste generation are based on the CalEEMod defaults for all existing uses, proposed buildings, and joint-use park.

- **Water/Wastewater.** Emissions of GHG are associated with the embodied energy used to supply, treat, and distribute water. As discussed in Chapter 8, *Impacts Found Not to be Significant*, the existing and proposed outdoor water use was based on Maximum Applied Water Allowance Calculations for New and Rehabilitated Non-Residential Landscapes. For purposes of this analysis, proposed water use was based on Option 2, since this option has the largest landscape square footage out of all the options.

[9] Particulate matter emissions, which include black carbon, are analyzed in Section 5.1, *Air Quality*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The state's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017a).

Construction Phase

Construction would entail demolition of existing structures and asphalt, site preparation, grading, off-site hauling of demolition debris and earthwork material, construction of the proposed structures and buildings, architectural coating, and asphalt paving on 8.37 acres of the approximately 8.62-acre project site. The proposed project is anticipated to be constructed over approximately 31 months, from January 2026 to July 2028. Construction GHG emissions are based on the preliminary information provided or verified by the District (Appendix B). Annual average construction emissions were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction phase of the proposed project (South Coast AQMD 2009).

5.3.4.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance; the applicable thresholds are identified in brackets after the impact statement.

Impact 5.3-1: Implementation of the proposed project would not generate a net increase in GHG emissions, either directly or indirectly, that would have a significant impact on the environment. [Threshold GHG-1]

Implementation of a development project could contribute to global climate change through direct emissions of GHGs from on-site area sources and vehicle trips generated by the project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis.

The net change in annual GHG emissions were calculated for operation of the proposed project and are shown in Table 5.3-5, *Net Operational Phase Greenhouse Gas Emissions*. The operational phase emissions are from operation of the proposed land uses in Option 3, off-road equipment used for daily operations, additional lighting use under Option 2, and project-related vehicle trips in Option 2. Construction emissions were amortized into the operational phase in accordance with South Coast AQMD's Working Group methodology (South Coast AQMD 2009).

Table 5.3-5 Net Operational Phase Greenhouse Gas Emissions

Sectors	GHG Emissions ($MTCO_2e$ per Year)			
	Existing	Proposed Project[1]	Percent by Sector Proposed Project	Net Change from Existing
Area	4	<1	<1%	-4
Energy[1]	345	369	18%	24
Mobile[2]	867	1,573	76%	706
Solid Waste[3]	61	55	3%	-5
Water[4]	27	24	1%	-4
30-Year Amortized Construction[5]	N/A	46	2%	46
Total Emissions	**1,304**	**2,067**	**100%**	**764**
South Coast AQMD Working Group Bright-Line Threshold				3,000
Exceeds South Coast AQMD Working Group Bright-Line Threshold				**No**

Source: CalEEMod, Version 2020.4.0.
Notes: GHG = greenhouse gas; $MTCO_2e$ = metric ton of carbon dioxide-equivalent; N/A = not applicable; AQMD = Air Quality Management District.
Manual summation of values may not equal the totals shown due to rounding.

1 Existing conditions for energy uses historic rates based on California Emissions Estimator Model (CalEEMod) default values. For project build-out conditions, the default electricity and natural gas rate in CalEEMod was adjusted to reflect blended energy efficiency associated with the existing Multipurpose Room and Bungalow that would remain (using historic rates in CalEEMod) and new structures that would be constructed to achieve the 2019 Building and Energy Efficiency Standards (see Appendix B). Proposed energy use also includes emissions from lighting use under Option 2 (see Appendix B for calculations).

2 Transportation emissions associated with buildout are based on trip generation data provided by Garland and Associates under Option 2 for most conservative analysis regarding mobile emissions (Appendix H). Vehicle miles traveled and vehicle fleet mix based on CalEEMod default rates.

3 Includes solid waste value associated with 210 users of the joint-use park feature under Option 2 as worst-case scenario. Assume 0.5 pounds per day per person of solid waste generation factor (see Section 8.12, *Utilities and Services Systems*).

4 Calculated outdoor water use was based on 145,000 square feet of landscape area under Option 2 for most conservative analysis and water calculations were based on Maximum Applied Water Allowance Calculations for New and Rehabilitated Non-Residential Landscapes.

5 Construction emissions are amortized over a 30-year project lifetime per recommended South Coast AQMD Working Group methodology.

As shown in the Table 5.3-5, under full build-out year with project conditions, implementation of the proposed project would result in an overall annual net increase of GHG emissions of 764 $MTCO_2e$/yr. Because student capacity, staffing, and other community-related uses on the campus would increase after full buildout, the proposed project would result in an increase in emissions from mobile sources and energy use (directly through fuel consumed for building heating). However, the proposed project would generate a net decrease in GHG emissions from area sources (e.g., landscaping equipment used on site, consumer products, coatings), solid waste, and water use in comparison to existing conditions. Annual average construction emissions were amortized over 30 years and included in the emissions inventory to account for one-time GHG emissions from the construction activities of the proposed project. However, the long-term operation of the proposed project would not generate annual emissions exceeding the South Coast AQMD bright-line threshold of 3,000 MTCO2e per year (South Coast AQMD 2010b). Therefore, the proposed project's cumulative contribution to GHG emissions would be less than significant.

Level of Significance Before Mitigation: Less-than-significant impact.

Impact 5.3-2: Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. [Threshold GHG-2]

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SCAG's RTP/SCS. A consistency analysis with these plans is presented below.

California Air Resources Board Scoping Plan

On November 16, 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon (2022 Scoping Plan), which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the State's anthropogenic GHG emissions (CARB 2022). The 2022 Scoping Plan is applicable to state agencies and is not directly applicable to cities/counties or individual projects (i.e., the Scoping Plan does not require the city to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

Buildout of the proposed project would adhere to the programs and regulations identified by the 2022 Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32, SB 32, and AB 1279. These future individual development projects allowed by the proposed project would comply with these statewide GHG emissions reduction measures. For example, new buildings are required meet the latest CALGreen and Building Energy Efficiency standards. Project GHG emissions shown in Table 5.3-5 include reductions associated with statewide strategies that have been adopted since AB 32, SB 32, AB 1279. Therefore, the proposed project would not obstruct implementation of the 2022 Scoping Plan and impacts are considered **less than significant.**

Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy

SCAG adopted the 2020–2045 RTP/SCS (Connect SoCal) in September 2020. Connect SoCal finds that land use strategies focusing on new housing and job growth in areas rich with destinations and mobility options would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in Connect SoCal is to plan for the Southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). Connect SoCal's transportation projects help more efficiently distribute population, housing, and employment growth, and forecast development is generally consistent with regional-level general plan data to promote active transportation and reduce GHG emissions. The projected regional development, when integrated with the proposed regional transportation network in Connect SoCal, would reduce per-capita GHG emissions related to vehicular travel and achieve the GHG reduction per capita targets for the SCAG region.

The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but does provide incentives for consistency to governments and developers. The proposed project would provide new educational facilities for the existing and future students of the District. Therefore, the proposed project would serve the local population within the nearby surrounding communities and help accommodate

any general student growth in the local region. Since the expansion of the current school campus would be a local-serving land use, the proposed project is presumed to have a less-than-significant impact on VMT. Therefore, the proposed project would not interfere with SCAG's ability to implement the regional strategies in RTP/SCS, and impacts would be **less than significant**.

Level of Significance Before Mitigation: Less-than-significant impact.

5.3.5 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, impacts under Impact 5.3-1 are not a project-specific impact to global warming, but the proposed project's contribution to a cumulative impact. Implementation of the proposed project would not result in annual emissions that would exceed South Coast AQMD's bright-line threshold. Therefore, project-related GHG emissions and their contribution to global climate change would not be cumulatively considerable, and GHG emissions impacts would be less than significant.

5.3.6 Level of Significance Before Mitigation

Upon implementation of PPPs, the impacts would be less than significant: Impact 5.3-1 and Impact 5.3-2.

5.3.7 Mitigation Measures

No mitigation measures are required.

5.3.8 Level of Significance After Mitigation

Not applicable.

5.3.9 References

California Air Resources Board (CARB). 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.

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