4.8 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section evaluates the greenhouse gas (GHG) emissions impacts of the proposed Plan.

4.8.1 Existing Conditions

GLOBAL CLIMATE CHANGE

The phenomenon known as the greenhouse effect keeps the atmosphere near the earth's surface warm enough for the successful habitation of humans and other life. Present in the earth's lower atmosphere, GHGs play a critical role in maintaining the earth's temperature. Sunlight—including infrared, visible, and ultraviolet radiation—passes through the atmosphere. Some of the sunlight striking the earth is absorbed and converted to heat, which warms the surface. The surface emits infrared radiation to the atmosphere, where some of it is absorbed by GHGs and re-emitted toward the surface; some of the heat is not trapped by GHGs and escapes into space. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and amplifying the warming of the earth (IPCC 2013).

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. According to the Intergovernmental Panel on Climate Change (IPCC), human influence has warmed the climate at a rate that is unprecedented in at least the last 2,000 years (IPCC 2022). In addition, the IPCC reported with high confidence that in 2019 carbon dioxide (CO_2) concentrations were higher than at any time in at least 2 million years, and reported with very high confidence that 2019 concentrations of methane (CH_4) and nitrous oxide (N_2O) were higher than at any time in at least 800,000 years (IPCC 2023a). Rising atmospheric concentrations of GHGs in excess of natural levels enhance the greenhouse effect, which contributes to global warming of the earth's lower atmosphere. This warming induces large-scale changes in ocean circulation patterns, precipitation patterns, global ice cover, biological distributions, and other changes to the earth's system that are collectively referred to as climate change. The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years (IPCC 2023a). IPCC also reports that many changes in the climate system become larger in direct relation to increasing global warming, including increases in the frequency and intensity of extreme heat events, marine heatwaves, and heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover, and permafrost (IPCC 2023a). In addition, low-likelihood outcomes, such as ice sheet collapse, abrupt ocean circulation changes, some compound extreme events, and warming substantially greater than the assessed very likely range of future warming cannot be ruled out (IPCC 2023a).

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs). Criteria air pollutants and TACs occur locally or regionally, and local concentrations respond to locally implemented control measures. However, the long atmospheric lifetimes of GHGs allow them to be transported great distances from the original emissions source. GHGs and global climate change therefore represent cumulative impacts; that is, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

PRINCIPAL GREENHOUSE GASES

As defined in Section 15364.5 of the California Environmental Quality Act Guidelines (CEQA Guidelines) (Title 14, Division 6, Chapter 3 of the California Code of Regulations [CCR]), GHGs include the following gases: CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorinated carbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (humanmade) sources. The primary GHGs associated with implementation of the proposed Plan are CO_2, CH_4, and N_2O. Minor amounts of HFCs, which are considered high global warming potential (GWP) GHGs,

may also be generated by leakages from air conditioners and refrigerators. The principal characteristics of these pollutants are discussed in this section.

Methods have been set forth to describe emissions of GHGs in terms of a single gas equivalent to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in the IPCC reference documents. IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalent (CO_2e), which compares the gas in question to that of the same mass of CO_2 (which has a GWP of 1 by definition) (IPCC 2023b).

This EIR calculates CO_2e using the same GWP values that the California Air Resources Board (CARB) uses to prepare the state's annual statewide GHG emissions inventory, including the most recent statewide inventory completed in 2022. CARB uses GWP values from the IPCC Fourth Assessment Report (AR4) as shown in Table 4.8-1 (CARB 2024a). The GWP values are considered over a 100-year timeframe.

Carbon Dioxide

CO_2 is the most abundant anthropogenic GHG and accounts for more than 75% of all GHG emissions caused by humans. Its long atmospheric lifetime ensures that atmospheric concentrations of CO_2 will remain elevated for decades even after mitigation efforts to reduce GHG concentrations are promulgated (EPA 2025a). The primary sources of anthropogenic CO_2 in the atmosphere include the burning of fossil fuels (including motor vehicles), gas flaring, cement production, and land use changes (e.g., deforestation, oxidation of elemental carbon). CO_2 is also removed from the atmosphere by photosynthetic organisms. Atmospheric CO_2 has increased from a preindustrial concentration of 280 parts per million (ppm) to a global monthly mean of 426 ppm (NOAA 2025a).

Methane

CH_4, the main component of natural gas, is the second most abundant GHG and has a GWP of 25 according to IPCC's AR4 (CARB 2024a). Sources of anthropogenic emissions of CH_4 include natural gas and petroleum systems, livestock cultivation, and waste decomposition in landfills (EPA 2025a). Certain land uses also function as both a source and sink for CH_4. For example, wetlands are a terrestrial source of CH_4, whereas undisturbed, aerobic soils act as a CH_4 sink (i.e., they remove CH_4 from the atmosphere). Atmospheric CH_4 has increased from a preindustrial concentration of 721 parts per billion (ppb) to a global monthly mean of 1,943 ppb as of October 2024 (NOAA 2025a).

Nitrous Oxide

N_2O is a powerful GHG with a GWP of 298 based on the AR4 (CARB 2024a). Anthropogenic sources of N_2O include agricultural processes (e.g., fertilizer application), nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions. N_2O also is used in rocket engines, racecars, and as an aerosol spray propellant. Natural processes, such as nitrification and denitrification, can also produce N_2O, which can be released to the atmosphere by diffusion. In the United States more than 70% of N_2O emissions are related to agricultural soil management practices, particularly fertilizer application. N_2O concentrations in the atmosphere have increased 18% from preindustrial levels of 270 ppb to a global monthly mean of 338 ppb as of October 2024 (NOAA 2025a).

Hydrofluorocarbons

HFCs are humanmade chemicals used in commercial, industrial, and consumer products and have high GWPs ranging from 12 (HFC-161) to 14,800 (HFC-23) (Greenhouse Gas Protocol 2024). HFCs are generally used as substitutes for ozone-depleting substances in automobile air conditioners and refrigerants. They were introduced as alternatives to ozone-depleting substances (ODS) in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are also used in manufacturing. More than three-quarters of HFC emissions in California come from the use of refrigerants in the commercial, industrial, residential, and transportation sectors (CARB 2025a). In 2022, high-GWP gases comprised 5.7% of California's emissions. This sector includes releases of ODS substitutes, sulfur hexafluoride emissions from the electricity transmission and distribution system, and emissions from semiconductor manufacturing. Emissions of ODS substitutes account for 68.5% of emissions from this sector and consist primarily of HFCs. In the transportation sector, HFCs from refrigeration and air-conditioning units represented about 2.6% of total on-road emissions in California (CARB 2024a).

Perfluorocarbons

PFCs are a group of humanmade chemicals composed of carbon and fluorine. PFCs do not harm the stratospheric ozone layer, but they are powerful GHGs (CARB 2025b), with GWPs ranging from 7,390 (PFC-14) to 12,200 (PFC-116) (Greenhouse Gas Protocol 2024). These chemicals (predominantly carbon tetrafluoride and hexafluoroethane) were introduced as alternatives, along with hydrofluorocarbons, to ODS. PFCs are emitted as byproducts of industrial processes and are also used in manufacturing.

Sulfur Hexafluoride

SF_6 is a humanmade chemical used as an electrical insulating fluid in power distribution equipment, in the magnesium industry, for semiconductor manufacturing, and as a tracer chemical for the study of oceanic and atmospheric processes. SF_6 is a powerful GHG with a GWP of 22,800 (Greenhouse Gas Protocol 2024). Because SF_6 is a humanmade chemical, it did not exist in the atmosphere before the 20th century.

GREENHOUSE GAS GLOBAL WARMING POTENTIALS

Table 4.8-1 lists AR4 GWP values and atmospheric lifetimes of CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6.

Table 4.8-1 Greenhouse Gas Global Warming Potentials

Greenhouse Gas Name	Greenhouse Gas Formula	Lifetime (years)[1]	Global Warming Potential (AR4)
Carbon dioxide	CO_2	Varies[2]	1
Methane	CH_4	12	25
Nitrous oxide	N_2O	114	298
Hydrofluorocarbons	HFCs	1–270	675–14,800
Perfluorocarbons	PFCs	2,600–50,000	7,390–12,200
Sulfur hexafluoride	SF_6	3,200	22,800

Note: AR4 = Intergovernmental Panel on Climate Change Fourth Assessment Report.

[1] Defined as the half-life of the gas.

[2] CO_2 cannot be represented with a single lifetime value because the gas is not destroyed over time but instead moves among different parts of the ocean–atmosphere–land system. Some amounts of CO_2 are absorbed from the atmosphere relatively quickly (for example, by the ocean), but some will remain in the atmosphere for thousands of years, due in part to the slow process by which carbon is transferred to ocean sediments. However, most lifetime estimates fall in the 100- to 300-year range.

Sources: CARB 2025a; CARB 2024a; Greenhouse Gas Protocol 2024.

GREENHOUSE GAS INVENTORIES

A GHG inventory is a quantification of all GHG emissions and sinks[1] in a selected physical or economic boundary. GHG inventories can be performed on a large scale (e.g., for global and national entities) or on a small scale (e.g., for a particular building or person). Although some processes are difficult to evaluate, agencies and practitioners have developed tools to quantify emissions from many common sources.

Table 4.8-2 provides the results of the most recent global, national, statewide, and regional GHG inventories to contextualize regional emissions. Globally, the two highest emitting economic sectors of anthropogenic GHG emissions are electricity and heat production (34%); industry (24%); agriculture, forestry, and other land use (22%); transportation (15%); and building energy (6%) (IPCC 2022). At the federal level, transportation is the largest emission source (28%), followed by electric power (25%) (EPA 2024a).

[1] A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

Table 4.8-2 Global, National, State, and San Diego Region Greenhouse Gas Emissions Inventories

Greenhouse Gas Emissions Inventory	Annual Emissions ($MMTCO_2e$)
2019 IPCC Global GHG Emissions Inventory[1]	59,000
2022 EPA National GHG Emissions Inventory[2, 3]	6,343
2022 CARB State GHG Emissions Inventory[2]	371.1
2022 San Diego Region GHG Emissions Inventory[2]	22.25

Notes: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent; GHG = greenhouse gas; IPCC = Intergovernmental Panel on Climate Change; AR5 = Fifth Assessment Report; AR4 = Fourth Assessment Report; GWP = global warming potential.

[1] These values are estimated using IPCC's AR5 GWPs.

[2] These values are estimated using IPCC's AR4 GWPs.

[3] This total accounts for sequestration of carbon from the land sector.

Sources: IPCC 2022; EPA 2024a; CARB 2024a; Appendix E.

Within California, transportation is the largest emission source (39%), followed by industrial (23%) and electric power sources (in-state generation and imported) (16%) (CARB 2024a). In the transportation sector, the majority of emissions are from passenger vehicles (73%) and heavy-duty vehicles (20%), with smaller amounts from aviation (3%), ships and commercial boats (3%), and rail (1%) (CARB 2024a). Table 4.8-3 summarizes the statewide GHG inventory for California emissions by sector and percentage in 2022.

Table 4.8-3 Statewide Greenhouse Gas Emissions by Economic Sector (2022)

Sector	$MMTCO_2e$	Percent
Transportation	143.6	39
Industrial	83.8	23
Electricity generation (in state)	42.3	11
Electricity generation (imports)	17.5	5
Agriculture	29.8	8
Residential	30.7	8
Commercial	23.4	6

Notes: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent. Totals may not equal the sum of the numbers because of independent rounding. $MMTCO_2e$ = million metric tons of carbon dioxide equivalent.

Source: CARB 2024a.

Appendix G, "2022 Greenhouse Gas Emissions Inventory and Projections for the San Diego Region," to the Regional Plan includes the methodology used to calculate emissions inventory and projections by emissions category. Within the San Diego region, on-road transportation—passenger cars and light-duty vehicles—is the largest emission source (35%), followed by electricity consumption (18%), natural gas consumption (14%), industrial uses (11%), on-road transportation including heavy-duty trucks and vehicles (10%), other fuels (4%), off-road transportation (3%), solid waste disposal (i.e., off-gassing of fugitive methane) (1%), aviation (1%), water treatment and distribution (1%), and other sectors representing1% of total emissions or less (Appendix E: "Appendix G of the Regional Plan; 2022 Greenhouse Gas Emissions Inventory and Projections for the San Diego Region"). Table 4.8-4 summarizes the 2022 GHG inventory for the San Diego region.

Table 4.8-4 San Diego Region Greenhouse Gas Emissions by Source (2022)

Source	$MMTCO_2e$	Percent
Passenger cars and light-duty vehicles	7.80	35
Electricity	4.03	18
Natural gas	3.01	14

Source	$MMTCO_2e$	Percent
Industrial	2.40	11
Heavy-duty trucks and other vehicles	2.28	10
Other fuels	0.86	4
Off-road vehicles	0.62	3
Solid waste	0.32	1
Aviation	0.31	1
Water	0.25	1
Agriculture	0.18	0.8
Marine vessels	0.11	0.5
Wastewater	0.05	0.2
Rail	0.03	0.1
Total	22.25	100

Notes: Totals may not equal the sum of the numbers because of independent rounding. $MMTCO_2e$ = million metric tons of carbon dioxide equivalent.

Source: Data modeled by EPIC in 2025 (included in Appendix E: "Appendix G of the Regional Plan; 2022 Greenhouse Gas Emissions Inventory and Projections for the San Diego Region")

ANTICIPATED EFFECTS OF CLIMATE CHANGE

IPCC predicts that the global mean surface temperature increase by the end of the 21st century (2081–2100), relative to 1986–2005, could range from 0.5 to 8.7°F. Additionally, IPCC projects that global mean sea-level rise will continue during the 21st century, very likely at a faster rate than observed from 1901 to 2015. By 2100, the rise will likely range from 18 to 33 inches (0.43 to 0.84 meters), relative to 1986–2005 (IPCC 2023b). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate, California will experience average daily high temperatures that are warmer than the historic average by 2.5 degrees Fahrenheit (°F) from 2006 to 2039, by 4.4°F from 2040 to 2069, and by 5.6°F from 2070 to 2100; and if GHG emissions continue at current rates, then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006 to 2039, by 5.8°F from 2040 to 2069, and by 8.8°F from 2070 to 2100 (LCI [formerly known as OPR] et al. 2018).

Since its previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012 to 2016, an almost nonexistent Sierra Nevada winter snowpack in 2014/2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (LCI [formerly known as OPR] et al. 2018). According to California Natural Resource Agency's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). The year 2024 was the warmest year since global records began in 1850 at 1.29 degrees Celsius (°C, or 2.32°F) above the 20th century average of 13.9°C (57.0°F). This value is 0.10°C (0.18°F) more than the previous record set in 2023. The 10 warmest years in the 174-year record have all occurred during the last decade (2014–2024) (NOAA 2025b). In contrast, the northern Sierra Nevada experienced one of its wettest years on record during the 2016/2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods, which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires have increased.

In November 2018, the Camp Fire destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history, and the largest fires in the state's history have occurred in the 2018–2020 period. Most recently in January of 2025, the Los Angeles area fires burned an area of approximately 50,000 acres, killing more than two dozen people, destroying over 15,000 homes and businesses, and creating unhealthy air quality for millions of people (NOAA 2025c).

Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 inches of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and the Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (LCI [formerly known as OPR] et al. 2018).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that cannot retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats, thus potentially outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders), which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects, such as ticks and mosquitos, which transmit diseases harmful to human health, such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; LCI [formerly known as OPR] et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive physical damage to communities and the state.

4.8.2 Regulatory Setting

FEDERAL LAWS, REGULATIONS, PLANS, AND POLICIES

There is no overarching federal law specifically related to climate change or the reduction of GHG emissions. Additionally, in March 2025, the current administration announced that EPA will undertake 31 actions, focusing primarily on reconsidering actions adopted by previous administrations, including numerous actions and regulations related to climate change and the reduction of GHG emissions. These include, but are not limited to, reconsideration of regulations on power plants, the Mandatory Reporting Rule, the Endangerment Finding, and fuel economy standards, among others. As of the writing of this Draft EIR, none of these regulations have been repealed or replaced with newly adopted regulations. Therefore, these regulations are discussed below.

Greenhouse Gas Regulations Under the Clean Air Act

Massachusetts v. Environmental Protection Agency

The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S. Ct. 1438 (2007) that CO_2 and other GHGs are pollutants under the federal Clean Air Act (CAA) (42 USC Section 7401 et seq.), which EPA must regulate if it determines those GHGs pose an endangerment to public health or welfare.

Endangerment Finding and Cause or Contribute Finding

On December 7, 2009, the EPA administrator signed two distinct findings regarding GHGs under Section 202(a) (42 United States Code [USC] Section 7521).

- Endangerment Finding: The administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. On July 29, 2025, EPA announced a proposal to rescind the

Endangerment Finding and repeal all GHG emission standards for light-duty, medium-duty, and heavy-duty vehicles and engines pursuant to CAA section 202(a). As of writing this EIR, EPA has not adopted this proposal (EPA 2025b). The proposed rule would remove GHG-related provisions from 40 CFR part 600 without affecting provisions related to CAFE standards and fuel economy labeling. In general, the proposed rule would remove MY 2012 and later GHG emission standards for passenger cars and light trucks, and MY 2014 and later GHG emission standards for medium-duty vehicles (EPA 2025b). These regulatory repeals would affect certain motor vehicle GHG emissions estimates using EMFAC2014 (used for the Impact GHG-2 analysis) and EMFAC2017 (used for the Impact GHG-1 analysis), which both assumed implementation of certain federal emissions standards proposed for repeal. As of the writing of this EIR, EPA has not adopted this proposal (EPA 2025b), and CARB has provided no guidance on how to address this issue in emissions modeling. Given these considerations, at the time of EIR preparation, EMFAC2014 and EMFAC2017 were the most appropriate methodology for the EIR to use to estimate GHG impacts under Impacts GHG-2 and GHG-1, respectively.

- Cause or Contribute Finding: The administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Reporting Rule

EPA adopted a mandatory GHG reporting rule in September 2009. The rule requires suppliers of fossil fuels or entities that emit industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more of GHG emissions to submit annual reports to EPA beginning in 2011. Vehicle and engine manufacturers were required to begin reporting GHG emissions starting with model year 2011.

Fuel Economy and Emissions Standards for Passenger Cars and Light Trucks

The Corporate Average Fuel Economy Standards (CAFE) were first enacted in 1975 to improve the average fuel economy of cars and light duty trucks. In 2024, CAFE standards were finalized for model years (MYs) 2027 through 2031. The final rule establishes standards that require an industry-wide fleet average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks. The final rule establishes standards that would require an industry-wide fleet average of approximately 50.4 mpg in MY 2031 for passenger cars and light trucks and an industry fleet-wide average for heavy-duty pickup trucks and vans (HDPUVs) of roughly 2.851 gallons per 100 miles in MY 2035. The final CAFE standards increase at a rate of 2% per year for passenger cars in MYs 2027–2031 and 2% per year for light trucks in model years 2029–2031. The final HDPUV fuel efficiency standards increase at a rate of 10% per year in MYs 2030–2032 and 8% per year in MYs 2033–2035 (NHTSA 2024).

Medium- and Heavy-Duty Vehicle Program

EPA and the National Highway Safety Administration (NHTSA) also set fuel efficiency and GHG standards for medium- and heavy-duty trucks. In 2011, EPA and NHTSA finalized a joint rule that established a national program to reduce GHG emissions and improve fuel economy for new medium- and heavy-duty engines and vehicles. This rule—called the Phase 1 standards—requires fuel efficiency standards for engines in model years 2014 through 2018 (40 CFR Parts 85, 86, 1036, 1037, 1065, 1066, and 1068). In 2016, EPA and NHTSA adopted the Phase 2 standards, which require fuel efficiency standards for engines in model years 2018 through 2027 (40 CFR Parts 9, 22, 85, 86, 600, 1033, 1036, 1037, 1039, 1042, 1043, 1065, 1066, and 1068) (EPA 2016).

Emission Standards for Nonroad Diesel Engines

EPA has established a series of increasingly strict emission standards for new nonroad diesel engines. Tier 1 standards were phased in on newly manufactured equipment from 1996 through 2000 (year of manufacture), depending on the engine horsepower category (40 CFR Part 89). Tier 2 standards were phased in on newly manufactured equipment from 2001 through 2006 (40 CFR Part 89). Tier 3 standards were phased in on newly manufactured equipment from 2006 through 2008 (40 CFR Part 89). Tier 4 standards, which require advanced emission control technology to attain them, were phased in between 2008 and 2015 (40 CFR Part 1039). These emissions standards apply to all nonroad (off-road) equipment that is anticipated to be used to construct elements of the proposed Plan (EPA 2004).

2024-2027 Climate Adaptation Plan

EPA's 2024-2027 Climate Adaptation Plan focuses on priority actions to address the impacts of climate change and help build a more climate-resilient nation. The plan allows EPA to deliver on its mission to protect human health and the environment, even as the climate changes. Through the plan, EPA will modernize its financial assistance programs to encourage climate-resilient investments throughout the United States. The intent of the plan is to offer financial resources to local jurisdictions, as well as tools, data, information, and technical support needed to assess climate risks and develop climate-resilience solutions based on geographic-specific climate threats. The plan measures potential exposure of extreme heat, extreme precipitation, sea-level rise, wildfire risk, and flooding at federally owned facilities under IPCC's Representative Concentration Pathways 4.5 (intermediate emissions scenario) and 8.5 (high emissions scenario) and identifies adaptation strategies to improve the resilience of identified federal facilities (EPA 2024b).

Phasedown of Hydrofluorocarbons

On October 11, 2024, EPA finalized a rule that establishes an emissions reduction and reclamation program for the management of certain HFCs and their substitutes (40 CFR Parts 84, 261, 262, 266, 270, and 271). Requirements include leak repair for refrigerant-containing appliances (e.g., refrigerators, chillers, mobile air conditioners), a standard for reclaimed HFC refrigerants (i.e., no more than 15% new HFCs by weight), and compliance deadlines for servicing applicants (i.e., workers who interact with appliances containing refrigerants) disposing of HFC devices to minimize release of HFCs during servicing, repair, disposal, and/or installation of equipment that require HFCs.

Public Law No. 119-15

On June 12, 2025, Public Law 119-15, enacting House Joint Resolution 87, was signed into law. The law utilized the Congressional Review Act to disapprove EPA's rule that had granted California a waiver to enforce stricter emissions standards for heavy-duty vehicles under the Clean Air Act. The disapproved rule included programs such as the Advanced Clean Trucks regulation and zero-emission requirements for airport shuttles. Passed under the Congressional Review Act, the law prevents EPA from implementing or reissuing the same or similar rules without new congressional authorization. This effectively blocks California, and other states that follow its standards, from enforcing these specific vehicle emission and warranty regulations. However, the implications of this federal law on the State's capability to enforce its independent heavy-duty vehicle emissions standards are uncertain at this time, as the California Attorney General filed a lawsuit challenging P.L. No. 119-15 on June 12, 2025. Whether this action will be successful is unknown, as is the possibility that a federal judge will issue a stay to halt the implementation of the heavy-duty vehicle regulations during the legal process. Notably, as discussed under the analysis of Project impacts in Section 4.8.4, "Environmental Impacts and Mitigation Measures," Impact GHG-1 uses EMFAC2017 and Impact GHG-2 uses EMFAC2014 to calculate mobile source emissions. These analyses do not account for California's stricter emissions standards for heavy-duty vehicles because these standards had not yet been adopted at the time the EMFAC2014 or EMFAC2017 methodologies were last updated, and thus were not factored into the modeling.

Public Law No. 119-16

Similarly on June 12, 2025, Public Law No. 119-16, enacting House Joint Resolution 88, became law. The law also relied on the Congressional Review Act to disapprove the EPA's December 2024 waiver under the CAA that allowed California to implement and enforce the Advanced Clean Cars II (ACC II) regulation. ACC II included a zero-emission vehicle (ZEV) mandate targeting 100% new light-duty ZEV sales by 2035. Again, the implications of this law on the State's capability to enforce its independent fuel economy standards are uncertain at this time, as the California Attorney General filed a lawsuit challenging P.L. No. 119-16 on June 12, 2025. Whether this action will be successful is unknown, as is the possibility that a federal judge will issue a stay to halt the implementation of the ACC II regulation during the legal process. Notably, as discussed under the analysis of Project impacts in Section 4.8.4, "Environmental Impacts and Mitigation Measures," Impact GHG-1 uses EMFAC2017 and Impact GHG-2 uses EMFAC2014 to calculate mobile source emissions estimates. These analyses do not account for ACC II because ACC II had not yet been adopted at the time the EMFAC2014 or EMFAC2017 methodologies were last updated, and thus were not factored into the modeling.

Public Law No. 119-17

Public Law 119–17, enacted on June 12, 2025, disapproves, under the Congressional Review Act, the EPA's rule titled "California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The 'Omnibus' Low NO_X Regulation; Waiver of Preemption; Notice of Decision." The law disapproves the EPA's January 6, 2025, Low-NO_x rule that would have granted California a waiver to enforce stricter emissions standards for both on-road and non-road heavy-duty engines. Similar to the other CRA resolutions listed above targeting emissions waivers, this law prohibits the EPA from reissuing the same or substantially similar rule without new authorization from Congress. The law effectively blocks California, and any states following its standards, from implementing this omnibus Low-NO_X regulatory package. Again, the implications of this federal law on the State's capability to enforce its independent Low NO_X regulatory package are uncertain at this time, as the California Attorney General filed a lawsuit challenging P.L. No. 119-17 on June 12, 2025. Whether this action will be successful is unknown, as is the possibility that a federal judge will issue a stay to halt the implementation of the Low NO_X regulatory package during the legal process.

Notably, as discussed under the analysis of Project impacts in Section 4.8.4, "Environmental Impacts and Mitigation Measures," Impact GHG-1 uses EMFAC2017 and Impact GHG-2 uses EMFAC2014 to calculate mobile source emissions estimates. The EMFAC2014 analyses do not account for the Low NO_X rule because it had not yet been adopted at the time the EMFAC2014 methodology was last updated, and thus was not factored into the modeling. Although the EMFAC2017 post-processing adjustment factor assumes implementation of the Low NO_X rule, EIR mobile source emissions were calculated prior to the June 12, 2025 disapproval of the low NO_X rule, there is legal uncertainty about enforceability of the federal disapproval of these regulations, and CARB has provided no guidance on how to address this issue in EMFAC modeling at the time of EIR preparation. Given these considerations, at the time of EIR preparation, EMFAC2014 and EMFAC2017 were the most appropriate methodologies for the EIR to use to calculate mobile source emissions.

STATE LAWS, REGULATIONS, PLANS, AND POLICIES

The State of California has adopted several laws addressing various aspects of climate change, GHG mitigation, energy efficiency, and renewable energy. Much of this establishes a broad framework for the state's long-term GHG and energy reduction goals and climate change adaptation program. Governors have also issued several executive orders (EOs) related to the state's evolving climate change policy.

Notably, as discussed in Section 4.3, "Air Quality," the CAA allows California, and other states, to seek a waiver of preemption, which prohibits states from enacting emission standards for new motor vehicles. EPA must grant a waiver, however, before California's rules may be enforced. According to the CAA Section 209(b), "State Standards," EPA shall grant a waiver unless the EPA administrator finds that California:

- was arbitrary and capricious in its finding that its standards are, in the aggregate, at least as protective of public health and welfare as applicable federal standards;
- does not need such standards to meet compelling and extraordinary conditions; or
- such standards and accompanying enforcement procedures are not consistent with Section 202(a) of the CAA.

As of April 2025, CARB has rescinded its waiver requests for several regulations including the In-Use Locomotive Regulation, portions of the Advanced Clean Fleets regulation, and the Transportation Refrigeration Unit regulation. See Section 4.3.2 in Section 4.3, "Air Quality," for further details regarding these regulations and the status of their waiver requests. Also, as noted above, Congress has enacted Public Law No. 119-16 to rescind the State's waiver under the CAA to enforce the ACC II regulation (discussed in greater detail below). The implications of this action are uncertain due to pending legal action by the California Attorney General.

A summary of key laws, regulations, plans, and policies, relevant to the proposed Plan is provided below, organized by general categories.

Executive Orders

There are four overarching executive order (EOs) related to the state's GHG-reduction and climate change adaptation efforts. In general, EOs provide direction to state government agencies but do not place mandates on regional or local governments or the private sector.

- **EO S-03-05 (2005):** Established GHG-reduction targets for 2010 (2000 emission levels), 2020 (1990 emission levels), and 2050 (80% below 1990 levels).
- **EO S-30-15 (2015):** Established a GHG reduction target for 2030 (40% below 1990 levels).
- **EO B-55-18 (2018):** Established a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to ensure future climate change scoping plans (discussed below) identify and recommend measures to achieve the carbon neutrality goal.
- **EO N-19-19 (2019):** Among other things, this EO required the Department of Finance to create a climate investment framework and required the state transportation agency to align transportation spending with achieving objectives of the climate change scoping plan, and to reduce vehicle miles traveled (VMT) through strategic discretionary investments.
- **EO N-82-20 (2020):** Directs the California Natural Resources Agency, in consultation with other state agencies, to establish the California Biodiversity Collaborative, to bring together governmental partners, California Native American tribes, experts, business and community leaders, and other stakeholders from across the state to protect and restore the state's biodiversity. EO N-82-29 declares that the state's goal is to conserve at least 30% of California's land and coastal waters by 2030. To further this goal, the EO directed the California Resources Agency and other relevant state agencies, in consultation with the California Biodiversity Collaborative, to develop and report strategies to the governor no later than February 1, 2022.
- **EO N-27-25:** Issued following the federal government's revocation of California's EPA waivers under the CAA. The EO calls for direct investments in EV charging infrastructure, collaboration with other states to establish voluntary emissions standards, increase public sector adoption of EVs, and expand incentives for EV purchase within the state.

Legislative GHG-Reduction Targets

State law sets forth the following requirements for reducing statewide levels of GHG emissions by 2020, 2030, and 2045.

- **Assembly Bill (AB) 32, Health and Safety Code Section 38500 et seq.** AB 32 codified the 2020 reduction target of EO S-03-05 (i.e., reduce statewide GHG emissions to 1990 levels by 2020). AB 32 required CARB to develop a scoping plan that describes California's strategy for achieving the 2020 target and to update it every five years.
- **Senate Bill (SB) 32, Health and Safety Code Section 38566.** SB 32 codified the 2030 reduction target of EO B-30-15 (i.e., reduce statewide GHG emissions to 40% below 1990 levels by 2030). Adopted in tandem with SB 32, AB 197 of 2016 (Chapter 250, Statutes of 2016) required CARB, in implementing SB 32's 2030 GHG-reduction target, to (1) prioritize emissions reductions to consider the "social costs" of GHG emissions and (2) prioritize "direct emission reductions" at large stationary sources and at mobile sources. In 2017, CARB adopted a scoping plan that describes California's strategy for achieving the 2030 reduction target.
- **AB 1279, Health and Safety Code Section 38562.2**. On September 16, 2022, the California legislature enacted AB 1279, which codified stringent emissions targets for the state of achieving carbon neutrality no later than 2045 and negative emissions thereafter, and an 85% reduction in 1990 anthropogenic emissions level by 2045. (This superseded the previous GHG emissions-reduction target set forth by EO S-3-05.)

- **CEQA Guidelines Environmental Analysis Tiering for CEQA Qualified Climate Action Plans or Greenhouse Gas Reduction Plans** Section 15183.5(b) of the State CEQA Guidelines states that project-specific environmental documents can find that project-level GHG emissions would not be cumulatively considerable if the project complies with the requirements of a qualified GHG emissions reduction plan. To meet the requirements of State CEQA Guidelines Section 15183.5(b), a qualified GHG emissions reduction plan must do the following:

(1) Plan Elements. A plan for the reduction of greenhouse gas emissions should:

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

(F) Be adopted in a public process following environmental review.

Several of the climate action plans (CAPs) and greenhouse gas reduction plans (GHGRPs) evaluated within this analysis (Impact GHG-3) meet the requirements of a qualified GHG emissions reduction plan in accordance with Section 15183.5(b) of the State CEQA Guidelines. These plans include the jurisdiction's GHG emissions inventory, GHG emissions forecasts, and GHG emissions targets. These plans also provide specific GHG emission reduction strategies and actions that collectively achieve the emissions targets.

State Agency GHG-Reduction Plans and Strategies

CARB and other state agencies have adopted several plans and strategies to reduce statewide GHG emissions as described below.

- **AB 32 Scoping Plan.** The AB 32 Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires CARB and other state agencies to develop and enforce regulations and other initiatives to reduce GHG emissions. Adopted in 2008, it comprises the state's roadmap for meeting AB 32's reduction target. Specifically, the scoping plan articulates a key role for local governments by recommending that they establish GHG emissions-reduction goals for both their municipal operations and the community that are consistent with those of the state (i.e., approximately 15% below current levels) (CARB 2008). The AB 32 Scoping Plan was updated in 2014.
- **2017 Scoping Plan.** The 2017 Scoping Plan represents the state's roadmap to achieving the 2030 GHG-reduction target of SB 32. Because energy is one of the state's largest contributors to GHG emissions, efforts to reduce energy-related emissions are a key component of the 2017 Scoping Plan. The actions outlined in the Scoping Plan Update also support California's efforts to build a state-of-the-art energy generation, supply, and distribution system that is clean, affordable, and reliable.
- **2022 Scoping Plan for Achieving Carbon Neutrality.** CARB adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022. The 2022 Scoping Plan traces the state's pathway to achieve its goals of carbon neutrality and an 85% reduction in emissions by 2045 relative to 1990 levels, as codified by AB 1279 in September 2022. These targets are in line with scientifically established levels to limit the rise in global temperature to no more than 2°C, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature

increase even further to 1.5°C (United Nations 2015). The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile-source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. The 2022 Scoping Plan details a multitude of strategies for reducing GHG emissions in each of these sectors. Examples of statewide goals include achieving a per capita VMT reduction of at least 25% below 2019 levels by 2030 and 30% below 2019 levels by 2045 to reduce GHGs from the transportation sector; installing/retrofitting three million all-electric and electric-ready homes by 2030 and seven million by 2035 with six million heat pumps installed statewide by 2030 to reduce GHG emissions in the commercial and residential building sector; and using long-term planning processes to support grid reliability, expansion of renewable and zero-carbon resources, and infrastructure deployment to reduce energy sector GHG emissions. The 2022 Scoping Plan is the state's current scoping plan.

Table 4.8-5 summarizes the actions identified for the Scoping Plan Scenario which shows California's track to achieve the SB 32 GHG reduction target for 2030 and become carbon neutral no later than 2045. The tables cover actions related to anthropogenic sources of emissions as well as natural and working lands.

Table 4.8-5 2022 Scoping Plan Scenario Actions

Sector	Action	Statutes, Executive Orders, Other Direction, Outcome
GHG Emissions Reductions Relative to the Senate Bill (SB) 32 Target	40% below 1990 levels by 2030	SB 32: Reduce statewide GHG emissions. Assembly Bill (AB) 197: direct emissions reductions for sources covered by the AB 32 Inventory
Smart Growth / Vehicle Miles Traveled (VMT)	VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045	SB 375: Reduce demand for fossil transportation fuels and greenhouse gases (GHGs), and improve air quality. In response to Board direction and environmental justice (EJ) Advisory Committee recommendations
Light-duty Vehicle (LDV) Zero Emission Vehicles (ZEVs)	100% of LDV sales are ZEV by 2035	Executive order (EO) N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory 2035 target aligns with the EJ Advisory Committee recommendation.
Truck ZEVs[1]	100% of medium-duty (MDV)/HDV sales are ZEV by 2040 (AB 74 University of California Institute of Transportation Studies [ITS] report)	EO N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Aviation	20% of aviation fuel demand is met by electricity (batteries) or hydrogen (fuel cells) in 2045. Sustainable aviation fuel meets most or the rest of the aviation fuel demand that has not already transitioned to hydrogen or batteries.	Reduce demand for petroleum aviation fuel and reduce GHGs. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom's July 2022 letter to California Air Resources Board (CARB) Chair Liane Randolph
Ocean-going Vessels (OGV)	2020 OGV At-Berth regulation fully implemented, with most OGVs utilizing shore power by 2027. 25% of OGVs utilize hydrogen fuel cell electric technology by 2045.	Reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Port Operations	100% of cargo handling equipment is zero-emission by 2037. 100% of drayage trucks are zero emission by 2035.	Executive Order N-79-20: Reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory

Sector	Action	Statutes, Executive Orders, Other Direction, Outcome
Freight and Passenger Rail[2]	100% of passenger and other locomotive sales are ZEV by 2030. 100% of line haul locomotive sales are ZEV by 2035. Line haul and passenger rail rely primarily on hydrogen fuel cell technology, and others primarily utilize electricity.	Reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Oil and Gas Extraction	Reduce oil and gas extraction operations in line with petroleum demand by 2045.	Reduce GHGs and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Petroleum Refining	Carbon capture and sequestration (CCS) on majority of operations by 2030, beginning in 2028 Production reduced in line with petroleum demand.	Reduce GHGs and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Electricity Generation	Sector GHG target of 38 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2030 and 30 $MMTCO_2e$ in 2035 20 gigawatts (GW) of offshore wind by 2045 Meet increased demand for electrification without new fossil gas-fired resources.	SB 350 and SB 100: Reduce GHGs and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom's July 2022 letter, Board direction, and EJ Advisory Committee recommendation
New Residential and Commercial Buildings	All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030	Reduce demand for fossil gas and GHGs, and improve ambient and indoor air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom's July 2022 letter
Existing Residential Buildings	80% of appliance sales are electric by 2030 and 100% of appliance sales are electric by 2035. Appliances are replaced at end of life such that by 2030 there are 3 million all-electric and electric-ready homes—and by 2035, 7 million homes—as well as contributing to 6 million heat pumps installed statewide by 2030.	Reduce demand for fossil gas and GHGs, and improve ambient and indoor air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom's July 2022 letter
Existing Commercial Buildings	80% of appliance sales are electric by 2030, and 100% of appliance sales are electric by 2045. Appliances are replaced at end of life, contributing to 6 million heat pumps installed statewide by 2030.	Reduce demand for fossil gas and GHGs, and improve ambient and indoor air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom's July 2022 letter
Food Products	7.5% of energy demand electrified directly and/or indirectly by 2030; 75% by 2045	Reduce demand for fossil gas and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Construction Equipment	25% of energy demand electrified by 2030 and 75% electrified by 2045	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory

Sector	Action	Statutes, Executive Orders, Other Direction, Outcome
Chemicals and Allied Products; Pulp and Paper	Electrify 0% of boilers by 2030 and 100% of boilers by 2045. Hydrogen for 25% of process heat by 2035 and 100% by 2045 Electrify 100% of other energy demand by 2045.	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Stone, Clay, Glass, and Cement	CCS on 40% of operations by 2035 and on all facilities by 2045 Process emissions reduced through alternative materials and CCS	SB 596: Reduce demand for fossil energy, process emissions, and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Other Industrial Manufacturing	0% energy demand electrified by 2030 and 50% by 2045	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Combined Heat and Power	Facilities retire by 2040.	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Agriculture Energy Use	25% energy demand electrified by 2030 and 75% by 2045	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions
Low Carbon Fuels for Transportation	Biomass supply is used to produce conventional and advanced biofuels, as well as hydrogen.	Reduce demand for petroleum fuel and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Low Carbon Fuels for Buildings and Industry	In 2030s biomethane blended in pipeline Renewable hydrogen blended in fossil gas pipeline at 7% energy (~20% by volume), ramping up between 2030 and 2040 In 2030s, dedicated hydrogen pipelines constructed to serve certain industrial clusters	Reduce demand for fossil energy and GHGs, and improve air quality. AB 197: direct emissions reductions for sources covered by the AB 32 Inventory
Non-combustion Methane Emissions	Increase landfill and dairy digester methane capture. Some alternative manure management deployed for smaller dairies Moderate adoption of enteric strategies by 2030 Divert 75% of organic waste from landfills by 2025. Oil and gas fugitive methane emissions reduced 50% by 2030 and further reductions as infrastructure components retire in line with reduced fossil gas demand	SB 1383: Reduce short-lived climate pollutants.
High GWP Potential Emissions	Low GWP refrigerants introduced as building electrification increases, mitigating HFC emissions	SB 1383: Reduce short-lived climate pollutants.

Sector	Action	Statutes, Executive Orders, Other Direction, Outcome
Natural and Working Lands (NWL)	Conserve 30% of the state's NWL and coastal waters by 2030. Implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities—and in particular low-income, disadvantaged, and vulnerable communities.	EO N-82-20 and SB 27: CARB to include an NWL target in the Scoping Plan. AB 1757: Establish targets for carbon sequestration and nature-based climate solutions. SB 1386: NWL are an important strategy in meeting GHG reduction goals.
Forests and Shrublands	At least 2.3 million acres treated statewide annually in forests, shrublands/chaparral, and grasslands, comprised of regionally specific management strategies that include prescribed fire, thinning, harvesting, and other management actions. No land conversion of forests, shrublands/chaparral, or grasslands.	Restore health and resilience to overstocked forests and prevent carbon losses from severe wildfire, disease, and pests. Improve air quality and reduce health costs related to wildfire emissions. Improve water quantity and quality and improve rural economies. Provide forest biomass for resource utilization. EO B-52-18: CARB to increase the opportunity for using prescribed fire. AB 1504 (Skinner, Chapter 534, Statutes of 2010): CARB to recognize the role forests play in carbon sequestration and climate mitigation.
Grasslands	At least 2.3 million acres treated; includes increased management of grasslands interspersed in forests to reduce fuels surrounding communities using management strategies appropriate for grasslands. No land conversion of forests, shrublands/chaparral, or grasslands.	Help to achieve climate targets, improve air quality, and reduce health costs.
Croplands	Implement climate smart practices for annual and perennial crops on ~80,000 acres annually. Land easements/ conservation on annual crops at ~5,500 acres annually. Increase organic agriculture to 20% of all cultivated acres by 2045 (~65,000 acres annually).	Reduce short-lived climate pollutants. Increase soil water holding capacity. Increase organic farming and reduce pesticide use. SB 859: Recognizes the ability of healthy soils practices to reduce GHG emissions from agricultural lands. Target increased in response to Governor Newsom's direction to prioritize sustainable land management.
Developed Lands	Increase urban forestry investment by 200% above current levels and utilize tree watering that is 30% less sensitive to drought. Establish defensible space that accounts for property boundaries.	Increase urban tree canopy and shade cover. Reduce heat island effects and support water infrastructure. Reduce fire risk via defensible space. AB 2251 (Calderon, Chapter 186, Statutes of 2022): Increase urban tree canopy 10% by 2035. Target increased in response to AB 2251 and Governor Newsom's direction on CO2 removal targets in his July 2022 letter.
Wetlands	Restore 60,000 acres of Delta wetlands.	Increase carbon sequestration and reduce short-lived climate pollutants. Helps to reverse land subsidence while improving flood protection and providing critical habitat.
Sparsely Vegetated Lands	Land conversion at 50% of the Reference Scenario land conversion rate.	Reduce the rate of land conversion to more GHG-intensive land uses.

[1] CARB withdrew its waiver request from EPA to implement the federal components of the Advanced Clean Fleets regulation. (CARB 2025c).

[2] CARB withdrew its waiver request from EPA to implement the In-Use Locomotives regulation (CARB 2025d).

Source: CARB 2022a.

On January 4, 2023, the Legislative Analyst's Office (LAO) released a brief which assessed the 2022 Scoping Plan. *Assessing California's Climate Policies: The 2022 Scoping Plan Update* was prepared pursuant to Chapter 135 of 2017 (AB 398, E. Garcia), which requires the LAO to report annually on the economic impacts and benefits of the state's 2020 and 2030 GHG goals. The brief argues and ultimately concludes that the 2022 Scoping Plan does not provide a clear strategy for meeting the state's 2030 emissions reduction target and is hindered by the Cap-and-Trade program's insufficiency in helping the state achieve this target. LAO interprets the Scoping Plan analysis as establishing a revised target for 2030 at a 48% reduction from a 1990 statewide inventory, which according to the LAO is a needed revised reduction target as compared to that codified by SB 32 (i.e., a 40% reduction from a 1990 statewide inventory by 2030). This target is not codified, however. Therefore, this analysis assesses the project against the state's 2030 target as mandated by SB 32.

The brief recommends that the Legislature evaluate potential changes to the Cap-and-Trade program to address concerns regarding program stringency (LAO 2023).

- **California State Priority Climate Action Plan.** California's State Priority Climate Action Plan (PCAP), as funded by EPA's Climate Pollution Reduction Grants (CRPG) Program, was developed to achieve GHG reductions across the geographic extent of California from nearly every economic sector (CARB 2024b). The PCAP includes several elements: a 2021 statewide GHG emissions inventory, the state's overarching GHG targets codified by AB 32 and AB 1279, an overview of the state's approach to low-income and disadvantaged community benefits analysis, workforce considerations, and GHG-reduction measures that target reductions in the transportation, industrial, energy, high GWPs, agriculture, natural and working lands, and waste sectors. The PCAP was developed to support statewide GHG-reduction targets through implementation of the following reduction measures.
- **Transportation measures:**
  - create a holistic, heavy-duty zero-emissions vehicle buydown program,
  - install truck charging to support zero-emissions goods movement at California ports and warehouse districts,
  - advance the deployment of clean off-road equipment,
  - bolster investments in the state's sustainable port and freight infrastructure,
  - support mobility projects uplifted by communities, and
  - allow for local deployment of ZEV infrastructure and low-income ZEV support.
- **Industrial measure:**
  - accelerate industrial decarbonization by expanding the existing industrial decarbonization and improvement to grid operations program.
- **Energy measures:**
  - expand decarbonization through the Energy Conservation Assistance Act,
  - create a funding program to upgrade the capacity of distribution systems,
  - expand the success of California's Self-Generation Incentive Program for behind the meter energy storage,
  - bolster healthy landscapes and resilient communities through expanding the Biomass to Carbon Negative Biofuels Program,
  - deploy equitable building decarbonization,
  - implement bioenergy projects, and
  - enable renewable microgrids for rural communities and tribes.

- **High global warming potential cases measure:**
  - expand F-gas Reduction Incentive Program.
- **Agriculture measures:**
  - expand California's healthy soils practices, and
  - reduce methane emissions by expanding California's existing Dairy Digester Research and Development Program.
- **Natural and working lands measures:**
  - bolster California's Forest Health Program,
  - expand urban and community forest projects, and
  - expand the state's Wetland Restoration Program.
- **Waste measures:**
  - establish a Food Waste Prevention and Edible Food Recovery Program, and
  - bolster organics recycling infrastructure.

The PCAPs were submitted to EPA on or before March 1, 2024 (April 1 for Tribal Nations) (CARB 2024b). Entities that received funding under the CRPG must now complete the Comprehensive Climate Action Plan (CCAP), which is due in Fall 2025. The CRPG program will then track the efficacy of the CCAPs in a status report in 2027.

- **Mobile Source Strategy.** The Mobile Source Strategy was developed by CARB to provide an integrated planning perspective and common vision for transforming the mobile sector to achieve air quality and climate change goals. It uses conceptual scenarios to illustrate the emissions-reduction potential of different vehicle technology mixes and VMT reductions to inform state policy development (CARB 2021a). The Mobile Source Strategy addresses on-road vehicles, including passenger cars and light-duty trucks, medium and heavy-duty trucks, and buses, as well as off-road vehicles and equipment, including locomotives, cargo-handling equipment, and construction equipment. It supports multiple planning efforts, including the state implementation plans for criteria air pollutants, the scoping plan, the Short-Lived Climate Pollutant Reduction Strategy (discussed below), and the Sustainable Freight Action Plan (discussed below). CARB is required to update the Mobile Source Strategy every 5 years. The 2020 Mobile Source Strategy continued the multipollutant planning approach to illustrate the pathways forward for the various mobile sectors that are necessary in order to achieve California's numerous goals and targets through 2050. CARB is currently developing the 2025 Mobile Source Strategy. A discussion draft of the 2025 Mobile Source Strategy was released on October 11, 2024 (CARB 2025b).
- **Sustainable Freight Action Plan.** The Sustainable Freight Action Plan (Action Plan) provides an integrated action plan that establishes clear targets to improve freight efficiency, transition to zero-emission technologies, and increase the competitiveness of California's freight system. The Action Plan was developed by several state agencies and is a recommendation document that integrates investments, policies, and programs across agencies to help realize a singular vision for California's freight transport system. This Action Plan provides a recommendation on a high-level vision and broad direction to the governor to consider for state agencies to use when developing specific investments, policies, and programs related to the freight transport system that serves California's transportation, environmental, and economic interests. The 2022 Scoping Plan incorporates actions from the Action Plan that provide GHG emissions-reduction benefits, such as 100% line haul ZEV locomotive sales by 2035. (CARB 2022a).
- **Short-Lived Climate Pollutant Strategy.** SB 1383 (Chapter 395, Statutes of 2016) requires CARB to develop and implement a Short-Lived Climate Pollutant (SLCP) Strategy with the following reductions in emissions by 2030 compared to 2013 levels: methane by 40%, HFCs by 40%, and black carbon (nonforest) by 50%. The bill also specifies targets for reducing organic waste in landfills. SB 1383 also requires CARB to adopt regulations

to be implemented on or after January 1, 2024, specific to the dairy and livestock industries, requiring a 40% reduction in methane emissions below 2013 levels by 2030, if certain conditions are met. Lastly, the bill requires CalRecycle to adopt regulations to achieve specified targets for reducing organic waste in landfills. Per its directive, CARB adopted the SLCP Strategy in 2017, establishing a path to decrease SLCPs from various sectors of the economy. Strategies span from wastewater and landfill practices and methane recovery to reducing natural gas leaks and consumption. The SLCP Strategy also identifies measures that can reduce HFC emissions through incentive programs and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (CARB 2017b).

- **Natural and Working Lands Climate Smart Strategy**. In response to the signing of EO N-82-20, the California Natural Resources Agency (CNRA) prepared the Natural and Working Lands Climate Smart Strategy (NWL Strategy) to expand climate action in the NWL sector, which has been called for in the 2022 Scoping Plan and the California State PCAP (see above). The NWL Strategy defines California's eight natural and working landscapes; describes how improved management of these landscapes can deliver on the state's climate change goals and advance broader environmental, economic, and social objectives; highlights priority nature-based climate solutions to address the climate crisis; outlines regional opportunities for climate-smart land management; identifies options to track nature-based climate action and measure progress; and packages recommendations to scale nature-based climate solutions identified through public engagement (CNRA 2022). While local efforts in the San Diego region to improve the carbon sequestration of natural and working lands would result in a net carbon dioxide decrease, the GHG emissions inventory summarized in Table 4.8-4 and used in this analysis does not include the GHG flux associated with carbon stocks in California's natural and working lands consistent with CARB's approach in developing statewide GHG emissions inventories (refer to Appendix E: Appendix G to the Regional Plan for additional discussion of the methodologies used to prepare the regional GHG emissions inventory).

Transportation Planning

- **SB 375, Chapter 728, Statutes of 2008.** SB 375 provides a new planning process that integrates regional transportation, land use, GHG reduction, and housing planning. It requires regional transportation plans (RTPs) to incorporate a sustainable communities strategy (SCS) that demonstrates how the region would achieve regional GHG emission reduction targets for passenger vehicles set by CARB. CARB revised SANDAG's GHG targets in 2018 to 15% reduction in passenger vehicle emissions per capita by 2020 and 19% by 2035 using a 2005 baseline.

  Recent reports on the state's climate goals suggest that the regional 2035 GHG emissions reduction targets under SB 375 are not adequate to fully meet the GHG reduction goals of SB 32 (CARB 2022b). Collectively, CARB determined that if the state's 18 MPOs' all met the SB 375 GHG emission reduction targets set by CARB in 2018, a 19% reduction in per capita VMT would be achieved by 2035. In The Updated Final Staff Report to the Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets (CARB 2018a), CARB expressed that to meet the statewide reduction goals set forth by SB 32, the state would need to reduce per capita GHG emissions by 25% by 2035, resulting in a 6% gap between the 19% emissions reductions targets set for the regions (averaged for the 18 MPOs and compared to a baseline year of 2005). Notably, CARB is required to update the reduction targets under SB 375 every 8 years and is currently conducting workshops to solicit opinions from stakeholders for the next target update planned for 2026. It is possible that 2035 targets for MPOs, including SANDAG, could be adjusted during this process to account for this gap identified by CARB.

  In the *2022 Progress Report California's Sustainable Communities and Climate Protection Act*, CARB states that an RTP/SCS that meets the applicable SB 375 targets alone will not result in the GHG emissions reductions necessary to meet state climate goals in 2030 or 2050 (CARB 2022b). CARB states that California is still not reducing GHG emissions from personal vehicle travel as needed to meet climate commitments and as targeted under SB 375 (CARB 2022b). CARB notes that per capita GHG emissions and per capita VMT continued to increase, though more slowly than what was identified in CARB's previous 2018 Progress Report. Additionally, CARB data indicates that housing construction is not meeting regional houses in numbers, types, and location (CARB 2022b). Under SB 375, CARB must agree that SCSs are able to meet GHG-reduction

targets. For this purpose, in September 2019, CARB published updated SCS Program and Evaluation Guidelines, clarifying the scope of the updated strategy-based SCS evaluation process, which consists of four key components (CARB 2019a):

- Tracking implementation under SB 150. Report on the progress regions have made toward meeting their SB 375 GHG-reduction targets.
- Policy commitments. Determine whether the planned strategies and commitments, when fully and effectively implemented, would achieve the GHG-reduction targets and whether there are any risks to not achieving those commitments.
- Incremental progress. Report on whether a metropolitan planning organization's (MPO's) proposed SCS has more or enhanced strategies than the currently adopted SCS.
- Equity. Report on the efforts that MPOs are taking to meet federal and state requirements related to equity.
- The policy commitments component is the only component used by CARB as the basis for accepting or rejecting the MPO's SB 375 GHG emission reduction target determination (CARB 2019a).

- **SB 743, Chapter 386, Statutes of 2013**. SB 743 was signed into law by Governor Jerry Brown on September 27, 2013, and encourages development of mixed-use, transit-oriented infill projects by (1) establishing new CEQA exemptions for transit-oriented developments located in transit priority areas that are consistent with an adopted specific plan, (2) eliminating the requirement to evaluate aesthetic and parking impacts in those targeted development areas, and (3) directing the Governor's Office of Planning and Research (OPR) (now known as the Governor's Office of Land Use and Climate Innovation) to develop an alternative metric to evaluate transportation-related impacts under CEQA.
  - SB 743 exempts from CEQA a residential, employment center, or mixed-use development project, including any subdivision or any zoning change that meets all of the following criteria:
  - The project is proposed within a transportation priority area.
  - The project is undertaken to implement and is consistent with a specific plan for which an environmental impact report has been certified.
  - The project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either an SCS or an alternative planning strategy accepted by CARB.

  Furthermore, SB 743 establishes that the new transportation impact analysis methodology should appropriately balance the needs of congestion management with statewide goals related to transit-oriented mixed-use infill development, promotion of public health through active transportation, and reduction of GHG emissions. See Section 4.16, "Transportation," for further information regarding SB 743.
- **Climate Action Plan for Transportation Infrastructure.** In July 2021, the California State Transportation Agency (CalSTA) adopted the Climate Action Plan for Transportation Infrastructure (CAPTI). The CAPTI was prepared in the wake of EO N-19-19 and serves an integrated climate change infrastructure plan. In January 2025, CalSTA adopted the CAPTI update, which includes new strategies and actions to further implement CAPTI's investment framework (CalSTA 2025).

Fuel Economy Standards and Electric Vehicles

- **Advanced Clean Cars Program (passenger vehicles).** AB 1493 of 2002 (known as Pavley I, Chapter 200, Statutes of 2002) provided the nation's first GHG standards for automobiles. AB 1493 required CARB to adopt vehicle standards that lowered GHG emissions from new light-duty automobiles to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards referred to as the Advanced Clean Cars (ACC) Program's Low Emission Vehicle (LEV) III Regulation was adopted for vehicle model years 2017–2025 in 2012 (13 California Code of Regulations [CCR] Section 1900 et seq.).

The ACC Program also includes the Zero Emission Vehicle Program and the Clean Fuels Outlet Regulation. The Zero Emission Vehicle Program is designed to achieve California's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of ZEVs, which include battery electric, fuel cell, and plug-in hybrid electric vehicles. The Clean Fuels Outlet regulation is intended to ensure that fuels, such as electricity and hydrogen, are available to meet the fueling needs of new advanced technology vehicles as they come to market. The ACC II Program was adopted by CARB in August 2022, and provides the regulatory framework for ensuring the sales requirement goal of EO N-79-20 to ultimately reach 100% ZEV sales in the state by 2035. The EPA granted CARB its California's CAA waiver request on December 18, 2024.

- **AB 126:** Signed by the governor on October 7, 2023, AB 126 includes provisions to provide, upon appropriation by the legislature, funding in the form of grants, revolving loans, loan guarantees, loans, or other appropriate funding measures to various private and public entities to help attain the state's climate change policies. AB 126 is intended to facilitate the development and deployment of zero-emission technology and fuels in the marketplace where feasible and near-zero-emission technology and fuels elsewhere. Provisions related to electric vehicles (EVs) and EV infrastructure include creation of the Air Quality Improvement Program (HSC Section 44274[a]) to provide funding for zero-emission fuel projects where feasible and near-zero-emission fuel projects elsewhere to develop and improve zero-emission and near-zero-emission fuels (Health and Safety Code [HSC] Section 44272 [h][1]), a program to provide funding for homeowners who purchase a plug-in EV to offset costs associated with modifying electrical sources to include a residential plug-in EV charging station (HSC Section 44272 [h][13]). Awardees of funding for EV-charging infrastructure are required to report to the California Energy Commission (CEC) "the source and greenhouse gas emissions intensity, on an annual basis, of the electricity used and dispensed by electric vehicle charging stations at the meter" (HSC Section 44272 [m]). Funding is also authorized to be provided toward incentives for medium- and heavy-duty vehicles and equipment mitigation, including electric, hybrid, and plug-in hybrid on-road and off-road medium- and heavy-duty equipment (HSC Section 44274[c][4]).
- **Low Carbon Fuel Standard.** Originally mandated a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 (17 CCR Section 95480 et seq.). In September 2018, to help achieve SB 32's emission reduction target, the Low Carbon Fuel Standard (LCFS) regulation was amended to increase the statewide goal to a 20% reduction in carbon intensity of California's transportation fuels by 2030. The majority of the emissions benefits due to the LCFS come from the production cycle (upstream emissions) of the fuel rather than the combustion cycle (tailpipe) (CARB 2020). On November 8, 2024, CARB approved amendments to the LCFS regulation to maintain momentum for global, national, and local private sector investment toward increasing cleaner fuel and transportation options for consumers, accelerating the deployment of zero-emission infrastructure and clean fuel production to support clean vehicle regulations, and keeping the state on track to meet statutorily mandated air quality and climate targets (CARB 2025e). On January 3, 2025, CARB submitted the final proposed amendments to the LCFS regulation to the Office of Administrative Law (OAL) for review in accordance with Government Code Section 11349.1 (CARB 2025e). On February 18, 2025, OAL issued a routine disapproval of amendments to the LCFS regulation on technical grounds, not on the merits of the regulation. CARB staff made necessary revisions and resubmitted the regulation for OAL approval on May 16, 2025. On June 27, 2025, OAL approved this rulemaking and filed it with the Secretary of State with an effective date of July 1, 2025 (CARB 2025f).
- **Medium- and heavy-duty vehicles.** In 2008, CARB approved the Phase 1 Tractor-Trailer Greenhouse Gas Regulation to reduce GHG emissions by requiring the use of aerodynamic tractors and trailers that are also equipped with low-rolling-resistance tires (13 CCR Section 2020 et seq.). The regulation applies to certain Class 8 tractors manufactured for use in California and is harmonized with the parallel EPA and NHTSA Phase 1 heavy-duty truck standards. CARB amended the Tractor-Trailer Greenhouse Gas Regulation in 2019 (Phase 2 standards) to align with EPA and NHTSA Phase 2 heavy-duty truck standards.
- **Zero-emission trucks.** In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (CARB 2000). In 2008, CARB adopted the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* (CARB

2008). As an ongoing process, CARB reviews air contaminants and identifies those that are classified as TACs. CARB also continues to establish new programs and regulations for the control of TACs. CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). These regulations include the Advanced Clean Fleets regulation, the Advanced Clean Trucks Regulation, and the Innovative Clean Transit (ICT) regulation, discussed separately in this section. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butafidiene, diesel particulate matter [diesel PM]) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan and other regulatory programs, CARB estimates that by 2035, emissions of diesel PM will be less than half of those in 2010 (CARB 2023).

- **Advanced Clean Trucks**. CARB adopted the Advanced Clean Trucks (ACT) Regulation in March 2021, with minor amendments in 2024. The regulation aims to accelerate the sales of heavy-duty EVs. The regulation consists of two parts: a manufacturer component and a fleet reporting component. Manufacturers are required to sell an increasing percentage of heavy-duty ZEV between 2024 and 2035. By 2035, 40% of Class 8 truck purchases will be required to be zero emission. Fleets with 50 or more vehicles will be required to report on their fleet's composition and activities in order to help CARB craft new strategies to hasten the adoption of ZEV (CARB 2021b). EPA granted the waiver request under the CAA to enact the more stringent fuel economy components of the ACT regulation on April 6, 2023 (EPA 2023). However, P.L. 119-15 retroactively revoked the state's waiver issued by EPA under the CAA to implement the Advanced Clean Trucks regulation.
- **Advanced Clean Fleets.** CARB's 2022 Advanced Clean Fleets regulation was developed to reduce diesel PM through the transition of medium- and heavy-duty trucks to become fully electric by 2045. At the time of the writing of this Draft EIR, California has withdrawn its request for a waiver and authorization for the addition of the Advanced Clean Fleets regulation to its emissions control program (CARB 2025d). CARB is not enforcing the existing portions of the Advanced Clean Fleets regulation that require a federal waiver or authorization, such as the portions of the Advanced Clean Fleet regulation that apply to high-priority and drayage fleets. However, not all elements of the Advanced Clean Fleets regulation require a federal waiver or authorization (CARB 2025f). State and local government fleets will still be required to be fully electric by 2045.
- **Innovative Clean Transit.** The Innovative Clean Transit (ICT) regulation was adopted in 2018 and requires all public transit agencies to incrementally reduce fleet vehicle tailpipe emissions and prioritize first- and last-mile connectivity and improved mobility for transit riders. Additionally, the ICT regulation provides various exemptions and compliance options to provide safeguards and flexibility for transit agencies through this emission reduction schedule. The ICT regulation was developed to align with other state policies, including the Sustainable Communities and Climate Protection Program (SB 375), and SB 350. SB 375 creates initiatives for increased development of transit-oriented communities, better-connected transportation, and active transportation. SB 350 provides an opportunity for transportation electrification, including wide use of zero-emission buses. The California Public Utilities Commission (CPUC) is collaborating with CARB and CEC to implement requirements set forth by SB 350 to support widespread transportation electrification. Through the deployment of zero-emission technologies, the ICT regulation will provide significant benefits across the state, including:
  - reducing NO_x and GHG emissions for all Californians, especially transit-dependent and disadvantaged communities; the majority of these benefits will be in the state's most populated and impacted areas where transit buses are most prevalent
  - increasing penetration of the first wave of zero-emission heavy-duty technologies into applications that are well suited to their use to further achieve emission reduction benefits
  - saving energy and reducing dependency on petroleum and other fossil fuels

- expanding the ZEV industry to bring high-quality green jobs to local communities and trained workforce to California
- providing other societal benefits by encouraging improved mobility and connectivity with zero-emission transportation modes and reduced growth in light-duty VMT.

The goal of this program is to continue CARB, CEC, and CPUC's partnership with transit agencies to maximize these benefits, while providing flexibility and sufficient time for transit agencies to address potential challenges and use available funds. This regulation strives to not just maintain but enhance transit service through increased mobility options and has built-in technological and financial safeguards to ensure transit service or fares are not adversely impacted by the regulation (13 CCR 2023).

Renewable Energy

- **Renewables Portfolio Standard.** SB 1078 (Sher, 2002) established California's Renewables Portfolio Standard (RPS). The program sets continually escalating renewable electricity procurement requirements for the state's load-serving entities. Generation must be procured from RPS-certified facilities. SB 2 (1X) of 2011 obligates all California electricity providers to obtain at least 33% of their energy from renewable resources by 2020. CPUC and CEC are jointly responsible for implementing the program.
- **SB 350.** This bill's key provisions are to require the following by 2030: (1) an RPS of 50% and (2) a doubling of efficiency for existing buildings.
- **SB 100.** This bill establishes a new RPS target of 50% by 2026, increases the RPS target in 2030 from 50 to 60%, and establishes a goal of 100% zero-carbon energy sources by 2045.
- **SB 1020.** This bill superseded the goals of SB 100 by requiring that 90% of all retail sales of electricity to California end-use customers are procured from renewable energy and zero-carbon resources by December 31, 2035. The requirement increases to 95% by December 31, 2040, and to 100% by December 31, 2045. Under SB 1020, state agency facilities must use 100% renewable and zero-carbon energy resources by December 31, 2035.
- **Integrated Energy Policy Report.** SB 1389 (Chapter 568, Statutes of 2002) required CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (PRC Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR). CEC adopts an IEPR every 2 years and an update every other year. The 2023 IEPR is the most recent IEPR, including the 2024 Draft Update to the 2023 IEPR. The 2023 IEPR provides a summary of priority energy issues currently facing the state and outlines strategies and recommendations to further the state's goal of ensuring reliable, affordable, and environmentally responsible energy sources. The report contains an assessment of major energy trends and issues in California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. Topics covered in the 2023 IEPR include the accelerated connection of clean energy, the California Energy Demand Forecast, the potential growth of hydrogen in the state, and updates to issues, such as energy efficiency, gas utility decarbonization, and the Clean Transportation Program (CEC 2024a).

Building Efficiency

- **California Building Energy Efficiency Standards.** The energy consumption of new residential and nonresidential buildings in California is regulated by the California Energy Code's Building Energy Efficiency Standards (California Energy Code) (24 CCR Part 6). CEC updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption. The 2022 California Energy Code went into effect on January 1, 2023. The 2022 California Energy Code advances the on-site energy generation progress started in the 2019 California Energy Code by encouraging electric heat pump technology and use,

establishing electric-ready requirements when natural gas is installed, expanding solar photovoltaic (PV) system and battery storage standards, and strengthening ventilation standards to improve indoor air quality. CEC estimates that the 2022 California Energy Code will save consumers $1.5 billion and reduce GHGs by 10 $MMTCO_2e$ over the next 30 years (CEC 2021). The 2025 Building Energy Efficiency Standards (2025 California Energy Code) were adopted on September 11, 2024, and will go into effect on January 1, 2026, for nonresidential development. According to CEC, the 2025 California Energy Code puts particular emphasis on replacing end-of-life rooftop heating, ventilation, and air-conditioning units of a certain size with high efficiency systems; establishing electric-ready requirements for commercial kitchens; and updating solar and storage standards for assembly buildings to make clean energy available for on-site use while minimizing exports to the electrical grid (CEC 2024b). On June 30, 2025, the Governor signed AB 130, which institutes a six-year freeze on updates to state and local residential building standards, through 2031, with exceptions only for emergency measures, energy/fire safety, accessibility, and wildland-urban code updates. During this period, local jurisdictions may not adopt new residential building code amendments unless they are confirmed by the Building Standards Commission as emergency or health-and-safety necessities. The law also guarantees that model-home building standards remain locked in for up to 10 years or until the design significantly changes, ensuring long-term planning stability and guarding builders against sudden code shifts.

- **California Green Building Standards Code.** California has adopted the Green Building Standards Code (CALGreen) (24 CCR Part 11), which identifies both mandatory and voluntary energy efficiency standards for new residential and nonresidential buildings. The standards are updated every 3 years, and the current version is the 2022 CALGreen Code. However, the 2025 CALGreen Code was adopted on September 11, 2024, and will go into effect on January 1, 2026 for nonresidential development. The 2025 version proposes increased requirements for EV charging infrastructure (i.e., a higher percentage of parking spaces that must be equipped with EV chargers and more stringent requirements for the types of chargers that must be installed) in nonresidential buildings. The 2025 CALGreen Code also includes required analysis of embodied carbon in building materials, which was not required under the 2022 CALGreen Code. Lastly, the 2025 CALGreen Code includes updates to energy efficiency standards aimed at further reducing energy consumption in buildings and promoting the use of renewable energy sources (CEC 2024b). CALGreen requirements are complementary with the California Energy Code discussed above. Discussed above, AB 130 freezes the residential building code, including the CALGreen Code, until 2031; however, the requirements of the 2025 nonresidential CALGreen Code will be applied to new nonresidential development effective January 1, 2026.
- **AB 130:** AB 130 of 2025 imposes a moratorium on changes to California building codes affecting residential units, including both state and local amendments, through 2031, with limited exemptions. Essentially, AB 306 would prohibit CEC or any other adopting agency from considering, approving, or adopting any proposed building standards affecting residential units, unless a certain condition is met, including that the CEC deems those changes necessary as emergency standards to protect health and safety. The 2025 Energy Code will proceed as planned with an effective date of January 1, 2026, and the 2031 Energy Code cycle is anticipated to be unaffected.

California Cap-and-Trade Program

- **Cap-and-Trade Program.** The California Cap-and-Trade Program (Program) was adopted by CARB in October 2011 and took effect on January 1, 2012. The Program establishes a declining limit on major sources of GHG emissions, and it creates a powerful economic incentive for significant investment in cleaner, more efficient technologies. The Program applies to entities and activities that collectively comprise approximately 80% of the state's GHG emissions. CARB creates allowances equal to the total amount of permissible emissions (i.e., the "cap" or "budget"). One allowance equals 1 $MTCO_2e$ emissions (using the 100-year GWPs). Fewer allowances are created each year; thus, the annual caps decline over time. An annual auction reserve (or floor) price for allowances that increases each year and the reduction in annual allowance budgets creates a steady and sustained carbon price signal to prompt action to reduce GHG emissions. All facilities covered by the Program are still subject to applicable local air quality permit limits for criteria and toxic air pollutants. The Program currently covers in-state electricity generators, including electricity imported into California; large industrial

sources of GHG emissions; transportation fuel suppliers; and suppliers of natural gas and propane combusted at commercial, residential, and small industrial facilities; and other sources not directly covered by the Program.

Under the Program, covered entities do not have individual or facility-specific GHG emissions-reduction requirements. Rather, all companies covered by the Program are required to surrender allowances in an amount equal to their total covered GHG emissions during each compliance period. Covered entities can also meet a limited portion of their compliance obligation (4% for emissions during 2021–2025 and 6% for emissions after 2025) by surrendering approved offset credits issued under CARB-approved compliance offset protocols.

CARB regularly adopts amendments to the Program that include a decline on the cap for emissions, resulting in increasingly stringent permissible emissions limits for stationary sources. The most recent update to the Program was made in 2018 (CARB 2019b). Thus, the Program continues to be instrumental in assisting the state in meeting its long-term GHG-reduction goals as set forth by AB 1279 (i.e., carbon neutrality and an 85% reduction in GHG emissions by 2045 relative to 1990 levels) as identified in the 2022 Scoping Plan.

LOCAL LAWS, REGULATIONS, PLANS, AND POLICIES

SANDAG

SANDAG's Climate Resilience Program helps to reduce regional GHG emissions in alignment with statewide goals to prepare for the impacts of climate change. Efforts include climate action planning and energy engineering technical services for local jurisdictions, support for electric vehicle deployment and charging installation, and regional climate action and resilience guidance (SANDAG 2023).

San Diego Regional Energy Strategy

The SANDAG Regional Energy Strategy (RES) serves as the energy policy blueprint for the San Diego region through 2050 to support decision-making as the region strives to meet the energy needs of the growing population (SANDAG 2014). The RES establishes long-term goals in topic areas such as energy efficiency, renewable energy, distributed generation, transportation fuels, land use and transportation planning, border energy issues, and the green economy. SANDAG and local governments identified six early actions to focus on in the near term:

- pursue a comprehensive building retrofit program to improve efficiency and install renewable energy systems.
- create financing programs to pay for projects and improvements that save energy.
- use the SANDAG-SDG&E Local Government Partnership to implement the RES at the local level. SANDAG will work with local governments to identify opportunities and implement energy savings at government facilities and throughout their communities.
- support land use and transportation planning strategies that reduce energy use and GHGs.
- support use of existing unused reclaimed water to decrease the amount of energy needed to meet the water needs of the San Diego region.

Originally adopted in 2009, a technical update of the RES was completed in 2014 to inform the development of the 2021 Regional Plan. This technical update demonstrates progress toward attaining the RES goals, updates existing conditions and future projections data, and recommends priorities for moving forward.

San Diego Forward: The Regional Plan

The 2025 Regional Plan covers a broad range of topics, including air quality, borders and tribal nations, climate change, economic prosperity, emerging technologies, transit and automobile energy efficiency and fuels, habitat preservation, community health, public facilities, shoreline preservation, transportation, and water quality. The 2025 Regional Plan emphasizes the importance of multimodal transportation and active transportation, such as walking and biking, and reducing car use to minimize GHG emissions, diminish air pollution, and maximize public health. The 2025 Regional Plan also includes an SCS, which identifies strategies to complement the goal of

sustainability. These strategies focus on job growth and housing in urbanized areas with existing public transportation options by addressing housing needs for all economic segments of the population, preserving open space, investing in an accessible transit network, and reducing GHG emissions through the implementation of actions such as increasing public transportation infrastructure and access, encouraging active transportation through upgrades to pedestrian and bike facilities, incentivizing EV use, and providing additional EV infrastructure.

The 2025 Regional Plan is intended to achieve the regional per capita passenger vehicle GHG-reduction target (19% below 2005 levels) in 2035. The 2025 Regional Plan is projected to reduce per capita GHG emissions from cars and light-duty trucks to 19.3% below 2022 levels by 2035.

Regional Transportation Plan/Sustainable Communities Strategy

The approved 2021 Regional Plan (RTP/SCS) provides a long-term blueprint for the San Diego region that seeks to meet regulatory requirements, address traffic congestion, and create equal access to jobs, education, healthcare, and other community resources. It also provides a framework for achieving the regional per capita passenger vehicle GHG-reduction target (19% below 2005 levels) in 2035. The plan is the result of years of planning, data analysis, and community engagement to reimagine the San Diego region with a transformative transportation system, a sustainable pattern of growth and development, and innovative demand and management strategies. The SANDAG Board of Directors adopted the Final 2021 Regional Plan on December 10, 2021.

ReCAP

The SANDAG Board of Directors (Board) accepted the Regional Climate Action Planning Framework (ReCAP) in 2018 (SANDAG 2025a). ReCAP identifies best practices and guidance for preparing climate action plans (CAPs) and monitoring implementation over time. ReCAP establishes a technical framework for regionally consistent climate action planning that preserves local policy flexibility for the unique needs and circumstances of each local jurisdiction.

Incentive Programs

SANDAG currently has two incentive programs that promote the purchase of ZEVs in the San Diego region. The Zero-Emission Vehicle Incentive Program will help reduce the cost of buying a ZEV for residents in low-income and underserved communities in San Diego County. As of March 2025, SANDAG is in the process of designing this program, and the program is planned for launch sometime in 2025. The EV Charger Rebate Program provides rebates to property owners who install publicly accessible charging stations throughout the region. As of April 2024, 56% of program funds have gone toward installations in low-income and disadvantaged communities. The program is no longer accepting new applications (SANDAG 2025b).

San Diego Air Pollution Control District

The Scoping Plan does not provide an explicit role for local air districts in implementing GHG reductions, but it does state that CARB will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting, as well as through their role as a CEQA lead or responsible agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents. As discussed in Section 4.3, "Air Quality," the San Diego Air Pollution Control District (SDAPCD) is responsible for air quality planning in San Diego County. To date, SDAPCD has not developed specific thresholds of significance with regard to the GHG emissions in CEQA documents.

San Diego Regional Air Quality Strategy

The San Diego Regional Air Quality Strategy (RAQS), initially adopted in 1991, outlines SDAPCD's plans and control measures designed to attain and maintain the state standards, while San Diego's portions of the SIP are designed to attain and maintain federal standards. The RAQS is updated on a triennial basis, with updates being made in 1995, 1998, 2001, 2004, 2009, and 2016, and 2022. On March 9, 2023, SDAPCD adopted the revised 2022 RAQS for San Diego County (SDAPCD 2022). The RAQS plan demonstrates how the San Diego region will further reduce air pollution emissions to meet state health-based standards for ground-level ozone. The 2022 RAQS guides the SDAPCD in deploying tools, strategies, and resources to continue reducing pollutants that are precursors to ground-level ozone, including NOx and VOC. The 2022 RAQS emphasizes ozone control measures

but also identifies complementary measures and strategies that can reduce emissions of GHGs and PM. It also includes new analyses exploring ozone and its relationship to public health, mobile sources, under-resourced communities, and GHGs and climate change. The 2022 RAQS contains strategies to continue directly reducing emissions of ozone precursors, while also reducing particulate matter and GHGs as a co-benefit. See Section 4.3, "Air Quality" for further discussion of the 2022 RAQS.

County of San Diego

San Diego Regional Decarbonization Framework

The San Diego Regional Decarbonization Framework (RDF) considers how to achieve decarbonization of the San Diego region's energy system with the ultimate goal of achieving net-zero carbon emissions by 2045. The RDF includes the RDF Technical Report (Technical Report) that provides technical and policy pathways to decarbonization in the medium-term to inform near-term policymaking in regional, County, and city governments. The Technical Report models science-based pathways to net zero carbon emissions for the San Diego region by 2045, consistent with the Paris Climate Agreement and state mandates. The pathways provide a shared vision for the San Diego region to collectively reduce net GHG emissions in alignment with California's net-zero carbon goal. The Technical Report details numerous methods by which the region can achieve regional emissions goals in multiple sectors and highlights uncertainties in the decarbonization process and the need for ongoing planning processes that can adapt as technology and policy landscapes evolve (County of San Diego 2022).

Guidelines for Determining Significance: Climate Change

The County's Guidelines for Determining Significance for Climate Change were developed pursuant to mitigation measures in their General Plan Program EIR. The Guidelines were adopted by the County Board of Supervisors by separate resolution concurrently with the County's CAP on September 11, 2024, consistent with CEQA Guidelines section 15064.7. The County's CAP is also intended to be used for future project-specific GHG emissions analyses by being prepared consistent with the tiering and streamlining provisions of Section 15183.5 of the CEQA Guidelines. The County's CAP is a long-term programmatic plan that identifies strategies, measures, and actions to meet the County's targets to reduce GHG emissions by 2030 and 2045, consistent with the State's 2022 Scoping Plan for Achieving Carbon Neutrality and legislative GHG reduction targets and demonstrates progress towards the State's 2045 net zero GHG emissions goal. The Guidelines direct project applicants to use the CAP Consistency Checklist to assess GHG impacts (County of San Diego 2024). Because the Guidelines and the CAP were prepared specific to the County's jurisdiction only, i.e., unincorporated county, the thresholds contained therein are not applicable to the proposed Plan.

General Plans

Several of SANDAG's member agencies have general plan elements and policies that specifically address energy use and conservation, VMT reduction, alternative fuels, and modes of transportation, as well as the reduction of GHG emissions and strategies to prepare for the effects of climate change. Such general plans contain goals, objectives, and policies aimed at reducing energy consumption and GHG emissions. These include policies on topics such as energy retrofits to existing residential and commercial buildings, zoning and building ordinances to increase energy efficiency in new construction, and ways to reduce VMT through land use and transportation planning.

Local Plans to Reduce GHG Emissions

Most of SANDAG's member jurisdictions have adopted CAPs, GHG-reduction plans, or sustainability plans that set goals and targets for the reduction of GHG emissions, and outline policies or measures to achieve those goals and targets. Table 4.8-6 summarizes the status of local plans to reduce GHG emissions in the San Diego region (as of March 2025).

Many of the local plans to reduce GHG emissions have been adopted consistent with CEQA Guidelines Section 15183.5, which specifies requirements to ensure the GHG plan is "qualified" for future CEQA streamlining, while many of the plans have not been adopted for CEQA streamlining. These plans serve as policy documents that demonstrate a commitment to reduce GHG emissions and establish a range of possible reduction measures.

Table 4.8-6 Summary of Local Plans to Reduce GHG Emissions (as of March 2025)

Jurisdiction	Adopted (year)
Carlsbad	2024
Chula Vista	2017 (update in progress)
Coronado	2022
Del Mar	2016
El Cajon	2020
Encinitas	2020 (update in progress)
Escondido	2021
Imperial Beach	2019
La Mesa	2024
Lemon Grove	2020
National City	2011
Oceanside	2019
Port of San Diego	2013
Poway	n/a
San Diego (County)	2024
San Diego (City)	2022
San Diego Regional Airport	2020
San Marcos	2020
Santee	2019
Solana Beach	2024
Vista	2021

Sources: City of Carlsbad 2024, City of Chula Vista 2017, City of Coronado 2022, City of Del Mar 2016, City of El Cajon 2020, City of Encinitas 2020, City of Escondido 2021, City of Imperial Beach 2019, City of La Mesa 2024, City of Lemon Grove 2020, National City 2011, City of Oceanside 2019, Port of San Diego 2013, City of San Diego 2022, County of San Diego 2024, San Diego Regional Airport Authority 2020, City of San Marcos 2020, City of Santee 2019, City of Solana Beach 2024, and City of Vista 2021.

Local Community Choice Energy Programs

San Diego Gas and Electric's (SDG&E's) eligible renewable (i.e., solar, wind, eligible hydroelectric, geothermal, and biomass and biowaste) procurement for calendar year 2022 was approximately 44.8% (CEC 2024c). However, through SDG&E's EcoChoice mix, customers in SDG&E's service area may voluntarily choose to receive their electricity from 100% eligible renewable sources. The cities of Chula Vista, Encinitas, Imperial Beach, La Mesa, and San Diego have formed the San Diego Community Power (SDCP) Community Choice Energy (CCE) Program. The current members of SDCP include the cities of Chula Vista, Encinitas, Imperial Beach, La Mesa, National City, and San Diego and the unincorporated communities of County of San Diego.

Additionally, the cities of Carlsbad, Del Mar, and Solana have formed the Clean Energy Alliance (CEA), another CCE Program, which started delivering power to customers in May 2021. SDCP and CEA work in partnership with SDG&E to deliver GHG-efficient electricity to customers within its member jurisdictions. CEA offers four plan options. Clean Impact is CEA minimum 50% renewable energy option, increasing annually to achieve 100% renewable energy by 2035. Clean Impact Plus is the default option and offers 50% renewable/75% carbon-free energy content. Green Impact is CEA's 100% renewable energy option. CEA also offers an option for homes with eligible renewable energy systems (e.g., rooftop solar). See Section 4.6, "Energy," for further details regarding local CCE programs.

4.8.3 Significance Criteria

Appendix G of the CEQA Guidelines provides criteria for determining the significance of a project's environmental impacts in the form of initial study checklist questions. The significance criteria specifically developed for this EIR are based on the Appendix G checklist questions and CEQA Guidelines Section 15064.4. In some cases, SANDAG has combined checklist questions, edited their wording, or changed their location in the document in an effort to develop significance criteria that reflect the programmatic level of analysis in this EIR, the unique nature of the proposed Plan's GHG impacts, and the unique characteristics of the proposed Plan.

Checklist questions for GHGs are provided in Section VIII of Appendix G. According to Appendix G of the CEQA Guidelines, an impact related to GHG emissions is considered significant if implementation of the proposed Plan would do any of the following:

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

To better focus the potential impacts associated with the proposed Plan, the Appendix G questions have been combined and modified. Both checklist questions for GHGs have been modified and expanded upon to better focus the potential impacts of Plan implementation against varying regulations and across various benchmark years. For purposes of this EIR, the implementation of the proposed Plan would have a significant GHG impact if it would:

GHG-1 Directly or indirectly result in an increase in GHG emissions compared to existing conditions (2022).

GHG-2 Conflict with the SANDAG region's achievement of SB 375 GHG emissions reduction targets for 2035.

GHG-3 Conflict with or impede the implementation of local plans adopted for the purpose of reducing GHG emissions.

GHG-4 Be inconsistent with the state's ability to achieve the 2030 reduction target of SB 32 and 2045 reduction goal of AB 1279.

4.8.4 Environmental Impacts and Mitigation Measures

GHG-1 DIRECTLY OR INDIRECTLY RESULT IN AN INCREASE IN GHG EMISSIONS COMPARED TO EXISTING CONDITIONS (2022)

Analysis Methodology

This analysis is based on the *2022 GHG Inventory and Projections for the San Diego Region* report prepared by SANDAG (Appendix E: Appendix G to the Regional Plan). This report provides an estimate of 2022 GHG emissions for the San Diego region and GHG projections for the years 2035 and 2050. This analysis compares regional GHG emissions projections for 2035 and 2050 to 2022 baseline regional GHG emissions to determine whether implementation of the proposed Plan would directly or indirectly result in an increase in GHG emissions compared to existing conditions (2022). The 2022 GHG inventory and projections report uses EMFAC2017 to estimate emissions for passenger cars and light-duty vehicles. EMFAC 2017 was used to maintain consistency with the 2025 Regional Plan air quality conformity analysis. Notably, as discussed in Section 4.8.2, "Regulatory Setting," several federal actions have been taken to retroactively rescind waivers issued by EPA under the CAA to allow the state to implement the ACC II program and the Advanced Clean Trucks and Low NO_X Omnibus regulations. EMFAC2017 does not account for the ACC II program or Advanced Clean Trucks regulatory mechanism, an EMFAC2017 post-processing adjustment factor assumes implementation of the Low NO_X rule. EIR mobile source emissions were calculated prior to the disapproval of the low NO_X rule. The federal disapproval is currently the subject of legal challenge and CARB had not provided guidance on how to address this issue in EMFAC modeling at the time of EIR preparation. EMFAC2017 also accounts for the GHG emission standards for passenger cars, light trucks, and medium-duty vehicles that were in effect at the time of its development (discussed above under Section 4.8.2,

"Regulatory Setting"). While EPA has proposed to repeal the Endangerment Finding (i.e., EPA's capacity to regulate GHG emissions under the CAA), as of the writing of this EIR, EPA has not adopted this proposal (EPA 2025b), and CARB has provided no guidance on how to address this issue in emissions modeling. Therefore, emissions factors have not been adjusted in this analysis.

The 2022 GHG inventory and projections report includes 14 emissions categories calculated based on the *U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions* (ICLEI 2019) and CARB statewide GHG inventory methodology. The projections take into account the forecast regional growth and land use changes and planned transportation network improvements and programs of the proposed Plan, and the effect of existing federal and state regulations and regional policies to reduce GHG emissions. The report includes a summary of the methodologies and data used to calculate baseline emissions and emissions projections for each of the emissions categories. The 2022 inventory and projections report takes into account existing laws, regulations, programs, and policies in effect as of April 2025 to project future GHG emissions out to 2035 and 2050. In general, the level of uncertainty regarding future emissions increases as the projections get closer to 2050. The 2022 inventory and projections report does not and cannot account for several factors that are unknown at this time but will affect future GHG emissions in the San Diego region: future changes in local, state, and federal laws, regulations, and public policy; local, state, national, and global economic conditions; multinational or global agreements; investments and decision-making by private sector actors, including local, national, and global businesses; and personal and group behavior.

Notably, the 2022 GHG inventory and projections report accounts for GHG emissions attributable to construction activities within the region, including those related to implementation of the proposed Plan. Thus, impacts from construction-related GHG emissions are considered in the following analysis.

For the purpose of evaluating impacts under Impact GHG-1, regional growth and land use change and the transportation network improvements and programs of the proposed Plan are evaluated together because total annual regional GHG emissions are influenced by the combined effects of these two Plan components (among other factors).

Impact Analysis

2035

Regional Growth and Land Use Change and Transportation Network Improvements and Programs

As shown in Table 2-1, in Section 2.0, "Project Description," of this Draft EIR, from 2022 to 2035, the region is forecasted to have an increase of 117,056 people (4%), 137,242 housing units (11%), and 67,297 jobs (4%). The 2035 regional SCS land use pattern is shown in Figure 2-4. Approximately 93.3% of the forecasted regional population increases between 2022 and 2035 are in the cities of San Diego (51.3%), Chula Vista (26.1%), and San Marcos (15.8%). Those same three jurisdictions would accommodate approximately 71.4% of new housing units in the region between 2022 and 2035, while the cities of San Diego, San Marcos, and Oceanside would accommodate more than 69.5% of new jobs in the region between 2022 and 2035. Under implementation of the proposed Plan, total GHG emissions in the San Diego region are projected to be approximately 16.67 $MMTCO_2e$ in 2035, or about 25% less than total GHG emissions in 2022 (Table 4.8-7).

Table 4.8-7 Total Greenhouse Gas Emissions in the San Diego Region, 2022 to 2035

Emissions Category	2022 ($MMTCO_2e$/year)	2035 ($MMTCO_2e$/year)
Passenger Cars and Light Duty Vehicles	7.80	5.68
Electricity	4.03	0.85
Natural Gas	3.01	3.02
Industrial	2.40	2.54
Heavy Duty Trucks and Other Vehicles	2.28	2.14
Other Fuels	0.86	0.87

Emissions Category	2022 ($MMTCO_2e$/year)	2035 ($MMTCO_2e$/year)
Off-Road Vehicles	0.62	0.61
Solid Waste	0.32	0.08
Aviation	0.31	0.43
Water	0.25	0.05
Agriculture	0.18	0.20
Marine Vessels	0.11	0.13
Wastewater	0.05	0.05
Rail	0.03	0.01
Total	**22.25**	**16.67**
Change from 2022 to 2035		**- 5.58 $MMTCO_2e$ (-25%)**

Notes: $MMTCO_2e$ – million metric tons of carbon dioxide-equivalent. The GHG emissions projections include the impact of existing federal and state regulations and regional policies and programs to reduce GHG emissions.

Source: Modeled by the Energy Policy Initiatives Center, University of San Diego in 2025 (Appendix E).

While the San Diego region is forecasted to experience population, employment, and housing growth by 2035, overall GHG emissions are anticipated to decrease compared to 2022 levels due to the implementation of a series of regulations combined with the land use planning strategies and transportation network improvement programs. Given the state's emphasis on VMT reduction as a crucial strategy in the effort to achieve statewide reduction targets, the projected land use pattern under the proposed Plan supports high density, transit-oriented development throughout the Plan area.

For instance, due to anticipated growth in population, total VMT in the San Diego region is projected to increase from the 2022 baseline of 71,244,124 miles per weekday to 73,453,955 miles per weekday by 2035 (see Tables G.4 and G.5 of Appendix E). Despite this increase, transportation-related GHG emissions (see Table 4.8-7) and per capita VMT (see Section 4.16, Transportation) in 2035 would be less than in 2022. This would occur as a result of implementation of statewide fuel efficiency programs coupled with the dense, compact development and increasingly efficient, diversified transportation network improvement projects under the proposed Plan. Investments in transportation-related policies and projects that would directly reduce per capita VMT include funding for transit (e.g., light and commuter rail, bus rapid transit); managed high-occupancy vehicle (HOV), carpool, and high-occupancy toll lanes; and regional bike networks, which would combine to create a more complete transportation network within the San Diego region. Additional policies, such as parking management, microtransit, and deployment of electric bikes and scooters promote flexibility within the transportation network and would divert potential single-occupancy vehicle trips on a per capita basis.

Major transportation network improvements by 2035 include new Managed Lanes and Managed Lane connectors on SR 15, SR 52, SR 78, SR 125, I-5, I-15, and I-805. The proposed Plan also includes Reversible Managed Lane improvements on SR-75, improvements to rural corridors on SR 67, SR 76, SR 79, SR 94, and I-8, as well as interchange and arterial operational improvements on SR 94 and SR 125. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as tolling equipment and Regional Border Management System investments on SR 11. Upgrades at certain locations on the Los Angeles–San Diego–San Luis Obispo (LOSSAN) Rail Corridor would be implemented during this period. Other major network improvements include grade separations at certain locations on the SPRINTER, Green line, Blue Line, and Orange Line. Double-tracking is also proposed on the SPRINTER. See Tables 2-7 through 2-10 in Section 2.0, "Project Description," for a full list of proposed projects by subregion. These transportation strategies, among others, combine with demographic (e.g., aging population) and economic (e.g., fuel prices) factors that would result in decreased VMT per capita over the lifespan of the proposed Plan.

The GHG emissions associated with the electricity and natural gas sectors reflect CEC's latest California Energy Demand 2023-2040 Revised Forecast in the SDG&E service area (CEC 2024d) and account for the improved electricity efficiency and increased renewable energy capacity from photovoltaics (PV) and non-PV electricity generation, behind-the-meter storage[2], current electricity rate structure, and the appliance and building energy efficiency of the California Energy Code up to 2022. Emissions also account for the statutory requirements of SB 100, SB 1020, and the RPS, which require utilities to procure a greater percentage of their electricity supplies from renewable resources by certain benchmark years, including 90% of retail sales by 2035 and 100% of retail sales by 2045.

Notably, as the California Energy Code continues to be updated on a triennial basis, future iterations of the California Code will likely become more energy efficient than the current 2022 code and include restrictions on the use of on-site natural gas consumption as the building sector trends towards decarbonization. For example, according to CEC, the 2025 California Energy Code is projected to reduce statewide GHGs by about 4 million metric tons, which would likely be the code in place at or shortly after the time the proposed Plan is adopted (CEC 2024b). Updates to the California Building Standards Code have historically increased the energy efficiency of buildings. However, AB 130 imposed a moratorium on updates to residential development standards in the California Building Standards Code from October 1, 2025, to June 1, 2031. This moratorium prohibits the CEC from imposing more restrictive residential development standards in the 2028 California Building Standards Code update. Such standards may have otherwise furthered GHG emissions reductions through measures to reduce electricity demand, such as improved efficiency, renewable energy design features, and promotion of on-site renewable energy generation. Further reductions to GHG emissions, beyond those achieved by the 2025 code, would likely continue with the 2031 update to the California Building Standards Code, based on historic trends. Overall, the exact level of energy efficiency and allowed on-site natural gas associated with future versions of the California Energy Code are unknown at this time because the specific requirements of such future code versions are not known; therefore, emissions from building energy consumption in 2035 may be overestimated.

The land use pattern and transportation network improvements of the proposed Plan, combined with the implementation of federal and state regulations that would result in reduced GHG emissions from activities in the San Diego region, would lead to lower total GHG emissions in 2035 as compared to 2022. Notably, regional GHG emissions reductions would likely still occur in a scenario where the proposed Plan is not implemented. This is due to the implementation of as state and local regulations regarding GHG reductions across all sectors which have created a statewide downward trend in GHG emissions. Thus, it is foreseeable that regional GHG emissions decrease as a result of statewide and local regulations.

2035 Conclusion

As shown in Table 4.8-7, implementation of the proposed Plan would not directly or indirectly result in an increase in GHG emissions compared to existing conditions because total annual regional emissions would be approximately 25% lower in 2035 relative to 2022. Therefore, this impact (GHG-1) in the year 2035 is less than significant.

2050

Regional Growth and Land Use Change and Transportation Network Improvements and Programs

As shown in Table 2-1 in Section 2.0 "Project Description," of this Draft EIR, from 2036 to 2050, the region is forecasted to decrease by 4,112 people (-0.1%), increase by 65,577 housing units (4.8%), and increase by 103,460 jobs (6.2%). The 2050 regional SCS land use pattern is shown in Figure 2-5. The majority of the forecasted regional population decrease between 2036 and 2050 is attributed to the unincorporated jurisdictions, the City of Carlsbad, and the City of El Cajon. Approximately 78.8% of new housing units would be developed in the City of San Diego (51.6%), City of Chula Vista (17.1%), and unincorporated jurisdictions. Similarly, these same three jurisdictions would accommodate approximately 70.3% of new jobs between 2036 and 2050. Under implementation of the proposed Plan, total GHG emissions in the San Diego region are projected to be approximately 16.40 $MMTCO_2e$ in 2050, or about 1.62% less than total GHG emissions in 2036 (Table 4.8-8).

[2] Behind-the-meter storage refers to an energy storage system that powers a house or building without passing through an electric meter.

Table 4.8-8 Total Greenhouse Gas Emissions in the San Diego Region, 2022, 2036, and 2050

Emissions Category	2022 ($MMTCO_2e$/year)	2036 ($MMTCO_2e$/year)[1]	2050 ($MMTCO_2e$/year)
Passenger Cars and Light Duty Vehicles	7.80	5.68	5.32
Electricity	4.03	0.85	0.44
Natural Gas	3.01	3.02	3.01
Industrial	2.40	2.54	2.79
Heavy Duty Trucks and Other Vehicles	2.28	2.14	2.17
Other Fuels	0.86	0.87	1.06
Off-Road Vehicles	0.62	0.61	0.63
Solid Waste	0.32	0.08	0.08
Aviation	0.31	0.43	0.46
Water	0.25	0.05	0.00
Agriculture	0.18	0.20	0.2
Marine Vessels	0.11	0.13	0.18
Wastewater	0.05	0.05	0.05
Rail	0.03	0.01	0.00
Total	**22.25**	**16.67**	**16.40**
Change from 2022 to 2050	**- 5.58 $MMTCO_2e$ (-25%)**		
Change from 2036 to 2050	**- 0.27 $MMTCO_2e$ (-1.62%)**		

Notes: $MMTCO_2e$ – million metric tons of carbon dioxide-equivalent. The GHG emissions projections include the impact of federal and state regulations and regional policies and programs to reduce GHG emissions.

[1] Forecasted emissions for 2035 were used to characterize emissions for 2036, as included in Table 4.8-7 and Appendix E. A separate 2036 forecast was not available; however, emissions for 2036 are anticipated to be relatively similar to those modeled for 2035, with the expectation that 2036 emissions would be slightly less than those reported in 2035 based on increased reliance on renewable energy and the transition to electric vehicles from internal combustion engines driven by regulatory mechanisms.

Source: Modeled by the Energy Policy Initiatives Center, University of San Diego in 2025 (Appendix E).

As a result of decreased population, total VMT in the San Diego region is projected to decrease from 2035 of 73,453,955 miles per weekday to 73,313,426 miles per weekday by 2050 (see Tables G.4 and G.5 of Appendix E; separate forecasts for 2036 were not available). While the San Diego region is forecasted to experience population, employment, and housing growth by 2050, overall GHG emissions are anticipated to decrease compared to 2036 levels due to the implementation of a series of regulations combined with the land use planning strategies and transportation network improvement programs. These programs include implementation of SB 100 and SB 1020, energy efficiency standards for nonresidential buildings, continued growth in solar photovoltaic installations, water conservation measures, solid waste diversion, refrigerant programs, and emission standards for off-road equipment. The discussion of regulations and programs provided above for 2035 would also apply to emissions in 2050.

Major transportation network improvements by 2050 include new Managed Lanes and Managed Lane connectors on SR 52, SR 56, SR 75, SR 94, SR 125, SR 163, I-15, and I-805, several of which will be a continuation of improvements from 2035. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as expansion of and improvements to existing port of entry facilities, which will continue during this period. Upgrades at certain locations on the LOSSAN Rail Corridor would continue during this period. Grade separations on the SPRINTER, Blue Line, Green Line, and Orange Line, as well as double-tracking on the SPRINTER would also continue during this period. These projects, in combination with demographic (e.g., aging population) and economic (e.g., fuel prices) factors would decrease per capita VMT and would result in decreased VMT per capita over the lifespan of the proposed Plan.

The GHG emissions associated with the electricity and natural gas sectors reflect CEC's latest state energy projections made in the California Energy Demand 2023–2040 Revised Forecast, which projects electricity sales in the SDG&E planning area (service area) through 2040. As no forecast is available after 2040, the modeling used the 2036–2040 average annual electricity sales increase, 1.6%, to project sales beyond 2040. Emissions also account for the statutory requirements of SB 100, SB 1020, and the RPS, which require utilities to procure a greater percentage of their electricity supplies from renewable resources by certain benchmark years, including 100% of retail sales by 2045. Thus, all retail energy procured after 2045 is assumed to be carbon-free.

As the California Energy Code continues to be updated on a triennial basis, future iterations of the California Code will likely become more energy efficient than the current 2022 code as well as include restrictions on the use of on-site natural gas consumption as the building sector trends towards decarbonization. For example, according to CEC, the 2025 California Energy Code is projected to reduce statewide GHGs by about 4 million metric tons, which would likely be the code in place during or shortly after the proposed Plan is adopted (CEC 2024b). However, the level of energy efficiency and allowed on-site natural gas associated with future versions of the California Energy Code are unknown at this time because the specific requirements of such future code versions are not known; therefore, emissions from building energy consumption in 2050 may be overestimated. Additionally, as stated above, AB 130 enacts restrictions on modifications to future iterations of the California Building Standards Code for residential development until 2031. As discussed above, AB 130's moratorium on updating the California Building Standards Code for residential development until 2031 would affect the GHG reductions associated with the previously anticipated future iterations of the California Building Standards Code. Energy efficiency and renewable energy design features to reduce electricity demand and promote on-site renewable energy would not be realized for residential development beyond what is required by the 2025 version of the code until the next update in 2031.

The land use pattern and transportation network improvements of the proposed Plan, combined with the implementation of federal and state regulations that would result in reduced GHG emissions from activities in the San Diego region, would lead to lower total GHG emissions in 2050 as compared to 2022, and less than those in 2036. Notably, regional GHG emissions reductions would likely still occur in a scenario where the proposed Plan is not implemented. This is due to the implementation of as state and local regulations regarding GHG reductions across all sectors which have created a statewide downward trend in GHG emissions. Thus, it is foreseeable that regional GHG emissions would continue to decrease by 2050 as a result of statewide and local regulations.

2050 Conclusion

As shown in Table 4.8-8, implementation of the proposed Plan would not directly or indirectly result in an increase in GHG emissions compared to 2036 because total annual regional emissions would be approximately 1.6% lower in 2050 relative to 2036. As emissions are shown to decrease from 2022 to 2035 (discussed above), this decrease in emissions between 2036 and 2050 demonstrates that GHG emissions would be less in 2050 as compared to a 2022 baseline inventory. Therefore, this impact (GHG-1) in the year 2050 is less than significant.

MITIGATION MEASURES

No mitigation measures are required for this impact.

GHG-2 CONFLICT WITH THE SANDAG REGION'S ACHIEVEMENT OF SB 375 GHG EMISSIONS REDUCTION TARGETS FOR 2035

Analysis Methodology

The analysis evaluates whether the proposed Plan would conflict with the SB 375 GHG emission reduction target for 2035. SB 375 requires CARB to develop and update regional GHG emission reduction targets compared to 2005 emissions for passenger vehicles for 2020 and 2035. The updated targets established for SANDAG by CARB in 2018 are to reduce per capita CO_2 emissions to 15% below 2005 levels by 2020, and to 19% below 2005 levels by 2035. At this time, CARB has not developed or adopted any post-2035 SB 375 targets (CARB 2024c).

The San Diego region reduced emissions below the 2020 target because by 2020 it had reduced per capita CO_2 emissions from passenger cars and light-duty trucks to 17% below 2005 levels. Because the proposed Plan is

anticipated to be adopted in 2025, its implementation is unrelated to SANDAG's compliance with the 2020 target as the target year has passed. Therefore, compliance with the 2020 target is not addressed herein. SANDAG's methodology for measuring 2020 target achievement is provided in the SCS documentation prepared for the proposed Plan and has been submitted to CARB for review (included as Appendix B of the proposed Plan).

Because SB 375 does not establish 2050 GHG emissions reduction targets, this EIR does not present a 2050 analysis of conflicts with SB 375 emissions reduction targets.

The SB 375-related GHG emissions reductions in 2035 from implementation of the proposed Plan were calculated by SANDAG using the CARB model EMissions FACtor (EMFAC) 2014 and adjustment factors provided by CARB to account for differences in emissions rates between EMFAC2007 (used to set the 2005 baseline and original targets in 2010) and EMFAC2014. Off-model calculators were used to calculate emission reductions associated with vanpool and carshare strategies that are not accounted for in SANDAG travel demand modeling tools. Appendix B to the proposed Plan contains detailed descriptions of the vanpool and carshare off-model assumptions and methodologies. Refer to Appendix B to the proposed Plan for discussion of the CARB methodology that SANDAG is required to use when performing SB 375 calculations; use of the EMFAC2014 model with adjustment factors was stipulated by CARB. SANDAG used EMFAC2014 in the 2021 Regional Plan amendment and the same version (with adjustment factors) for the 2025 Regional Plan to standardize the results of the SB 375 GHG reductions calculations. As stated above in the regulatory setting, EMFAC2014 remains the most appropriate methodology for the EIR to use to estimate GHG impacts under GHG-2, despite federal removals of California CAA waivers and the proposed rescission of certain federal GHG emissions standards.

For the purpose of evaluating impacts under Impact GHG-2, regional growth and land use change and the transportation network improvements and programs of the proposed Plan are evaluated together because the per capita CO_2 emissions from passenger cars and light-duty trucks addressed by SB 375 targets are influenced by the combined effects of these two Plan components (among other factors).

Impact Analysis

2035

Regional Growth and Land Use Change and Transportation Network Improvements and Programs

CARB requires SANDAG to reduce per capita CO_2 emissions from passenger cars and light-duty trucks to 19% below 2005 levels by 2035. Table 4.8-9 summarizes the CO_2 per capita reductions from on-model and off-model strategies after accounting for the EMFAC adjustment factor and induced demand adjustment factor. As shown in Table 4.8-9, implementation of the proposed Plan would reduce per capita CO_2 emissions from passenger cars and light-duty trucks to 19.3% below 2005 levels by 2035. Therefore, implementation of regional growth and land use change and transportation network improvements and programs would not conflict with SB 375 GHG emission reduction targets.

Table 4.8-9 SB 375 GHG-Reduction Targets and GHG Emissions under the Proposed Plan from Passenger Vehicles and Light-Duty Trucks, 2035

	Per Capita Reductions from 2005 Levels
Per Capita Reduction under the Proposed Plan (On-Model Results Only)	-21.57%
Per Capita Reduction under the Proposed Plan (Off-Model Results Only)	-0.23%
CARB Adjustment Factor for EMFAC (2007–2014)[1]	+1.7%
Induced Demand Adjustment Factor[2]	+0.775%
Per Capita Reductions	-19.32%
CARB Target	-19%

[1] The GHG reductions for the 2025 Regional Plan were calculated using the CARB model EMFAC 2014 and adjustment factors provided by CARB to account for differences in emissions rates between EMFAC 2007 (used to set the original targets in 2010) and EMFAC 2014.

[2] The induced demand adjustment factor methodology is described in Appendix B to the Regional Plan.

Source: Modeled by SANDAG in 2025.

Notably, the North and East County Subregions contain a significant portion of the region's population and represent a higher-than-average VMT per capita. To address this, the proposed Plan includes projects within the North and East County Subregions tailored towards reducing per capita VMT, and thus transportation-related GHG emissions, attributable to these Subregions.

For example, to provide more convenient and reliable transit options, the plan includes enhancements to the SPRINTER and COASTER, including additional double-tracking and grade separations to allow for double the frequencies on specified sections of both routes during the peak and midday time periods (see Attachment A2 of Appendix A to the proposed Plan). A total of 16 Rapid routes are identified for North County, including Rapid 483 connecting San Marcos to Riverside County. Connections between rural communities will be improved by establishing Rapid 277 between Sabre Springs and Ramona and upgrading existing rural routes to have more trips throughout the week. See Table A.1 in Appendix A to the Regional Plan for a full list of transportation projects planned and ongoing in the North County Subregion.

Additionally, in the North County Subregion, with some segments currently under construction, the North Coast Bike Trail and Coastal Rail Trail are proposed for full implementation under the proposed Plan, with some segments due to be completed by 2035, and others by 2050. Other critical east-west connections like the Inland Rail Trail: Oceanside segment are due to be completed by 2035.

In the East County Subregion, numerous projects are planned to expand bike routes east to west and to minimize the number of bike routes that are mixed with vehicular traffic on high-speed roads. The La Mesa Corridor to East County Northern Loop (2035) and SR 125 – Grossmont College to Santee – El Cajon Corridor (2035) will offer on-street bike routes to safely connect riders around the Eastern Subregion. By 2035, the Lemon Grove to La Mesa Connector will support an on-street bikeway to advance a critical east-to-west connection. Additionally, to better connect the rural communities, the proposed Plan identifies a new Rapid 277 connection between Sabre Springs and Ramona, as well as upgrades to existing rural routes to provide more trips throughout the week. Lastly, East County projects include operational improvements along I-8 and substantial safety improvements for SR 94, SR 76, SR-67, and SR 79 and other state routes. Physical safety improvements are realized through a variety of projects including shoulder widening and curve straightening. See Table A.2 in Appendix A to the Regional Plan for a full list of transportation projects planned and ongoing in the East County Subregion.

As the North and East County Subregions support a considerable portion of the region's population and experience higher-than-average VMT per capita, a critical component of the proposed Plan is to facilitate projects which result in improved existing transit infrastructure, increased mass transit trip frequency, construction of new infrastructure such as additional line connections, expanded active transportation infrastructure, and increased transportation safety. As shown in Table 4.8-9, these projects would collectively reduce per capita VMT and, as a result, reduce per capita GHG emissions in these high-population subregions.

2035 Conclusion

Implementation of the proposed Plan would not conflict with SB 375 emission reduction targets for 2035 because it would result in a 19.3% reduction in per capita CO_2 emissions from passenger cars and light-duty trucks from 2005 levels by 2035, which exceeds the 2035 target of a 19% reduction for the SANDAG region. Therefore, this impact (GHG-2) in the year 2035 is less than significant.

MITIGATION MEASURES

No mitigation measures are required for this impact.

GHG-3 CONFLICT WITH OR IMPEDE THE IMPLEMENTATION OF LOCAL PLANS ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS

Analysis Methodology

Section 4.8.2, "Regulatory Setting," describes adopted CAPs, GHG reduction plans, or sustainability plans relevant to the proposed Plan. Eighteen of SANDAG's nineteen member jurisdictions have adopted CAPs, GHG reduction

plans, or sustainability plans that set goals and targets for the reduction of GHG emissions, and outline policies or measures to achieve those goals and targets. Generally, these local targets are developed in consideration of the state's long-term GHG-reduction goals by legislatively significant benchmark years (i.e., 2030 and 2045). There are two primary types of GHG reduction plans: plans that serve as policy documents, and plans that are qualified for tiering under CEQA. For purposes of this EIR, all plans developed by SANDAG member agencies related to GHG reductions are evaluated.

As discussed in Section 4.8.2, "Regulatory Setting," Section 15183.5(b) of the CEQA Guidelines directs that agencies should tier the environmental analyses which they prepare for separate, but related, projects, such as in the cases of general plans, CAPs, zoning changes, and development projects. According to the CEQA guidelines, tiering may be used when the sequence of analysis is from an EIR prepared for a general plan, CAP, policy, or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration (14 CCR Section 15152[b]). Notably, CEQA Guidelines Section 15183 (14 CCR Section 15183) provides an exemption from additional environmental review for projects that are consistent with the development density established by existing zoning, community plan, CAP, or general plan policies for which an EIR was certified, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site. Section 15183(c) further specifies that if an impact is not peculiar to the parcel or to the proposed Plan, has been addressed as a significant effect in the prior EIR, or can be substantially mitigated by the imposition of uniformly applied development policies or standards, then an additional EIR need not be prepared for that project solely on the basis of that impact.

The proposed Plan is generally evaluated against the goals, measures, and implementing actions of local CAPs and GHG-reduction plans to determine any conflicts in this analysis. A detailed CAP consistency analysis by jurisdiction is provided in Appendix E: Appendix G to the Regional Plan. The analysis of the proposed Plan and local CAPs is provided for 2035 and 2050. Several adopted local CAPs and GHG-reduction plans address the 2045 statewide carbon neutrality goal. This analysis addresses potential conflicts between the proposed Plan and such adopted plans in 2050 because 2050 constitutes the horizon year of the proposed Plan. This comparison is appropriate because adopted CAPs and GHGRPs that include 2045 targets align with AB 1279 and plan for a more ambitious target based on the goals of AB 1279. As discussed above, AB 1279 requires achieving carbon neutrality no later than 2045 and negative emissions thereafter, and an 85% reduction in 1990 anthropogenic emissions level by 2045. The implementation of the proposed transportation improvement projects and land use development pattern of the proposed Plan would achieve GHG reductions over time; these components of the proposed Plan would not interfere with local jurisdictions implementing their identified measures to reduce local GHG emissions (as detailed in Appendix E: Appendix G to the Regional Plan). Because the local CAPs establish goals, objectives, and policy measures for both regional growth and land use change and transportation network improvements, the analysis of conflicts with local climate action plans does not separate the two categories. The impact assessment addresses both forecast regional growth and land use change and the planned transportation network improvements and programs.

Impact Analysis

2035 and 2050

Regional Growth and Land Use Change and Transportation Network Improvements and Programs

An analysis of whether the proposed Plan would conflict with the policies, measures, and actions of adopted plans is provided in Appendix E: Appendix G to the Regional Plan. Typically, CAPs include various measures and actions to reduce GHG emissions by sector including, but not limited to, transportation, energy, solid waste, water and wastewater, and carbon sequestration. Common measures to reduce emissions from the transportation sector include the promotion of near-zero and zero-emission vehicles and associated infrastructure, the deployment of TDM strategies such as iCommute and commuter benefits programs, and the development of Complete Streets that include pedestrian and bicycle programs, among others. A major objective of the proposed Plan is to reduce GHG emissions from passenger cars and light-duty trucks. Therefore, many transportation network improvements and programs that would be implemented under the proposed Plan would complement these existing and future local efforts to reduce GHG emissions from the on-road transportation sector.

Other examples of local CAP measures that reduce GHG emissions include energy efficiency renovations of existing buildings, deployment of solar PV to existing and new residential and nonresidential buildings, additional waste diversion goals exceeding statewide requirements, capture and control of landfill emissions, improved water efficiency in existing and new residential and nonresidential development, and tree planting to increase carbon sequestration. These implementing actions would be outside of the scope of the proposed Plan and SANDAG's direct authority; - their implementation would not be impeded or obstructed by implementation of the regional growth and land use changes and transportation network improvements and programs included in the proposed Plan.

2035 and 2050 Conclusion

As shown in the CAP consistency analysis included in Appendix E: Appendix G to the Regional Plan, implementation of regional growth and land use change and transportation network improvements and programs under the proposed Plan would not conflict with or impede the implementation of adopted CAPs, GHG reduction plans, and/or sustainability plans. Therefore, this impact (GHG-4) in the years 2035 and 2050 is less than significant.

MITIGATION MEASURES

No mitigation measures are required for this impact.

GHG-4 BE INCONSISTENT WITH THE STATE'S ABILITY TO ACHIEVE THE 2030 REDUCTION TARGET OF SB 32 AND 2045 REDUCTION GOAL OF AB 1279

Analysis Methodology

This analysis evaluates whether the proposed Plan would be inconsistent with the state's ability to achieve the SB 32 target of reducing statewide GHG emissions to 40% below the 1990 levels by 2030 and the AB 1279 goal of achieving net zero emissions as soon as possible as well as reducing anthropogenic emissions at least 85% below 1990 levels by 2045. The consistency analysis was also extended to 2050, to be consistent with other 2050 impact analyses in this EIR.

To perform this analysis, SANDAG identified estimated emissions reduction reference points for the region for 2030 and 2045 based on the target levels and dates from SB 32 and AB 1279. Emissions for 2050 have also been included for informational purposes to demonstrate the SANDAG region's projected emissions. The GHG emissions results for 2030 and 2045 were interpolated using data from the 2022 GHG inventory and projections prepared for the Regional Plan (Appendix E: Appendix G to the Regional Plan) and then compared to the reference points. The 2050 emissions presented are taken verbatim from Appendix G of the Regional Plan. Note that there is no requirement that the SANDAG region's emissions be reduced by the same percentage ("equal share") as the statewide percentage in order for the state to achieve the goals of SB 32 and AB 1279. For purposes of this EIR, the proposed Plan's impacts nevertheless are considered significant if total emissions in the SANDAG region exceed the estimated 2030 and 2045 GHG reduction reference points.

Because there is not an available 1990 emissions inventory for the San Diego region that is comparable to the regional inventory and projections prepared for the proposed Plan, reference points were developed for this analysis to show the level of GHG reductions needed between 2022 (the baseline year of the inventory and proposed Plan) and future years of 2030 and 2045 that would be equivalent to level of reductions needed when measured against 1990.[3]

In 2022, total statewide emissions equaled 371 million metric tons of carbon dioxide equivalent ($MMTCO_2e$), which was 60 $MMTCO_2e$ (approximately 14%) lower than the statewide 1990 emissions level of 431 $MMTCO_2e$ (CARB 2025b). CARB's emission limit for 2030 is 260 $MMTCO_2e$, which is 40% below 1990 emissions levels and 30% below the 2022 inventory levels. CARB's emissions limit for 2045 is approximately 65 $MMTCO_2e$, which is approximately 85% below 1990 levels and 83% below the 2022 inventory levels (CARB 2022a).

[3] The 2012 inventory report prepared for the 2015 Regional Plan included an estimated 1990 emissions level for the San Diego region, but it was prepared using data sources and methods that do not allow for a direct comparison with the GHG emissions projections provided in the 2022 GHG Inventory and Projections report prepared for the proposed Plan.

In summary, the statewide target for 2030 is equivalent to 30% below 2022 levels, and the statewide target for 2045 is equivalent to 83% below 2022 levels. Therefore, to identify the reference point for 2030, a 30% reduction was applied to the total regional emissions in 2022, which results in a 2030 reference point of 15.6 $MMTCO_2e$. Similarly, to identify the reference point for 2045, an 83% reduction was applied to the total regional emissions in 2022, which results in a 2045 reference point of 3.9 $MMTCO_2e$. Stated otherwise, the level of regional emissions needed to meet SB 32 targets is 15.6 $MMTCO_2e$ in 2030, and the level of regional emissions needed to meet AB 1279 targets is 3.9 $MMTCO_2e$ in 2045. The 15.6 $MMTCO_2e$ and 3.9 $MMTCO_2e$ reference points for 2030 and 2045 represent the levels of regional emissions needed to achieve the SB 32 and AB 1279 targets for each year, respectively. As there is no statewide goal for 2050 (AB 1279 superseded the 2050 target enumerated in EO S-3-05), no reference point has been developed for 2050. Notably, there is no requirement that the SANDAG region's emissions be reduced by the same percentage ("fair share") as the percentage to achieve the statewide goals of SB 32 and AB 1279; however, these goals can be used as informational reference points in this analysis for 2030 and 2045 to gauge the proposed Plan's consistency with these target years. In the absence of local targets, SANDAG is relying on these reference points derived from statewide data to evaluate how the SANDAG region is performing compared to the statewide targets under SB 32 and AB 1279.

For purposes of evaluating impacts under Impact GHG-4, because the SB 32 and AB 1279 targets and regional reference points reflect GHG emissions from the proposed Plan's regional growth and land use change and the planned transportation network improvements and programs, the analysis does not separate the two categories. Emissions for 2050 are similarly grouped together. The impact assessment includes both forecasted regional growth and land use change and planned transportation network improvements and programs.

Impact Analysis

2030, 2045, and 2050

Regional Growth and Land Use Change and Transportation Network Improvements and Programs

Implementation of the proposed land use pattern and transportation infrastructure improvements under the proposed Plan would result in long-term operational emissions of GHGs associated with the combustion of fossil fuels for transportation, operation of landscape maintenance equipment, consumption of electricity and natural gas, water-related energy consumption associated with water use and the conveyance and treatment of wastewater, and waste-generated emissions from the transport and disposal of solid waste. The sources from which a project would emit GHGs as well as the quantity of operational emissions emitted by a project are dependent on project-level design components. Whether individual projects implemented under the Regional Plan would result in significant levels of GHG emissions would depend on various parameters (e.g., project size, location, design, energy efficiency) that are not known at this time and therefore cannot be quantified on an individual basis.

In addition to area, energy, transportation, water, and solid waste emissions, the land uses under the proposed Plan could also accommodate stationary sources of pollutants that would be required to obtain permits to operate in compliance with SDAPCD rules. These sources could include, but are not limited to, diesel engine or gas turbine generators for emergency power generation; central heating boilers for commercial, industrial, or large residential buildings; process equipment for light industrial uses; kitchen equipment at restaurants and schools; service station equipment; and dry-cleaning equipment. With respect to stationary source emissions, levels can vary greatly depending on the exact operations and processes involved. Specific information is not available for this program level analysis to reliably estimate these emissions. Notably, some stationary source emissions are captured within the "industrial" emissions category shown in Tables 4.8-7 and 4.8-8. However, this category may not capture all regional emissions from stationary sources, as specifics regarding project–design-dependent sources such as emergency generators used in the building sector are not known at this time. The permit process would ensure that these sources would be equipped with the required emission controls, and that individually these sources would not produce substantial emissions.

The change in regional GHG emissions from 2022 to 2030, from 2022 to 2045, and from 2022 to 2050, including implementation of the entire land use pattern and transportation improvement projects of the proposed Plan,

while also accounting for the emissions benefits achieved from statewide regulatory mechanisms, have been estimated for the purposes of evaluating the proposed Plan against the long-term statewide GHG reduction targets of SB 32 and AB 1279. As stated previously and discussed throughout this analysis, Appendix E includes an inventory of SANDAG's emissions for 2035 and 2050. To assess the proposed Plan's consistency with SB 32 and AB 1279, the emissions estimates from Appendix E have been interpolated to align with these target years assuming growth projections within the SANDAG region. These calculations of operational GHG emissions, as described below, represent a general estimate of the net change in emissions that could result from the growth accommodated by the proposed Plan.

Table 4.8-10 Reference Point and GHG Emissions under the Proposed Plan, 2030, 2045, and 2050

	Annual Emissions ($MMTCO_2e$)[1]
GHG Emissions in the San Diego Region in 2022	22.25
GHG emissions in the San Diego Region in 2030	18.82
2030 Reference Point (30% below 2022 levels)	15.59
GHG emissions in the San Diego Region in 2045	16.49
2045 reference point (83% below 2022 levels)	3.90
GHG emissions in the San Diego Region in 2050[2]	16.40

Notes: GHG = greenhouse gas; $MMTCO_2e$ = million metric tons of carbon dioxide equivalent.

[1] Annual emissions are presented to the nearest hundredth of a decimal. Sum totals may not align due to rounding.

[2] There is no reference point for 2050 as the state has not codified a target for this year. Executive Order S-3-05 established an 80 percent reduction from 1990 statewide emissions inventory by 2050; however, this target has been superseded by Assembly Bill 1279.

Source: Appendix E, Data compiled by Ascent Environmental in 2025 (Appendix H).

As shown in Table 4.8-10, total annual emissions in the San Diego region would be reduced by approximately 3.4, 5.8, and 5.9 $MMTCO_2e$/year in 2030, 2045, and 2050, respectively, relative to the 2022 baseline year. The total emissions in the San Diego region of 18.8 $MMTCO_2e$ in 2030 would exceed the regional 2030 GHG reference point of 15.6 $MMTCO_2e$ (which is based on SB 32 targets for 2030); therefore, the proposed Plan's 2030 GHG emissions would be inconsistent with the state's ability to achieve the goals of SB 32. Additionally, because the total emissions in the San Diego region of 16.49 $MMTCO_2e$ in 2045 would exceed the regional 2045 GHG reference point of 3.9 $MMTCO_2e$ (which is based on AB 1279 targets for 2045), the proposed Plan's 2045 GHG emissions would be inconsistent with the state's ability to achieve the goals of AB 1279. These inconsistencies would persist through 2050.

Notably, some GHG emissions reductions would occur even in a "no-project" scenario where the proposed Plan is not implemented, as state and local regulations regarding GHG reductions across all sectors have created a statewide downward trend in GHG emissions in accordance with the reduction goals and implementing regulations under SB 32 and AB 1279. The proposed Plan would support statewide GHG emissions reduction goals through dense, compact development that, coupled with an efficient and diversified transportation network, would improve transportation efficiency and reduce overall and per capita GHG emissions.

It is important to note that as the proposed Plan is implemented, project-level analysis of GHGs would be required as appropriate by the CEQA lead agency. Because of the programmatic nature of the proposed Plan, individual land uses and associated emissions may be different than what was projected at the plan level due to unknowns regarding the specific land use type and size of individual land use development and transportation infrastructure improvement projects under the proposed Plan.

The proposed Plan is specifically designed to reduce regional VMT and use of fossil fuel consumption in the transportation and building sectors. Because the 2022 Scoping Plan encourages local agencies to take action to reduce VMT, increase ZEV usage, and decarbonize buildings, and therefore contribute to achieving statewide GHG reduction targets, the 2022 Scoping Plan is a GHG reduction plan applicable to the project. The 2022 Scoping Plan outlines the primary strategies California intends to implement to achieve the legislative GHG emission target for

2030 and provide a pathway towards the state's 2045 climate goals. The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector including transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste. The 2022 Scoping Plan lays out the pathway to achieve the state's carbon neutrality goal and reduce anthropogenic GHG emissions by 85% below 1990 levels no later than 2045.

The Local Actions Appendix (Appendix D) to the 2022 Scoping Plan includes various recommendations that local governments can implement to align their planning and development review processes with the state's climate goals. Appendix D recommends that local governments focus on transportation electrification, VMT reduction, and building decarbonization (CARB 2022a). As detailed above, the proposed Plan was specifically designed to reduce regional VMT and was prepared pursuant to SB 375. SB 375 seeks to reduce GHG emissions from the passenger-vehicle sector by reducing VMT within developed areas and areas planned for development within the jurisdictions of the state's 18 MPOs. Compliance with the reduction goals of SB 375 is identified in the 2022 Scoping Plan as a necessary component to achieving the short-term goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 as mandated by SB 32.

CARB adopted the most current SB 375 regional GHG reduction targets in March of 2018. This includes the SANDAG region's target for GHG emissions reductions as a 19% decrease in per capita passenger-vehicle GHG emissions as compared to 2005 levels by 2035 (CARB 2018b). This reduction target adds to the GHG reductions achieved through the implementation of other statewide programs (e.g., Cap-and-Trade, RPS).

While the proposed Plan would meet the region's SB 375 target of reducing vehicle emissions by 19% by 2035 relative to 2005 levels (see Impact GHG-2, above), recent reports on the state's climate goals suggest that the regional 2035 GHG emissions reduction targets under SB 375 are not adequate to fully meet the GHG reduction goals of SB 32 (CARB 2022b) (see Section 4.8.2, "Regulatory Setting," above). CARB anticipates that the state would need to achieve a 25% reduction in per capita GHG emissions by 2035, which exceeds SANDAG's 19% target.

Additional reductions would be needed in the transportation sector and all other GHG sectors to achieve the goals of SB 32 and AB 1279. The other sectors include how energy is sourced, generated, and used; how solid waste is generated, managed, and disposed of; treatment, conveyance, and uses of water supply and wastewater; energy sources and feedstocks for industrial processes and activities; management of natural and working lands; and uses of high-GWP gases. Achieving GHG reductions from these sectors at the scale required to meet the goals of AB 32 and AB 1279 would require major changes to government regulation, private sector activity, consumer behavior, and other facets of life throughout California and beyond.

In the 2022 Scoping Plan, CARB identifies several pathways for each sector to close the reduction gap needed to achieve the targets of AB 1279. These would be achieved through building decarbonization, reducing the cap of the Cap-and-Trade Program, investing in the health of the state's natural and working lands, and ultimately reliance on carbon capture and sequestration technologies to eliminate residual emissions from those sectors CARB cannot independently regulate or control. The reductions achieved through SB 375 and the efforts of MPOs would contribute to the overall goal of carbon neutrality; however, this regulation is one component of many GHG reduction plans, policies, and actions taken by the state to reduce statewide emissions.

Through competitive funding distribution, SANDAG is able to advance the projects and programs that best implement the proposed Plan. Collectively, SANDAG funding programs have supported projects that both reduce VMT and increase EV utilization. Thus, GHG emissions related to the combustion of fossil fuel used for transportation are reduced by funding from SANDAG which supports building transportation infrastructure or campaigns/programs to incentivize infill development, connecting people to community destinations with walking and biking facilities, adding and improving EV charging infrastructure, facilitating ZEV incentive programs, and exploring new options to decrease VMT.

2030, 2045, and 2050 Conclusion

Because the total emissions in the San Diego region of 18.8 $MMTCO_2e$ in 2030 would exceed the regional 2030 GHG reference point of 15.6 $MMTCO_2e$ (which is based on SB 32 targets for 2030), the proposed Plan's 2030 GHG emissions would be inconsistent with the state's ability to achieve the goals of SB 32. Additionally, because the

total emissions in the San Diego region of 16.49 $MMTCO_2e$ in 2045 would exceed the regional 2045 GHG reference point of 3.9 $MMTCO_2e$ (which is based on AB 1279 targets for 2045), the proposed Plan's 2045 GHG emissions would be inconsistent with the state's ability to achieve the goals of AB 1279. Further, given the evidence put forth by CARB and in the documents prepared by CARB related to the SB 375 target setting finalized in March 2018, more must be done to reduce emissions from the transportation sector to achieve the state's climate goals. Therefore, the proposed Plan's measures alone would not be sufficient to achieve the state's GHG reduction goals outlined in the 2022 Scoping Plan (i.e., 40% below 1990 emissions by 2030 [SB 32] and 85% below 1990 anthropogenic emissions by 2045 [AB 1279]), and, this impact would be significant. These inconsistencies would persist through 2050.

Mitigation Measures

Basis for Selection of GHG Mitigation Measures

Overview

Many features currently included in the proposed Plan (e.g., the SCS, increased transit, and active transportation investments) have the effect of reducing GHG emissions that might otherwise occur. Mitigation measures presented in this section are additional feasible GHG reduction measures not included in the proposed Plan that SANDAG has committed to implement for its projects and which other transportation project sponsors can and should implement for their projects. Presented below are three types of feasible GHG reduction mitigation measures presented later in this section:

- Plan- and policy-level mitigation measures SANDAG has committed to implement.
- Mitigation measures for transportation network improvements and programs which SANDAG has committed to implement for its projects and which other transportation project sponsors can and should implement for their projects.
- Mitigation measures for development projects implementing regional growth and land use changes, which local jurisdictions can and should implement.

While SANDAG has the authority to implement the mitigation measures it has committed to, it has no legal or jurisdictional authority to require other transportation project sponsors or local jurisdictions to implement mitigation measures for specific projects for which those entities have responsibility and jurisdiction. As explained in the Analysis Methodology under Chapter 4, mitigation can include measures that are within the responsibility and jurisdiction of another public agency. SANDAG, in its CEQA findings, may find that those measures assigned to other agencies can and should be adopted by those other agencies (CEQA Guidelines Section 15091(a)(2)). Additional Plan-level measures to reduce GHG emissions are included as components of the project alternatives in Chapter 6, rather than as individual mitigation measures in this section. These include still more compact land use patterns; concentrated growth in multimodal transportation areas; policies to reduce transit fares or provide free transit, and managed lane pricing and increased parking prices.

To provide context for the EIR's proposed GHG mitigation measures, it is important to first understand the state's strategies for achieving statewide GHG reductions under SB 32 and AB 1279. It is also important to understand what GHG reduction measures are included in the proposed Plan, what GHG reductions are being achieved as a result of past and ongoing implementation of the 2021 Regional Plan EIR's mitigation measures, and what other SANDAG GHG reduction plans and programs already exist. This information is provided below, following which the proposed Plan EIR GHG mitigation measures are presented.

Background

Background: State Strategy and Measures for Achieving Statewide Targets

The 2022 Scoping Plan traces the state's pathway to achieve its goals of achieving a 40 percent reduction from 1990 GHG levels in 2030 as well as carbon neutrality and an 85% reduction in emissions by 2045 relative to 1990 levels, as codified by AB 1279. These targets are in line with scientifically established levels to limit the rise in global

temperature to no more than 2°C, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5°C (United Nations 2015). The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile-source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. The 2022 Scoping Plan details a multitude of strategies for reducing GHG emissions in each of these sectors.

Background: Conclusion Regarding State Strategy and Measures

Full implementation of the measures identified in the 2022 Scoping Plan that could result in a 40% reduction of GHG emissions below 1990 levels by 2030 would require major changes in clean technologies utilization; markets; and local, state, and federal policies and regulations. Achieving AB 1279's goal of carbon neutrality no later than 2045 and negative emissions thereafter, and an 85% percent reduction in 1990 anthropogenic emissions level by 2045, would require the decarbonization of the state's electrical sector, decarbonization of existing buildings and new construction, electrification of the entire transportation sector, investments in healthy soils, sustainable solid waste and wastewater management, and carbon dioxide removal strategies, such as land-based carbon sequestration and direct air capture of CO_2. The required GHG reductions from the aforementioned sectors can only be achieved through a coordinated effort by, at minimum, state, regional, and local agencies, organizations, and stakeholders, and is well beyond the ability and jurisdiction of SANDAG alone.

Background: Role of SANDAG in Planning for GHG Emissions Reductions

As an MPO and Council of Governments (COG) with a mission of promoting quality of life in the region, SANDAG has engaged in climate planning efforts for over a decade, leveraging the agency's position as a bridge between local and state governments and building upon its statutory requirements under SB 375. The agency has prepared a wide range of climate-related plans and programs. Some have been explicitly connected to climate change, while others are more indirectly related and result in GHG reductions or carbon emissions removal that is incidental to their primary purpose (e.g., the Smart Growth Incentive Program supports land development and infrastructure improvements that also contribute to lower VMT and associated GHG emissions; the Environmental Mitigation Program conserves and restores native habitats to compensate for the loss of habitat resulting from transportation capital projects, which can retain carbon stored in soils and vegetation on the region's natural lands and contribute to removal of emissions from the atmosphere).

The following discussion describes SANDAG's many activities for achieving GHG emissions reductions, including the proposed Plan strategies to reduce GHG emissions as required by SB 375, the GHG mitigation measures previously adopted by SANDAG as part of its 2021 Regional Plan, and other plans and programs that SANDAG proactively prepares and implements that are not required by state or federal law or regulation.

Background: Proposed Plan Strategies and Actions to Reduce GHG Emissions

SANDAG has direct responsibility for planning for achieving passenger vehicle GHG reduction targets through the development and implementation of an SCS pursuant to SB 375. The proposed Plan includes an SCS and demonstrates that, if the proposed Plan is implemented, the San Diego region would achieve its SB 375 target for 2035. Analysis performed by SANDAG and included in the SCS documentation for the proposed Plan demonstrates that the San Diego region has achieved its SB 375 target for 2020 (Appendix B to the Regional Plan).

The proposed Plan includes many strategies that contribute to GHG reductions under SB 375 and identifies implementation actions that SANDAG will take to realize these reductions. The strategies can be broadly categorized as transportation system infrastructure and operations, demand management, land use, and zero-emission vehicles.

The proposed Plan incorporates several transportation system infrastructure and operational strategies, including investments in:

- Active Transportation
- Transit

- Transportation System Management
- Complete Corridors
- Flexible Fleets

The proposed Plan also includes several implementation actions that would implement the above strategies, including:

- Near Term Action A: Develop the remaining three Comprehensive Multimodal Corridor Plans (CMCP) in partnership with Caltrans, agency partners, and local governments
- Near Term Action C: Develop a phased implementation strategy for the regional Managed Lanes system in partnership with Caltrans
- Near Term Action N: Complete regional bike projects in active construction
- Near Term Action Y: Continue implementing LOSSAN Rail Corridor improvement projects

See Chapter 3, "Implementation Actions," of the Regional Plan for a comprehensive list of implementation actions.

The proposed Plan also addresses the reduction of GHG emissions beyond passenger vehicle sources. For example, relative to existing land use plans, the proposed Plan's compact land use pattern preserves more of the region's natural and working lands instead of converting these lands to urban or developed uses. As a result, more carbon would remain stored in soil and vegetation rather than being released into the atmosphere.

Background: Summary and Status of Previously Adopted GHG Mitigation Measures

The 2021 EIR included several mitigation measures to reduce GHG emissions. These are summarized below to provide context for more recent efforts undertaken by SANDAG to reduce GHGs within the San Diego region.

- GHG-5a, *Allocate Competitive Grant Funding to Projects that Reduce GHG Emissions and for Updates to CAPs or GHG Reduction Plans,* directed SANDAG to implement a grant program(s) that allocate(s) funding on a competitive basis to underfunded GHG-reducing projects that implement the stated strategies or measures in local jurisdiction CAPs or GHG reduction plans. The new and/or revised grant program(s) was intended to: (1) achieve additional annual GHG emissions reductions during the proposed Plan horizon by implementing projects that would not otherwise occur due to insufficient funding, and (2) achieve additional cumulative GHG emissions reductions under the proposed Plan planning horizon by implementing projects ahead of schedule and realizing GHG reductions earlier than they would otherwise occur due to timing of funding availability. Reducing total annual and cumulative GHG emissions under the 2021 Regional Plan planning horizon reduces the 2021 Regional Plan's contribution to climate change. In 2022, SANDAG released Cycle 5 of its Smart Growth Incentive Program (SGIP) which included $3 million for planning projects. CAPs were required for local jurisdictions to be eligible for receiving grant funds pursuant to the 2021 EIR. SANDAG funded 5 projects for a total of $1.9 million. In 2024, SANDAG revised the SGIP to include a project category for CAPs and CAP updates. In 2025, SANDAG released its SGIP Cycle 6 Call for Projects with a total of $45 million made available to local jurisdictions. In addition to the CAP category, projects identified in local CAPs could apply for funding in the capital and planning categories for funding. Performance measures were included for each category of projects.
- GHG-5b, *Establish New Funding Programs for Zero-Emissions Vehicles and Infrastructure,* directed SANDAG to reduce regional GHG emissions by allocating funds for infrastructure such as EV charging equipment and hydrogen fueling stations, as well as zero-emissions goods movement vehicles (e.g., medium- and/or heavy-duty trucks) and infrastructure; zero-emissions fleet vehicles; electric micromobility (e.g., personal electric bikes, cargo delivery electric bikes, neighborhood electric vehicles) and associated infrastructure. Increasing the amount of vehicle miles traveled by zero emissions vehicles under the proposed Plan horizon reduces the 2021 Regional Plan's inconsistencies with the State's ability to achieve long-term climate goals. SANDAG launched a pilot e-bike program in 2022 that ran for 2 years. Data from the pilot will be used to develop a regional program. SANDAG also completed two ZEV-related goods movement planning strategies identified

in the 2021 EIR that were necessary to inform future regional incentive program options (the California Energy Commission-funded Medium Duty/Heavy (MDHD) Duty EV Blueprint grant for San Diego Region, in partnership with the Port of San Diego, and the Caltrans-funded San Diego and Imperial Counties Sustainable Freight Implementation Strategy). SANDAG also applied for a federal grant to fund a ZEV fleet program and a truck charger program in 2024 but was not awarded the grant.

- GHG-5c, *Implement Nature-Based Climate Solutions to Remove Carbon Dioxide from the Atmosphere,* directed SANDAG to establish a Nature-Based Climate Solutions (NbS) Program to restore or enhance natural infrastructure that uses or mimics natural processes to benefit people and wildlife. Through this program SANDAG would implement, or provide funding to implement, projects that restore or enhance native habitats to increase rates of carbon sequestration over baseline conditions. SANDAG determined it needed to develop a program framework for NbS before establishing a program. SANDAG twice applied for funding from the State to accomplish this but was not successful in receiving an award.
- GHG-5d, *Develop and Implement Regional Digital Equity Strategy and Action Plan to Advance Smart Cities and Close the Digital Divide.* SANDAG adopted a Regional Digital Equity Strategy and Action Plan in 2022 to expand access to affordable, high-quality broadband service. This plan intends to address significant inequities in digital infrastructure while allowing for remote education, telemedicine, work from home, and the potential for other remote access opportunities that reduce car travel and the associated GHG emissions. This Strategy now informs agency-wide initiatives, including the $32 million Next OS program, which supports a connected digital infrastructure backbone that enables a real-time, data-driven, and fully accessible multimodal transportation network. SANDAG is also advancing digital infrastructure through key regional projects, including a Local Agency Technical Assistance (LATA) grant project that is designing expanded internet infrastructure on tribal reservations and Zito Media's Federal Funding Account (FFA) grant project which will expand broadband deployment in underserved areas of rural San Diego. These efforts are critical to connecting historically underinvested communities, minimizing the need for long-distance travel to access essential services, and ensuring that the entirety of the region has an accessible, sustainable, digitally connected network.
- GHG-5g, *Prepare/Develop a Regional Climate Action Plan,* directed SANDAG to prepare a regional Priority Climate Action Plan (PCAP) and a CCAP that include measures to reduce GHG emissions and help achieve the 2045 targets established by California AB 1279 and CARB's Final 2022 Scoping Plan Update. SANDAG completed the PCAP in March 2024 and is completing its CCAP, the Roadmap, by December 1, 2025.

Background: Other SANDAG Plans and Programs to Address GHG Emissions Reductions.
This section describes SANDAG plans and programs that support GHG emissions reductions that are in addition to those that would occur as a result of proposed Plan strategies or the GHG mitigation measures previously adopted in the 2021 Regional Plan.

Final Program Budget for Fiscal Year (FY) 2026
Outside of the proposed Plan, SANDAG's Final Program Budget for Fiscal Year (FY) 2026 includes funding for SANDAG's Regional Habitat Conservation Fund, a component of the TransNet Environmental Mitigation program (EMP) (Work Element 1200300), wherein contracts are awarded to land managers to assist with regional management and monitoring needs to promote regional habitat conservation. The FY 2026 budget also allocates funding to prepare a draft and final long-term regional climate vision called the Climate Action Roadmap (Work Element 3202000). It also allocates funding for climate adaptation planning in the form of regional shoreline management planning (Work Element 3200200) and a cross-border resiliency plan (Work Element 3402101).

Regional Climate Action Planning Framework (ReCAP)
Nearly all of the San Diego region's 19 local jurisdictions have adopted a CAP or are in the process of developing one (see Table 4.8-5 for a list of all adopted and in-progress CAPs in the region). Local agency staff members and elected officials communicated that ongoing efforts to adopt, update, and monitor the implementation of CAPs would benefit from regionally consistent approaches, methodologies, and data sources. In response, SANDAG collaborated with local agency staff and leading climate planning experts to prepare the ReCAP, which identifies best

practices and guidance for preparing CAPs and monitoring implementation over time. In 2018, the ReCAP established a technical framework consistent with state goals and policies while preserving local policy flexibility for the unique needs and circumstances of each local jurisdiction. SANDAG, in coordination with many local jurisdictions, prepared local CAP monitoring reports called ReCAP snapshots for the monitoring years 2018, 2020, and 2022.

Climate Action Data Portal

The Climate Action Data Portal is an online resource for climate planning data for the San Diego region. The portal is an online resource for climate planning data for the San Diego region. It includes annual miles of bike lanes, gas and electricity usage, and other GHG data. The portal also provides online access to local jurisdiction ReCAP Snapshots (SANDAG 2025c).

Energy Roadmaps and Energy Engineering Services

From 2010 to 2020, SANDAG had a Local Government Partnership (LGP) with SDG&E. The SANDAG LGP was one of five in the region and established the SANDAG Energy Roadmap Program. Initially, the Roadmap Program focused on providing no-cost energy engineering technical support to SANDAG member agencies' municipal operations and in the community. In 2016, SANDAG expanded the technical support to include climate action planning, leveraging LGP funding in conjunction with other resources to ensure delivery of comprehensive climate planning services. In addition, SANDAG coordinated with SDG&E, the County of San Diego, the Port of San Diego, and the cities of San Diego and Chula Vista on regional energy efficiency and climate programs through the San Diego Regional Energy Partnership and establishment of the San Diego Regional Climate Collaborative.

The SANDAG Regional Energy Strategy (RES), which serves as the energy policy blueprint for the San Diego region through 2050, prioritizes use of the SANDAG-SDG&E Local Government Partnership to implement the RES at the local level (SANDAG 2014).

Environmental Mitigation Program

Using revenues from the half-cent sales tax for local projects created under the TransNet program, SANDAG purchases, conserves, and restores native habitat to offset potential impacts from the development of transportation projects. It provides large-scale acquisition and management of critical habitat areas and creates a reliable approach for funding required mitigation for future transportation improvements. It goes beyond traditional mitigation for transportation projects by allocating funding for habitat acquisition, management, and monitoring activities, as needed, to help implement the Multiple Species Conservation Program and the Multiple Habitat Conservation Program. The program has supported nearly 100 grants to local organizations and jurisdictions for land acquisition and land management efforts, such as invasive species removal. The program also provides funds for the regional management and monitoring of natural habitats and sensitive species. The lands conserved and restored under this program retain carbon stored in soils and vegetation on the region's natural lands and contribute to removal of emissions from the atmosphere. In FY 2024 (the most recent year for which actual allocations are available), the TransNet Environmental Mitigation Program (EMP) awarded $7.3 million through a competitive grant program to support land management throughout the region and anticipates a FY 2026 budget of approximately $6.3 million (SANDAG 2025d).

Proposed Mitigation Measures to Address the Significant GHG Emissions Impact of the Proposed Plan

The following mitigation measures would help reduce regional GHG emissions by reducing VMT, increasing use of zero-emission fuels, and other measures; they would reduce inconsistency of the proposed Plan's GHG emissions with the state's ability to achieve the SB 32 and AB 1279 GHG reduction goals. However, full implementation of the changes required to achieve these goals is beyond SANDAG's and local agencies' current jurisdiction and authority. Program level mitigation measures have not been quantified as their effectiveness would be determined by the specific nature, scale, and timing of funded projects. Project level mitigation measures have similarly not been quantified as the reductions achieved from implementation of these measures are contingent upon action taken by local decision makers not within SANDAG's purview. As discussed in further detail in Sections 4.3, Air Quality, 4.16, Transportation, and Section 4.18, Water Quality, the following mitigation measures would also reduce emissions of GHGs by decreasing overall pollutant emissions from equipment, vehicles, and water consumption.

- AQ-3b. *Reduce Diesel Emissions During Construction From Off-Road Equipment.*
- AQ-3c. *Reduce Diesel Emissions During Construction From On-Road Vehicles.*
- TRA-2. *Achieve Further VMT Reductions for Transportation and Development Projects.*
- WS-1a. *Implement Water Conservation Measures for Transportation Network Improvements.*
- WS-1b. *Implement Water Conservation Measures for Development Projects.*

Program Level Mitigation

The following measures summarize programs that SANDAG has committed to fund and oversee to reduce emissions in the proposed Plan area. These measures require direct oversight by SANDAG and are within SANDAG's authority to implement.

GHG-4a Allocate Grant Funding to Projects that Reduce GHG Emissions

SANDAG shall implement a grant program(s) that allocate(s) funding to underfunded GHG-reducing projects that implement the stated strategies or measures in local jurisdiction CAPs or GHG reduction plans. Examples of such projects to reduce GHG emissions include activities at the local level that reduce VMT such as transit-oriented development (TOD) projects, microtransit shuttles, neighborhood electric vehicle (NEVs), bikeways, and walkways.

The grant program(s) shall (1) achieve additional annual GHG emissions reductions during the proposed Plan horizon by implementing projects that would not otherwise occur due to insufficient funding, and/or (2) achieve additional cumulative GHG emissions reductions under the proposed Plan planning horizon by implementing projects ahead of schedule and realizing GHG reductions earlier than they would otherwise occur due to timing of funding availability. Reducing total annual and cumulative GHG emissions under the proposed Plan planning horizon would reduce the proposed Plan's contribution to climate change.

To be eligible for grant funding, local jurisdictions would be required to have a CAP or GHG reduction plan adopted by the agency's elected decision-making body. Any jurisdiction without a local CAP could work with SANDAG's Climate Planning Services for member agencies (mitigation measure GHG-4b) so long as the CAP or GHG reduction plan is completed prior to project implementation being started. Applications should include estimated GHG emissions reductions or other details that estimate the climate benefits from the project, which shall be prepared using established methods or protocols approved by SANDAG. The grant program(s) shall be structured (e.g., using evaluation criteria and/or weighting of evaluation criteria) to prioritize the allocation of funds to projects based on the amount of measurable progress towards achieving the GHG emissions reductions targets identified in that jurisdiction's adopted CAP or GHG reduction plan.

To implement this measure SANDAG shall:

- Continue to require locally adopted CAPs or GHG reduction plans as prerequisites to be eligible for grant funding in future cycles of the TransNet Smart Growth Incentive (SGIP) and Active Transportation Grant Programs.
- Document and report to the SANDAG Transportation Committee on the activities funded by this grant program and the estimated GHG emissions reductions on an annual basis once implemented.

GHG-4b Coordination and Support to SANDAG Member Agencies to Adopt, Update, and Monitor GHG Reduction Plans

SANDAG, in coordination with the local air district, shall establish Climate Planning Services for member agencies to facilitate and expedite the adoption, updating, and monitoring of climate action plans (CAPs) or GHG reduction plans, develop GHG-reducing planning policies, and/or support local implementation of GHG-reducing initiatives that align with the San Diego Regional Climate Action Roadmap.

Providing centralized Climate Planning Services through SANDAG will allow local jurisdictions to access technical climate planning experts, which will enhance interregional coordination, facilitate consistent GHG inventories across the region, provide access to the latest climate research, support best practices, standardize GHG reduction

measures across reduction plans, enable regional data collection and performance monitoring, and reduce administrative contract burden.

The Climate Planning Services will enable member agencies to adopt or update GHG reduction plans and GHG-reduction initiatives that would not otherwise occur due to insufficient funding, staff capacity and/or administrative burdens. These efforts will support more effective decision making and help jurisdictions implement GHG-reducing projects under the proposed Plan planning horizon ahead of schedule and realize GHG reductions earlier than they would otherwise occur.

To support monitoring and implementation of local CAPs, GHG reduction plans, and the San Diego Regional Climate Action Roadmap, SANDAG shall coordinate and collaborate with the local jurisdictions within the county to compile, monitor, and share progress on climate action through its publicly available Climate Action Data Portal. The portal will be updated with new data and functions to enable jurisdictions to track progress, identify gaps, and adjust strategies over time in response to evolving conditions. This will accelerate the implementation of GHG-reducing projects.

From 2016-2020, SANDAG had provided similar services to its member agencies. SANDAG would reestablish the program to provide member agencies with no-cost consultant services for climate action planning assistance. This measure will enable local jurisdictions to prepare regionally consistent CAPs and participate in regional CAP monitoring efforts. These centralized services have been requested by SANDAG's members agencies during the development of the Climate Action Roadmap.

To implement this measure SANDAG shall allocate an estimated $10 million over the next 5 years to:

- Host and facilitate Climate Action Taskforce meetings with local governments on a quarterly basis to inform development of the Climate Planning Services procurement and to help guide the timely collection and analysis of climate action data.
- Release a competitive procurement for climate planning services through a Request for Proposal process in FY 2026.
- Enter a four-year contract beginning in FY 2027 with the winning solicitation to allow local jurisdictions access to the firm's or firms' services via a task order at no direct cost to the local jurisdiction.
- Report out on the utilization of the services each year as part of SANDAG's budget monitoring process.
- Collect data on GHG reduction measures on a biannual basis from local jurisdictions in the region and update the SANDAG Data Portal with information for use by federal, state and local governments, researchers, non-profit entities, and the general public.
- Prepare local GHG inventories for member agencies every 4 years after RTP adoptions.

GHG-4c. Allocate Funding for Zero-Emission Vehicle Infrastructure.

Since October 2020, SANDAG has partnered with the San Diego County Air Pollution Control District and the California Energy Commission on the California Electric Vehicle Infrastructure Project (CALeVIP). The San Diego County portion of CALeVIP 1.0 has provided $21.7 million to fund workplace and public charging stations at businesses, multifamily residences, school districts, and local government buildings in the region. This program will end in December 2025 without additional investment.

SANDAG shall continue to allocate funding for one or more programs that offer incentives to support and encourage the purchase and installation of electric vehicle (EV) charging infrastructure, also known as electric vehicle supply equipment (EVSE), within San Diego County. Increased installation of EVSE would facilitate increased use of zero-emission rideshare vehicles, microtransit shuttles, neighborhood electric vehicle (NEV) shuttles, and personal vehicles.

Beginning in FY 2026, SANDAG shall identify programs and projects for which to provide EVSE funding. Programs could include but not be limited to SANDAG's Flex Fleet Program to address the costs for EVSE purchase and installation for projects that choose to use zero-emission vehicles.

The lack of existing EV chargers in some flex fleet pilot service areas, and a lack of funding for EV chargers within existing Flexible Fleet pilots hinders implementation of these pilot projects in the region. SANDAG has identified multiple "charging deserts" in the region that coincide with low-income communities and areas where some flexible fleet pilot projects are being considered. Focus groups with Community-Based Organizations (CBOs) and community members identified the lack of access to EV charging as a top barrier to considering the purchase of an electric vehicle (SANDAG 2024).

To implement this measure SANDAG shall:

- In FY 2026, begin integration of an EV charging component into the Flexible Fleets Pilot Grant Program.
- Identify other regional projects that received CARB Clean Mobility Options (CMO) awards to implement local rideshare projects and identify where EV charging infrastructure can be supplemented to enhance rideshare success.
- In FY 2026, seek partnerships with state and local agencies to collaborate on the next iteration of a regional EV infrastructure incentive program.
- Allocate up to $3 million dollars over the next four years to implement this incentive program.

Project Level Mitigation

The mitigation measures summarized below represent feasible strategies that can be applied to future projects constructed and operated under the proposed Plan.

GHG-4d Implement Measures to Reduce GHG Emissions from Transportation Projects.

During the planning, design, project-level CEQA review, construction, operation, and maintenance of transportation network improvements, SANDAG shall, and transportation project sponsors can and should, implement measures to reduce GHG emissions and achieve zero-net energy, including but not limited to applicable transportation project measures from Chapter 3, "*Measures to Reduce GHG Emissions*" of the California Air Pollution Control Officers Association's (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2024) and the Center for Resource Efficient Communities and the Center for the Built Environment's *Zero-Carbon Buildings in California Feasibility Study* (Center for Resource Efficient Communities and the Center for the Built Environment 2021). These GHG reduction measures include, but are not limited to, the following.

- Implement sustainable construction measures through construction bid specifications, including the following:
  - use energy and fuel-efficient vehicles and equipment and/or use alternative fuel vehicles and equipment, where applicable.
  - use cleaner-fuel equipment
  - limit heavy-duty vehicle idling.
- Use lighter-colored pavement, binding agents that are less GHG-intensive than Portland cement, and less-GHG intensive asphalt pavements.
- Use building materials that are locally sourced and processed (i.e., close to the project site, as opposed to in another state or country)
- Recycle construction and demolition waste.
- Install efficient lighting (including LEDs) for traffic, street, and other outdoor lighting.
- Install Energy Star (or equivalent) cool roofing systems on all buildings.
- Design project site to include areas where motor vehicles are prohibited, such as paseos, bikeways, etc.
- Contribute to the provision of synchronized traffic signals on roadways affected by the project and as deemed necessary by the local public works department.

- Require commuters to pay for parking on-site.
- Include bus shelters at transit access points where deemed appropriate by local public transit operator in large residential, commercial, and industrial projects.
- Build low stress bicycle networks including bike trails and connections, lanes, parking, and end of trip facilities.
- Subsidize transit service expansion by increasing service hours, decreasing fares, and adding additional transit fleets.
- Provide transit-enhancing infrastructure that includes bus turnouts or bulbs, passenger benches, street lighting, route signs and displays, and shelters as demand and service routes warrant, subject to review and approval by local transportation planning agencies.
- Provide preferential parking spaces for carpool and vanpool vehicles, implement parking fees for single-occupancy vehicle commuters, and implement parking cash-out program for employees.
- Contribute to traffic-flow improvements (e.g., right-of-way, capital improvements) that reduce traffic congestion and do not substantially increase roadway capacity.
- Provide pedestrian-enhancing infrastructure that includes sidewalks and pedestrian paths, direct pedestrian connections, street trees to shade sidewalks, pedestrian safety designs and infrastructure, street furniture and artwork, street lighting, pedestrian signalization and signage, and/or access between bus service and major transportation points within the project.
- Increase the sidewalk coverage to improve pedestrian access.
- Include neighborhood park(s) or other recreational options, such as trails, within the development to minimize vehicle travel to off-site recreational and/or commercial uses;
- Incorporate infrastructure electrification into project design (e.g., EV charging; charging for electric bikes) above minimum code requirements.
- Measures to plan, design and construct all new, upgraded, and regularly maintained infrastructure which uses electricity shall demonstrate how such infrastructure will achieve zero-net energy using onsite innovative technologies (e.g., photovoltaic system, battery storage, energy efficiency) or offsite solutions.
- Incorporate and increase electric vehicle charging equipment and preferred EV parking spots into projects that include commuter parking areas.
- Provide short-term and long-term bicycle parking near rail stations, transit stops, and freeway access points where there are commuter or rapid bus lines.
- Install park-and-ride lots near transit stops and high occupancy vehicle lanes.
- Include design measures (e.g., curb management strategies) to accommodate flexible fleets.
- Install solar photovoltaic canopies over parking areas.
- Construct buildings to Leadership in Energy and Environmental Design (LEED) certified standards or equivalent standards.
- Design measures to reduce water consumption, such as drought-resistant landscaping, smart irrigation systems, and other measures, including those listed in mitigation measures WS-1a and WS-1b in Section 4.18, "Water Supply."
- Design measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse.
- Increase sidewalk coverage to improve pedestrian access.
- Funding for those measures that SANDAG selects would be included in individual project budgets.

GHG-4e Implement Measures to Reduce GHG Emissions from Development Projects.
During the planning, design, project-level CEQA review, construction, and operation of development projects, the County of San Diego and cities can and should implement measures to reduce GHG emissions and achieve zero-net energy, including but not limited to, applicable land use measures from Chapter 3, "*Measures to Reduce GHG Emissions*" of the California Air Pollution Control Officers Association's (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2024) and the Center for Resource Efficient Communities and the Center for the Built Environment's *Zero-Carbon Buildings in California Feasibility Study* (Center for Resource Efficient Communities and the Center for the Built Environment 2021). These GHG reduction measures include, but are not limited to, the following:

- Measures that reduce VMT by increasing transit use, carpooling, bike-share and car-share programs, and active transportation, including the following:
  - Building or funding a major transit stop within or near development, in coordination with transit agencies.
  - Developing car-sharing and bike-sharing programs.
  - Providing pedestrian network improvements and a comprehensive bicycle network.
  - Providing traffic calming measures.
  - Providing transit incentives, including transit passes for Metropolitan/North County Transit District buses and trolleys.
  - Consistent with the Regional Bike Plan, incorporating bicycle and pedestrian facilities into project designs, maintaining these facilities, and providing amenities incentivizing their use; and planning for and building local bicycle projects that connect with the regional network.
  - Implementing Complete Streets consistent with the SANDAG Regional Complete Streets Policy, including adopting local Complete Streets policies.
  - Implementing Mobility Hubs consistent with the Regional Mobility Hub Strategy.
  - Improving transit access to bus and trolley routes through incentives for constructing transit facilities within developments, and/or providing dedicated shuttle service to trolley and transit stations.
  - Implementing measures to increase transit use through service frequency and affordability as identified through community engagement activities, including but not limited to input from local residents, stakeholders, and Community-Based Organizations.
  - Building low stress bicycle networks including bike trails and connections, lanes, paring, and end of trip facilities.
  - Subsidizing transit service expansion by increasing service hours, decreasing fares, and adding additional transit fleets.
  - Implementing employer trip reduction measures to reduce employee trips and VMT such as vanpool and carpool programs, providing end-of-trip facilities, telecommuting, teleconferencing, and alternative work schedule programs.
  - Incorporating ride hailing and autonomous vehicle innovations.
  - Including design measures (e.g., curb management strategies) to accommodate flexible fleets.
  - Implementing a school bus program in areas currently not served by school buses.
- Measures to plan, design, and build all new, renovated, and upgraded development and infrastructure with electricity demand to achieve zero-net energy using onsite innovative technologies (e.g., photovoltaic system, battery storage, energy efficiency) or offsite solutions.

- Orient buildings to take advantage of solar heating and natural cooling, and use passive solar designs (residential, commercial, and industrial).
- Incorporate mixed uses, where permitted by local development regulations, to achieve a balance of commercial, employment, and housing options on the project site.
- Measures that reduce VMT through Transportation Systems Management (TSM).
- Measures that increase vehicle efficiency or reduce the carbon content of fuels, including constructing EV charging infrastructure, alternative fueling infrastructure, or neighborhood electric vehicle networks or charging infrastructure for electric bicycles consistent with SANDAG's regional readiness planning for alternative fuels.
- Build on a project site within 1/2 mile of a major transit station that includes service from a mode with dedicated right-of-way.
- Include neighborhood park(s) or other recreational options, such as trails, within the development to minimize vehicle travel to off-site recreational and/or commercial uses.
- Measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse.
- Measures to reduce water consumption, including those listed in mitigation measure WS-1a and WS-1b in Section 4.18, *Water Supply*.
- Land use siting and design measures that reduce GHG emissions, including the following:
  - Focus development on infill and brownfields sites.
  - Building high density and mixed-use developments near transit.
  - Developing within areas with high jobs gravity to increase destination accessibility.
  - Orienting development towards transit or an active transport corridor.
- Retaining onsite mature trees and vegetation, and planting new trees. Provide energy-efficient windows (double pane and/or Low-E) and awnings or other shading mechanisms for windows, porches, patios, and walkways.
- Install Energy Star (or equivalent) cool roofing systems on all buildings.
- Include passive solar cooling and heating features in designs, as well as ceiling and whole house fans.
- Include programmable thermostats in the design of heating and cooling systems.
- Use day lighting systems, such as skylights, light shelves, and interior transom windows.
- Provide ancillary services (e.g., cafeterias, health clubs, automatic tellers, and post offices) within walking distance of proposed development (no further than 1,500 feet) as appropriate and in compliance with local development regulations.

SIGNIFICANCE AFTER MITIGATION

2030, 2045, and 2050

Mitigation measures GHG-4a and 4b would reduce total regional GHG emissions in two ways: (1) allocating funding to under-funded GHG reducing projects that implement and monitor local jurisdiction CAPs or GHG reduction plans and (2) allocating funding for local jurisdictions to prepare and update CAPs and GHG reduction plans that keep pace with future longer-term State targets and goals for GHG emissions reductions. Providing funding for these projects and plans would achieve additional annual GHG emissions reductions by implementing projects that would not otherwise occur due to insufficient funding. Reducing total annual and cumulative GHG

emissions under the proposed Plan planning horizon would reduce the proposed Plan's inconsistencies with the state's ability to achieve long-term climate goals.

Mitigation measure GHG-4c would reduce total regional GHG emissions by allocating funding for EV charging infrastructure (e.g., electric vehicle charging equipment and/or hydrogen fueling stations), removing a key barrier to adoption of EVs. Increasing the amount of VMT by zero emissions vehicles under the proposed Plan horizon would reduce the proposed Plan's inconsistencies with the state's ability to achieve long-term climate goals.

Project-level mitigation measure GHG-4d shall be implemented by SANDAG and can and should be implemented by transportation project sponsors to reduce GHG emissions associated with transportation projects. The effectiveness of the actions included in this measure has been demonstrated by CAPCOA and the Center for Resource Efficient Communities and the Center for the Built Environment (CAPCOA 2024, Center for Resource Efficient Communities and the Center for the Built Environment 2021). SANDAG's implementation of this measure during transportation project implementation will reduce total GHG emissions under the proposed Plan. Implementation of this measure by other transportation project sponsors will also reduce total GHG emissions under the proposed Plan; however, SANDAG does not have the authority to require other agencies to implement this measure. It is the responsibility and jurisdiction of the implementing agency to determine and adopt project-specific mitigation measures.

Similarly, project-level mitigation measure GHG-4e can and should be implemented by the County of San Diego and cities with the SANDAG region to reduce GHG emissions from development projects that implement the proposed Plan. The effectiveness of the actions included in this measure has been demonstrated by CAPCOA and the Center for Resource Efficient Communities and the Center for the Built Environment (CAPCOA 2024, Center for Resource Efficient Communities and the Center for the Built Environment 2021). Implementation of this measure by the County of San Diego and cities will also reduce total GHG emissions under the proposed Plan, however, SANDAG does not have the authority to require other agencies to implement this measure. It is the responsibility and jurisdiction of the implementing agency to determine and adopt project-specific mitigation measures.

Implementation of mitigation measures GHG-4a through GHG-4e, as well as mitigation measures AQ-3b, AQ-3c, TRA-2, WS-1a, and WS-1b, would substantially lessen the amount of proposed Plan GHG emissions in 2030 and 2050. These mitigation measures would achieve GHG emissions reductions within the SANDAG region. However, even full implementation of all identified mitigation measures would not be sufficient to reduce the proposed Plan's GHG emissions to below the regional 2030 and 2045 reference points based on SB 32 and AB 1279 targets.

As described in the introduction to mitigation section, the 2022 Scoping Plan traces the state's pathway to achieve its goals of carbon neutrality and an 85% reduction in anthropogenic emissions by 2045 relative to 1990 levels, as codified by AB 1279 in September 2022. The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile-source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals. The 2022 Scoping Plan details a multitude of strategies for reducing GHG emissions in each of these sectors. Available research and reports indicate that achieving statewide GHG reduction goals will require major shifts or even fundamental transformations in the economic, social, technological, and political fabric of life in California and beyond, including the development of new technologies, large-scale deployment of new and existing technologies, the roles of local, State, and the federal government in regulating economic activities, and personal behaviors that affect GHG emissions. Achieving carbon neutrality no later than 2045 would require the decarbonization of the state's electrical sector, decarbonization of existing buildings and new construction, electrification of the entire transportation sector, investments in healthy soils, sustainable solid waste and wastewater management, and carbon dioxide removal strategies, such as land-based carbon sequestration and direct air capture of CO_2. The required GHG reductions from the aforementioned sectors will be achieved through a coordinated effort by, at minimum, State, regional, and local agencies, organizations, and stakeholders, and is well beyond the scope and jurisdiction of SANDAG alone.

While Mitigation Measures GHG-4a through GHG-4e, as well as mitigation measures AQ-3b, AQ-3c, TRA-2, WS-1a, and WS-1b would reduce GHG emissions throughout the Plan area, the actual reductions achieved are uncertain at this time. If SANDAG and the implementing agencies other than SANDAG adopt those mitigation

measures (i.e., Mitigation Measures GHG-4d and GHG-4e), Impact GHG-4 may be reduced, but not to a less-than-significant level. However, SANDAG cannot require implementing agencies other than SANDAG to adopt mitigation measures where SANDAG is not the lead agency, and it is ultimately the responsibility and jurisdiction of the implementing agency to determine and adopt project-specific mitigation. Because the proposed Plan's 2030,and 2045 GHG emissions would remain inconsistent with the State's ability to achieve its 2030, and 2045 GHG reduction goals, Impact GHG-4 is significant and unavoidable. These impacts would persist through 2050.

4.8.5 Cumulative Impacts Analysis

C-GHG-1 MAKE A CUMULATIVELY CONTRIBUTION TO ADVERSE EFFECTS RELATED TO GHG EMISSIONS

Climate change is a global problem and GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Thus, the area of geographic consideration for cumulative impacts of GHG emissions is global. From the standpoint of CEQA, GHG impacts related to climate change are inherently cumulative on a statewide level. Nevertheless, this analysis discloses the proposed Plan's GHG emissions in the context of State and global GHG emissions.

The projection approach to GHGs considers forecasted GHG emissions on a global scale, which is a significant cumulative impact, as well as a state and local-level analysis of GHGs. In the SANDAG region, the transportation sector is the largest contributor of GHG emissions. Thus, this analysis takes into consideration the cumulative GHG impacts resulting from the overall future transportation improvements, future increases in population, and planned regional development tied to the proposed Plan. From the standpoint of CEQA, GHG impacts to climate change are inherently cumulative on a statewide level. Significant cumulative impacts would occur if the proposed Plan were to directly or indirectly result in an increase in GHG emissions compared to existing project conditions; conflict with SB 375 GHG emission reduction targets for 2035, Local Climate Action Plans; or be inconsistent with the state's ability to achieve the 2030 reduction target of SB 32 and long-term 2045 reduction goals of AB 1279. This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan, the 2022 GHG Inventory and Projections for the San Diego Region, SB 375, and the CARB 2022 Scoping Plan.

Impacts of the Proposed Plan

The proposed Plan's regional growth and land use change and transportation network improvements would create additional sources of GHG emissions. The proposed Plan supports sustainable growth through creating a compact development pattern with growth focused in existing urban areas where transit and infrastructure are already in place. Locating people and jobs near each other and near transit encourages use of transit, carpooling, and active transportation options, thereby reducing transportation-related GHG emissions. Additionally, the proposed Plan encourages GHG emissions reductions through alternative transit improvements including pedestrian network improvements, safe routes to schools strategies, bicycle network facilities, vanpools, carpools, and buspools. GHG emissions in 2035 and 2050 would be lower than in 2022. Because the proposed Plan would not directly or indirectly result in an increase in GHG emissions compared to existing conditions, this is a less than significant impact in all forecasted years.

As detailed above, the proposed Plan was specifically designed to reduce regional VMT and was prepared pursuant to SB 375. Compliance with the reduction goals of SB 375 is identified in the 2022 Scoping Plan as a necessary component to achieving the short-term goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 as mandated by SB 32. The proposed Plan would not conflict with SB 375 emission reduction targets because it would result in reductions of per capita CO_2 emissions that exceed the 19% target set by CARB. In addition, implementation of regional growth and land use change and transportation network improvements and programs under the proposed Plan would not conflict with or impede the implementation of adopted CAPs, GHG reduction plans, and/or sustainability plans for 2035 and 2050 (Impacts GHG-2 and GHG-3). However, because total GHG emissions in the San Diego region in 2030 would exceed the 2030 regional GHG reduction reference point of 15.6 $MMTCO_2e$, which is based on the SB 32 target for 2030, the proposed Plan's GHG emissions would be inconsistent with state's ability to achieve the goals of SB 32 and these impacts would be significant in 2030. In addition, because total regional GHG emissions in 2045 would exceed the 2045 reference

point of 3.9 $MMTCO_2e$, the proposed Plan's GHG emissions in 2045 would be inconsistent with the state's ability to achieve the goals of AB 1279 detailed in the 2022 Scoping Plan. Therefore, this impact would be significant in 2030 and 2045 (Impact GHG-4).

Impacts of Projections in Adopted Plans

The 2022 Scoping Plan outlines the primary strategies California has committed to implementing to achieve the legislated GHG emission target for 2030 and chart a pathway toward the state's 2045 climate goals. The 2022 Scoping Plan identifies the reductions needed by each GHG emission sector including transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste. The Scoping Plan identifies that planning on a longer time frame to achieve the goals of AB 1279 requires accelerated reductions by 2030 to be on track to achieve AB 1279's 2045 target.

In the *2022 Progress Report California's Sustainable Communities and Climate Protection Act*, CARB states that an RTP/SCS that meets the applicable SB 375 targets alone will not result in the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2045 (CARB 2022b). Collectively, CARB determined that if the state's 18 MPOs' all met the SB 375 GHG emission reduction targets set by CARB in 2018, a 19% reduction in per capita VMT would be achieved by 2035. In the target setting report, CARB expressed that to meet the statewide reduction goals set forth by SB 32, the state would need to reduce per capita GHG emissions by 25% by 2035, resulting in a 6% gap between the 19% emissions reductions targets set for the regions (averaged for the 18 MPOs and compared to a baseline year of 2005). Thus, even if all MPOs in the state were to meet their legislatively mandated SB 375 GHG emissions reduction targets a 6% gap compared to the state's 25% reduction need would remain.

The 2022 Scoping Plan identifies that the necessary reductions to close gap between projected statewide GHG reductions and the targets outlined in SB 32 and AB 1279 may be achieved through modifications to the state's Cap-and-Trade program. However, such an expansion of that program is speculative at the time of writing this Draft EIR.

Locally, GHG emissions projections and reduction are addressed in various plans and policies, including local jurisdictions' individual Climate Action Plans. However, while the state is currently on target for achieving GHG emission reductions compared to existing conditions, as described above, the 2022 Scoping Plan identifies that greater statewide GHG reductions are needed to achieve the accelerated 2030 target in order to put the state on track to achieve carbon neutrality no later than 2045 and negative emissions thereafter, and an 85% reduction in 1990 emissions level by 2045.

Cumulative Impacts and Impact Conclusions

2030 and 2035

As shown in Impact GHG-1, implementation of the proposed Plan in 2035 in combination with reductions attributable to statewide legislative reductions would decrease GHG emissions from 2022 levels. Moreover, the proposed Plan would not conflict with SB 375 emission reduction targets for 2035 because it would result in a 19.3% reduction in per capita CO_2 emissions from passenger cars and light duty trucks from 2005 levels by 2035, which is greater than the 2035 target of a 19% reduction for the SANDAG.

As shown in Impact GHG-4, total emissions in the San Diego region in 2030 exceed the regional 2030 GHG reduction reference point based on SB 32 and thus the proposed Plan's 2030 GHG emissions would be inconsistent with state's ability to achieve the SB 32 GHG reduction target of 40% below 1990 emissions by 2030. This would be a significant impact.

Because cumulative GHG impacts on a global basis would be significant when considering statewide and global emissions, and because the proposed Plan's incremental GHG impacts are significant, the proposed Plan's incremental GHG impacts in 2030 would also be cumulatively considerable.

2045 and 2050

As shown in Impact GHG-4, total emissions in the San Diego region in 2045 exceed the regional 2045 GHG reduction reference point based on AB 1279 and thus the proposed Plan's 2045 GHG emissions would be

inconsistent with state's ability to achieve the AB 1279 GHG reduction goal of an 85% reduction in 1990 anthropogenic emissions by 2045. This would persist through 2050. This would be a significant impact.

Because cumulative GHG impacts on a global basis would be significant when considering statewide and global emissions, and because the proposed Plan's incremental GHG impacts are significant, the proposed Plan's incremental GHG impacts in 2045 and 2050 would also be cumulatively considerable.

MITIGATION MEASURES

C-GHG-1 MAKE A CUMULATIVELY CONSIDERABLE CONTRIBUTION TO ADVERSE EFFECTS RELATED TO GHG EMISSIONS

Implementation of Mitigation Measures GHG-4a through GHG-4e would reduce direct and indirect GHG emissions associated with the proposed Plan. These mitigation measures include actions such as competitive grant funding for GHG-reducing projects, allocation of additional funding for electric vehicle-charging infrastructure and incentives, and measures to reduce GHG emissions from transportation and development projects. Additional mitigation measures that would reduce GHG emissions are presented in the air quality, energy, and water supply sections.

While Mitigation Measures GHG-4a through GHG-4e, as well as mitigation measures AQ-3b, AQ-3c, TRA-2, WS-1a, and WS-1b would reduce GHG emissions throughout the Plan area, the actual reductions achieved are uncertain at this time. If SANDAG and the implementing agencies other than SANDAG adopt those mitigation measures (i.e., Mitigation Measures GHG-4d and GHG-4e), Impact GHG-4 may be reduced, but not to a less-than-significant level. However, SANDAG cannot require the implementing agencies other than SANDAG to adopt mitigation measures where SANDAG is not the lead agency, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation.

As described above, even full implementation of all identified mitigation measures would not be sufficient to reduce the proposed Plan's GHG emissions below the regional 2030 and 2045 GHG reduction reference points based on SB 32 and AB 1279. Mitigation measures GHG-4a through GHG-4e would reduce regional GHG emissions by reducing VMT, increasing use of alternative fuels, and other measures; they would reduce inconsistency of the proposed Plan's GHG emissions with the state's ability to achieve the SB 32 and AB 1279 GHG reduction goals. However, full implementation of changes required to achieve the SB 32 and AB 1279 goals is beyond SANDAG's or local agencies' current ability to implement. Because the proposed Plan's 2030 and 2045 GHG emissions would remain inconsistent with the state's current ability to achieve the state's GHG reduction goals, and these impacts would persist until through 2050, this impact remains cumulatively considerable post-mitigation.

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