

3.8 GREENHOUSE GAS EMISSIONS

This section evaluates the potential greenhouse gas (GHG) emission impacts associated with the adoption and implementation of the proposed Project. This section describes the regulatory framework and existing conditions; identifies criteria used to determine impact significance; provides an analysis of the potential GHG emission impacts; and identifies proposed General Plan 2045 goals and policies that would minimize potentially significant impacts.

As detailed in Chapter 3, *Environmental Analysis*, no concerns related to GHG emission impacts of the proposed Project were received during the EIR scoping period.

Terminology

The following terminology is used throughout this section:

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO₂) over a given period (e.g., 20, 100, and 500 years). CO₂ has a GWP of 1.
- **Carbon dioxide-equivalent (CO₂e).** The standard unit to measure the amount of GHGs in terms of the amount of CO₂ that would cause the same amount of warming. CO₂e is based on the GWP ratios between the various GHGs relative to CO₂.
- **MTCO₂e.** Metric ton of CO₂e.
- **MMTCO₂e.** Million metric tons of CO₂e.

3.8.1 Regulatory Framework

FEDERAL

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

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To regulate GHGs from passenger vehicles, USEPA was required to issue an endangerment finding (USEPA 2025a). The finding identified emissions of six key GHGs—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project’s GHG emissions inventory because they constitute the majority of GHG emissions and, according to guidance by the Bay Area Air District (Air District), are the GHG emissions that should be evaluated as part of a project’s GHG emissions inventory. However, in response to President Trump’s “Unleashing American Energy” Executive Order (EO), published on January 20, 2025, the USEPA announced its intention to reconsider regulations and actions that rely on the Endangerment Finding on March 12, 2025 (Holland & Knight 2025).

The March 12 announcement specifically targets the following, which impact GHG emissions:

- Advanced Clean Trucks (ACT) Plan
- Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards
- Multi-Pollutant Emissions Standards for Model Year 2027 and Later Light- and Medium-Duty Vehicles
- Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3
- Corporate Average Fuel Economy (CAFE) Standards

Mandatory Reporting Rule for GHGs

In response to the endangerment finding, the USEPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (e.g., large stationary sources) to report GHG emissions data. Facilities that emit 25,000 metric tons (MT) or more of CO₂e per year are required to submit an annual report. However, under the USEPA’s Proposed Reconsideration of the Greenhouse Gas Reporting Program, the USEPA would rescind reporting requirements for a substantial portion of the Greenhouse Gas Reporting Program (GHGRP) (covering most source categories) and would suspend reporting obligations for the remaining sectors (those under Subpart W of the GHGRP) until reporting year 2034 (Holland & Knight 2025).

Federal Fuel Economy and Fuel Standards

Update to Corporate Average Fuel Economy Standards

The federal government issued new CAFE standards in 2012 for vehicle model years 2017 to 2025, requiring a fleet average of 54.5 miles per gallon (mpg) in 2025. However, on March 30, 2020, the USEPA finalized updated CAFE and GHG emissions standards for passenger cars and light trucks, covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 to 2026. On June 7, 2024, the National

Highway Traffic Safety Administration (NHTSA) announced final CAFE standards for passenger cars and light trucks built in model years 2027-2031 and final fuel-efficiency standards for heavy-duty pickup trucks and vans built in model years 2030-2035. The final rules establish standards that would require an industry fleet-wide average of approximately 50.4 mpg for passenger cars and light trucks in model year 2031, by increasing fuel economy by 2 percent year over year for passenger cars (model years 2027-2031) and for light trucks (model years 2029-2031). For heavy-duty pickup trucks and vans, the final rule would increase fuel efficiency at a rate of 10 percent per year (model years 2030-2032) and 8 percent per year (model years 2033-2035) (NHTSA 2024).

Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles

In 2024, the USEPA issued a final rule, “Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles,” that sets new, more protective standards to reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027 (USEPA 2025b).

2025 Rollback of CAFE and Federal Fuel Standards

While both the new CAFE standards and fuel standard are currently in effect, the Trump Administration directed the Department of Transportation to rescind and replace all existing CAFE standards and emissions standards on January 29, 2025. This action targeted regulations covering model year 2024 through 2035 for both light-duty and heavy-duty vehicles.

On June 6, 2025, the NHTSA published an interpretive rule that establishes the NHTSA’s authority to revise the CAFE standards without consideration of electric vehicles (EVs). California currently has no authority to implement these standards.

On June 11, 2025, the NHTSA published the final rule, “Resetting the Corporate Average Fuel Economy Program.” This rule does not immediately change current fuel economy standards; however, the rule clarifies the NHTSA’s interpretation of its obligations for CAFE standards stemming from the Energy Policy and Conservation Act of 1975 and the Energy Independence and Security Act of 2007. The rule asserts that some regulations, such as those established under previous presidential administrations, improperly considered EVs when identifying the “maximum feasibility” average fuel economy level upon which CAFE standards are developed, thereby establishing a legal foundation for future rollbacks of CAFE standards (NHTSA 2025).

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STATE

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05, EO B-30-15, EO B-55-18, Assembly Bill (AB) 32, AB 1279, Senate Bill (SB) 32, and SB 375.

Executive Order S-03-05

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

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

Assembly Bill 32, the Global Warming Solutions Act

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

Senate Bill 375

Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans (RTP), and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligning planning for transportation and housing, and creating specified incentives for the implementation of the strategies. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). The Metropolitan Transportation Commission (MTC) is the MPO for the Bay Area region, which includes Alameda, Contra Costa, Napa, Marin, San Francisco, Santa Clara, Solano, Sonoma, and San Mateo Counties.

SB 375 Regional Targets

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per-capita reduction targets for each of the MPOs rather than a total magnitude reduction target. CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology, and then released another update in February 2018, which became effective in October 2018 (CARB 2018). All sustainable community strategies (SCS) adopted after October 1, 2018, are subject to these new targets. The SB 375 targets are in units of percent per-capita reduction in GHG emissions from

automobiles and light trucks compared to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per-capita GHG emission reductions from SB 375 than are currently in place, which for 2035 translates into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. CARB staff began the target update process in 2024 with a public workshop and plans to conclude it in 2026 with Board approval of the new targets (CARB 2025c).

Senate Bill 32 and Assembly Bill 197

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

Executive Order B-55-18

EO B-55-18, signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” EO B-55-18 directs CARB to work with relevant State agencies to ensure future scoping plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other State goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO₂e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

2022 Climate Change Scoping Plan

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

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The path forward was informed by the Intergovernmental Panel on Climate Change’s (IPCC) Sixth Assessment Report (AR6); the measures would achieve 85 percent below 1990 levels by 2045 in accordance with AB 1279. CARB’s 2022 Scoping Plan identifies strategies, as shown in Table 3.8-1, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State’s carbon neutrality goals.

Table 3.8-1 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
Transportation Electrification	<ul style="list-style-type: none"> ▪ Convert local government fleets to zero-emission vehicles (ZEV) and provide EV charging at public sites. ▪ Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans).
VMT Reduction	<ul style="list-style-type: none"> ▪ Reduce or eliminate minimum parking standards. ▪ Implement Complete Streets policies and investments, consistent with general plan circulation element requirements. ▪ Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc. ▪ Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking ▪ Implement parking pricing or transportation demand management pricing strategies. ▪ Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood). ▪ Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert “greenfield” land to urban uses (e.g., green belts, strategic conservation easements)
Building Decarbonization	<ul style="list-style-type: none"> ▪ Adopt all-electric new construction reach codes for residential and commercial uses. ▪ Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers). ▪ Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances.

Table 3.8-1 Priority Strategies for Local Government Climate Action Plans

Priority Area	Priority Strategies
	<ul style="list-style-type: none"> ▪ Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing). ▪ Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings).

Source: CARB 2022.

Based on Appendix D of the 2022 Scoping Plan, for residential and mixed-use development projects, CARB recommends first demonstrating that these land use development projects are aligned with State climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing (CARB 2022). Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

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

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

If the first approach to demonstrating consistency is not applicable, the second approach to project-level alignment with state climate goals is to achieve net-zero GHG emissions. The third approach to demonstrating project-level alignment with state climate goals is to align with GHG thresholds of significance, which many local air quality management districts (AQMDs) and air pollution control districts (APCDs) have developed or adopted.

Assembly Bill 1279

AB 1279, signed by Governor Newsom in September 2022, codifies the carbon neutrality targets of EO B-55-18 for year 2045 and sets a new legislative target for year 2045 of 85 percent below 1990 levels for human-caused GHG emissions. CARB was required to update the Scoping Plan to identify and recommend measures to achieve the net-zero and GHG emissions-reduction goals.

Additional GHG Sector-Specific Regulations

Table 3.8-2, *GHG Sector-Specific Regulations*, lists specific sector regulations that help reduce GHG emissions.

Table 3.8-2 GHG Sector-Specific Regulations

Sector	Regulations
Transportation	AB 1493, EO S-01-07, EO B-16-2012, EO N-79-20
Renewables Portfolio: Carbon Neutrality Regulations	SB 1078, SB 107, SB X1-2, EO S-14-08, SB 350, SB 100, SB 1020
Energy Efficiency	California Building Code: Building Energy Efficiency Standards, California Building Code: CALGreen, 2006 Appliance Efficiency Regulations
Solid Waste Diversion	AB 939, AB 341, AB 1327, AB 1826
Water Efficiency	SBX7-7, AB 1881
Short-Lived Climate Pollution Reduction Strategy	SB 1383

Source: Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

REGIONAL

Plan Bay Area 2050

The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area 2050 on October 21, 2021 (ABAG and MTC 2021). Plan Bay Area 2050 overall provides transportation and environmental strategies to continue to

meet the regional transportation-related GHG reduction goals of SB 375. Under the Plan Bay Area 2050 strategies, just under half of all Bay Area households would live within one half mile of frequent transit by 2050, with this share increasing to over 70 percent for households with low incomes. Transportation and environmental strategies that support active and shared modes, combined with a transit-supportive land use pattern, are forecasted to lower the share of Bay Area residents that drive to work alone from over 50 percent in 2015 to 36 percent in 2050. GHG emissions from transportation would decrease significantly because of these transportation and land use changes, and the Bay Area would meet the State mandate of a 19-percent reduction in per-capita emissions by 2035 — but only if all strategies are implemented.

The Plan Bay Area land use concept plan for the region concentrates the majority of new population and employment growth in the region in Priority Development Areas (PDAs). PDAs are transit-oriented, infill development opportunity areas within existing communities. An overarching goal of the regional plan is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth to outlying areas where substantial transportation investments would be necessary to achieve the per-capita passenger vehicle, VMT, and associated GHG emissions reductions.

Plan Bay Area 2050 is currently undergoing an update, which is called Plan Bay Area 2050+. Plan Bay Area 2050+ contains 35 strategies representing public policies and investments that can be implemented in the Bay Area by 2050 to help the region build more homes, reduce commute times, and create vibrant downtowns and natural areas for everyone to enjoy. The strategies in Plan Bay Area 2050+ also aim to keep people safe from natural hazards, support a strong economy, and provide stable housing for those who need it most. Unique to the Plan Bay Area 2050+ cycle is the parallel Transit 2050+ planning effort, which culminated in the first-of-its-kind plan to re-envision the future of Bay Area public transit, in partnership with transit operators across the region. While not in effect at the time of this Draft EIR, it is anticipated that the Plan Bay Area 2050+ will be in effect over the course of the General Plan 2045 horizon.

Bay Area Air District Plans and Policies

2017 Clean Air Plan

The Air District adopted the 2017 Clean Air Plan, Spare the Air, Cool the Climate (2017 Clean Air Plan) on April 19, 2017 (Air District 2017). The 2017 Clean Air Plan also lays the groundwork for reducing GHG emissions in the Bay Area to meet the State’s 2030 GHG reduction target and 2050 GHG reduction goal. It includes a vision for the Bay Area in a post-carbon year 2050 that encompasses the following:

- Construct buildings that are energy efficient and powered by renewable energy.
- Walk, bicycle, and use public transit for the majority of trips and use electric-powered autonomous public transit fleets.

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- Incubate and produce clean energy technologies.
- Live a low-carbon lifestyle by purchasing low-carbon foods and goods in addition to recycling and putting organic waste to productive use.

A comprehensive multipollutant control strategy has been developed to be implemented in the next three to five years to address public health and climate change and to set a pathway to achieve the 2050 vision. The control strategy includes 85 control measures to reduce ozone emissions, particulate matter, toxic air contaminants, and GHG from a full range of emission sources. These control measures cover the following sectors: (1) stationary (industrial) sources; (2) transportation; (3) energy; (4) agriculture; (5) natural and working lands; (6) waste management; (7) water; and (8) super-GHG pollutants. Overall, the proposed control strategy is based on the following key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of “super-GHGs,” such as methane, black carbon, and fluorinated gases.
- Decrease demand for fossil fuels (i.e., gasoline, diesel, and natural gas).
 - Increase efficiency of the energy and transportation systems.
 - Reduce demand for vehicle travel and high-carbon goods and services.
- Decarbonize the energy system.
 - Make the electricity supply carbon-free.
 - Electrify the transportation and building sectors.

Bay Area Commuter Benefits Program

Under Air District Regulation 14, Rule 1, *Bay Area Commuter Benefits Program*, employers with 50 or more full-time employees within the Bay Area are required to register and offer commuter benefits to employees. In partnership with the Air District and MTC, the rule’s purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area’s traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit options, including a pre-tax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

Alameda County Transportation Authority Congestion Management Plan

The Alameda County Transportation Commission (CTC) is responsible for developing, updating, and implementing the county’s Congestion Management Program (CMP). The CMP is a short-range plan that includes a variety of congestion and travel-demand element strategies, programs, and projects that support the larger Countywide Transportation Plan (CTP). CMPs are required to be developed in collaboration with relevant local and regional agency partners and must be updated every other year. The 2025 CMP updates references to policies in plans that

have been adopted since the 2023 CMP and contains the following components: contributes to maintaining or improving transportation system service levels and estimate roadway level of service, conforms to MTC's criteria for consistency with Plan Bay Area, provides a travel mode consistent with MTC's regional model and adopted Transportation Control Measures, identifies candidate projects for the Regional Transportation Improvement Program, considers transportation needs of future land use and benefits of GHG reductions (Alameda CTC 2025).

LOCAL

Livermore Municipal Code

The Livermore Municipal Code (LMC) includes various directives pertaining to GHG emissions. The code is organized by title, chapter, section, and, in some cases, articles. Most provisions related to GHG impacts are in Title 2, *Administration and Personnel*; Title 8, *Health and Safety*; Title 13, *Public Services*; and Title 15, *Building and Construction*, as follows:

- **Chapter 2.68, *Contracts and Purchasing***, requires administrative regulations to incorporate the City's environmentally preferable purchasing and practices policy for environmental considerations, including recycled content and recovered organic waste product use into purchasing practices and procedures.
- **Chapter 8.08, *Solid Waste Management***, focuses on preventing public nuisance and health hazards through effective management of solid waste. It highlights the importance of a collection program for recyclable and compostable materials to achieve diversion goals, addressing solid waste collection, disposal, and the processing of recyclable and compostable materials.
- **Chapter 13.25, *Water Efficient Landscape***, enacted under the State Model Water Efficient Landscape Ordinance, is a "water efficient landscape ordinance" adopted to establish standards for designing, installing, and maintaining water-efficient landscapes that avoid runoff and other water waste in landscape projects.
- **Chapter 13.45, *Stormwater Management and Control Program***, discusses stormwater discharge, inspection, and violations.
- **Chapter 15.26, Section 15.26.070, *GSBC Section 4.106.4 amended – Electric vehicle (EV)***, requires new residential construction to include EV charging infrastructure consistent with the mandatory measures of the California Green Building Standards Code (CALGreen).
- **Chapter 15.26, Section 15.26.220, *GSBC Section 5.106.5.3 amended – Electric vehicle (EV) charging***, requires new nonresidential construction to include EV charging infrastructure consistent with the mandatory measures of CALGreen.
- **Chapter 15.26, Section 15.26.280, *GSBC Section 5.106.13.1 added – New construction***, requires new construction to be designed all-electric but provides exemptions for commercial cooking uses where no electric alternative is available, clothes drying equipment for hotels and motels with 80 or more units, and laboratories.

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Livermore Climate Action Plan

The City's 2022 Climate Action Plan (2022 CAP), adopted on November 28, 2022, identifies a series of communitywide strategies to reduce GHG emissions and adapt to extreme weather (City of Livermore 2022b). Strategies established in the 2022 CAP include dedicating resources for identified climate protection actions, electrifying buildings and transportation, promoting renewable electricity generation, improving organic waste diversion from landfills, improving carbon sequestration efforts, investing in complete neighborhoods to promote active transportation modes, incentivizing investment in green and innovative businesses, and educating and working with the community.

The 2022 CAP established per-capita GHG emission-reduction targets aimed to reduce GHG emissions by 40 percent below 1990 levels by 2030 per SB 32 and achieve carbon neutrality by 2045. Various strategies from the 2022 CAP help improve GHG emissions by promoting building electrification and energy efficiency, expanding renewable and low-carbon energy use, supporting reduction in VMT and EVs, and increasing waste diversion and organics recycling.

The City produces annual progress reports to identify the implementation and funding sources for the strategies identified in the 2022 CAP. The 2024 Progress Report shows that the City has implemented, and is continuing to implement, the majority of its short-term strategies (City of Livermore 2024).

Livermore Climate Change Vulnerability Assessment

In 2020, the City of Livermore conducted a Climate Change Vulnerability Analysis (Vulnerability Analysis or CCVA) as part of the City's 2022 CAP (City of Livermore 2020). This Vulnerability Analysis was intended to help develop an understanding of the primary impacts of climate change on Livermore and the degree to which physical, socioeconomic, and natural factors are susceptible to, or unable to accommodate, the effects of climate change. The Vulnerability Analysis considered community exposure to changes in temperature, precipitation, and wildfire; sensitivity of community structures, community functions, and populations; potential impacts of each hazard on community structures, functions, and populations; Livermore's ability to adapt to climate change impacts; and the likelihood and projected timing of hazard exposure. The Vulnerability Analysis concluded that:

- Maximum and minimum temperatures are expected to increase.
- Precipitation variability is expected to increase.
- Intense rainstorms and changes in seasonal patterns are expected to occur within the next several years and decades.
- The City of Livermore has a low to medium adaptive capacity rating because, while the City has developed an extensive suite of sustainability and adaptation measures, the implementation rate of these measures has been low.

In 2022, as part of the proposed General Plan 2045, the Vulnerability Analysis was reviewed and updated (City of Livermore 2022a). The 2022 revisions ensured consistency with the update of the Adaptation Planning Guide released in July 2020 and the State’s requirements for the Safety Elements. The proposed General Plan 2045 will integrate adaptation and resilience strategies into goals, policies, and actions that will help increase resiliency and reduce vulnerability.

3.8.2 Existing Conditions

GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The IPCC has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that are the likely cause of an increase in global average temperatures observed in the twentieth and twenty-first centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).^{1, 2} The major GHGs applicable to the proposed Project are briefly described.

- **Carbon dioxide (CO₂)** enters the atmosphere through the burning of fossil fuels (i.e., oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (i.e., sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.
- **Nitrous oxide (N₂O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

¹ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals); however, water vapor is not considered a pollutant because it is considered part of the feedback loop rather than a primary cause of change.

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

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GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high global warming potential (GWP) gases. The GWP of GHG emissions are shown in Table 3.8-3, *GHG Emissions and Their Relative Global Warming Potential Compared to CO₂*. The GWP is used to convert GHGs to CO₂e to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under the IPCC Fifth Assessment Report (AR5) GWP values for CH₄, 10 MT of CH₄ would be equivalent to 280 MT of CO₂.

Table 3.8-3 GHG Emissions and Their Relative Global Warming Potential

GHGs	Fourth Assessment Report (AR4) GWP Relative to CO ₂ ¹	Fifth Assessment Report (AR5) GWP Relative to CO ₂ ¹	Sixth Assessment Report (AR6) GWP Relative to CO ₂ ¹
Carbon Dioxide (CO ₂)	1	1	1
Methane ² (CH ₄)	25	28	30
Nitrous Oxide (N ₂ O)	298	265	273

Sources: IPCC 2007, 2013, and 2023.

Notes: GHG = greenhouse gas; GWP = global warming potential. The Intergovernmental Panel on Climate Change published updated GWP values in its AR6 that reflect latest information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO₂. However, GWP values identified in AR5 are used by the 2022 Scoping Plan for long-term emissions forecasting.

1. Based on 100-year horizon of the GWP of the air pollutant compared to CO₂.
2. The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the twentieth century, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth’s atmosphere that is attributable to human activities.

The recent IPCC Sixth Assessment Report (AR6) summarizes the latest scientific consensus on climate change. It finds that atmospheric concentrations of CO₂ have increased by 50 percent since the Industrial Revolution and continue to increase at a rate of two parts per million each year. By the 2030s, and no later than 2040, the world will exceed 1.5 degrees Celsius (°C) warming (CARB 2022). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (California Climate Action Team 2006). In the past, gradual changes in the Earth’s temperature changed the distribution of species, availability of water, and other

conditions. Human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

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

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in the frequency of warm spells and heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

There is at least a greater than 50 percent likelihood that global warming will reach or exceed 1.5°C in the near-term, even for the very low GHG emissions scenario (IPCC 2023). Climate change is already impacting California and will continue to affect it for the foreseeable future. For example, the average temperature in most areas of California is already 1 degree Fahrenheit (°F) higher than historical levels, and some areas have seen average increases in excess of 2°F. The California Fourth Climate Change Assessment identifies the following climate change impacts under a business-as-usual (BAU) scenario, in which no new actions are taken to curb GHG emissions (CalOES 2020):

- Annual average daily high temperatures in California are expected to rise by 2.7°F by 2040, 5.8°F by 2070, and 8.8°F by 2100 compared to observed and modeled historical conditions. These changes are statewide averages. Heat waves are projected to become longer, more intense, and more frequent.
- Warming temperatures are expected to increase soil moisture loss and lead to drier seasonal conditions. Summer dryness may become prolonged, with soil drying beginning earlier in the spring and lasting longer into the fall and winter rainy season.
- High heat increases the risk of death from cardiovascular, respiratory, cerebrovascular, and other diseases.

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- Droughts are likely to become more frequent and persistent through 2100.³
- Climate change is projected to increase the strength of the most intense precipitation and storm events affecting California.
- Mountain ranges in California are already seeing a reduction in the percentage of precipitation falling as snow. Snowpack levels are projected to decline significantly by 2100 due to reduced snowfall and faster snowmelt. California’s water storage system is designed with the expectation that snow will stay frozen for many months, and that as it melts, it will be stored in a series of reservoirs and dams, many of which are used to generate electricity. Changing waterfall patterns therefore impact both water supply and electricity supply.
- Marine layer clouds are projected to decrease, though more research is needed to better understand their sensitivity to climate change.
- Extreme wildfires (i.e., fires larger than 10,000 hectares or 24,710 acres) are expected to occur 50 percent more frequently. The maximum area burned statewide may increase 178 percent by the end of the century. Drought and reduced water supplies can increase wildfire risk.
- Exposure to wildfire smoke is linked to increased incidence of respiratory illness.
- Sea-level rise is expected to continue to increase erosion of beaches, cliffs, and bluffs.

Global climate change risks to California are shown in Table 3.8-4, *Summary of GHG Emissions Risks to California*, and include impacts on public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

Table 3.8-4 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snowpack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation

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

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Table 3.8-4 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006, 2009; California Climate Change Center 2012; CNRA 2014; CalOES 2020.

CALIFORNIA’S GHG SOURCES AND RELATIVE CONTRIBUTION

In 2025, the statewide GHG emissions inventory was updated for 2000 to 2023 emissions using the GWPs in IPCC’s AR4 and reported that California produced 360.4 MMTCO_{2e} GHG emissions in 2023 (3 percent lower than 2022 levels). Since peak levels in 2004, California’s GHG emissions have generally followed a decreasing trend. By 2014, statewide GHG emissions dropped below the 2020 GHG limit (AB 32 target for year 2020) and have remained below the limit since that time. Additionally, the carbon intensity of California’s economy (the amount of carbon pollution per million dollars of gross state product) is declining (CARB 2025a).

California’s transportation sector remains the largest source of GHG emissions, producing 37.1 percent of the state’s total emissions. Industrial sector emissions made up 18.6 percent, and electric power generation made up 15.9 percent of the state’s emissions inventory. Other major sectors of GHG emissions include residential and commercial (12.0 percent), agriculture and forestry (8.1 percent), high GWP (5.9 percent), and recycling and waste (2.4 percent).

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Emissions from the transportation sector have generally decreased since their peak in 2002, but this sector has experienced periods of growth and decline. The decrease in 2023 was primarily due to reductions from on-road sources and decrease in the amount of fuel used. Electricity emissions also have decreased since the early 2000s due to the deployment of renewable and less carbon-intensive resources, leading to reduced dependence on fossil fuel electricity generation. Emissions from the industrial sector decreased from 2022, largely due to the continued downward trend in oil and gas production (CARB 2025a).

EXISTING COMMUNITY-WIDE GHG EMISSIONS

The existing land uses in the EIR Study Area consist of single- and multifamily residences and retail, office, commercial, industrial, and institutional uses. Operation of these land uses generates GHG emissions from natural gas used for energy, heating, and cooking; electricity usage; vehicle trips for employees and residents; area sources such as landscaping equipment and consumer cleaning products; water demand; waste generation; and solid waste generation.⁴ Table 3.8-5, *EIR Study Area Existing GHG Emissions Inventory*, shows the emissions associated with existing land uses in the EIR Study Area.

Table 3.8-5 EIR Study Area Existing GHG Emissions Inventory

Sector	Existing MTCO ₂ e/year	Percentage of Total
Building Electricity	75,550	11%
Building Natural Gas	102,851	15%
On-Road Transportation	446,668	64%
Off-Road Vehicles and Equipment	11,045	2%
Solid Waste/Landfills	24,659	4%
Refrigerants	39,631	6%
Water Use	1,685	<1%
Wastewater Treatment	1,078	<1%
Subtotal	703,167	100%
Service Population (SP)¹	145,150	NA
MTCO₂e/SP	4.8	NA

Source: Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Note: MTCO₂e = Metric ton of carbon dioxide-equivalent.

Totals may not add to 100% due to rounding.

1. Service Population consists of the aggregate of total employees and population within the EIR Study Area.

⁴ Emissions from water demand and wastewater are emissions associated with electricity used to supply, treat, and distribute water.

3.8.3 Standards for Analysis

SIGNIFICANCE CRITERIA

Appendix G, *Environmental Checklist Form*, of the CEQA Guidelines states that the proposed Project would result in a significant impact related to GHG emissions if it would:

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

AIR DISTRICT'S CEQA THRESHOLDS

The Air District's CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans (GHG Justification Report) contains instructions on how to evaluate, measure, and mitigate GHG impacts generated from land use development projects and plans (Air District 2022). For the purposes of this analysis, this EIR is using the Air District's current GHG plan-level significance thresholds to evaluate the proposed Project's potential impacts related to GHG emissions.

Greenhouse Gas Emission Impacts – Plan Level

The Air District's GHG Justification Report contains instructions on how to evaluate, measure, and mitigate GHG impacts generated from land use development projects and plans. If a proposed plan cannot demonstrate consistency with the Air District-recommended Criterion A or Criterion B, that plan would result in a potentially significant impact related to GHG emissions:

- The proposed plan must be consistent with a local GHG reduction strategy that meets the criteria under CEQA Guidelines Section 15183.5(b); or
- The proposed plan must meet the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045.

Consistency with A GHG Reduction Plan

CEQA Guidelines Section 15183.5, *Tiering and Streamlining the Analysis of Greenhouse Gas Emissions*, allows for lead agencies to analyze and mitigate the significant effects of GHG emissions at a programmatic level. Pursuant to CEQA Guidelines Section 15183.5, later project-specific environmental documents may tier from and/or incorporate by reference the GHG reduction plan so long as they include the following plan elements:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.

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- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.
- 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.
- 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.
- Be adopted in a public process following environmental review.

The 2022 CAP was adopted in a public process following environmental review in November 2022. The 2022 CAP included community-wide GHG inventories for Livermore, as well as an updated 2005 baseline GHG inventory, consistent with the Local Governments for Sustainability’s United States Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. The 2022 CAP also provided emissions forecasts through 2045 based on future demographic projections including population, employment, housing, and transportation activity. The 2022 CAP identified State and local measures to reduce GHG emissions and quantified GHG reductions associated with these measures. Another facet of the 2022 CAP includes a framework for ensuring successful implementation of the strategies and actions listed in the 2022 CAP.

The 2022 CAP provides a flexible path to reduce the community’s GHG emissions by establishing per-capita GHG emission reduction targets aimed to reduce GHG emissions by 40 percent below 1990 levels by 2030 per SB 32 and achieve carbon neutrality by 2045 pursuant to EO B-55-18. The 2022 CAP includes a forecast with reductions for the 2045 horizon. It was based on the reductions needed to achieve an 85 percent reduction in GHG emissions by 2045 as well as substantial progress toward carbon neutrality, consistent with the objectives of AB 1279.⁵ Consequently, the 2022 CAP is a qualified GHG reduction plan through 2045. Therefore, the

⁵ The 2022 Scoping Plan includes statewide measures to achieve the state’s carbon neutrality goals under Executive Order B-55-18 such as carbon dioxide removal (CDR) that are not applicable to local governments. Carbon neutrality goals are a “no impact” level and not a “less-than-significant” impact level for climate change effects. There are presently no reliable means of forecasting how future technological developments related to carbon dioxide removal may affect future emissions in a planning jurisdiction. Therefore, carbon neutrality targets are not directly applicable to local governments and CEQA projects to mitigate GHG emissions impacts of a project. Moreover, AB 1279 GHG reduction targets for 2045 are in line with the scientifically established levels needed in the U.S. to limit global warming below 1.5 to 2.0 degrees Celsius, the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. For these reasons, the targets of AB 1279 are applicable to the EIR. However, the 2022 CAP includes measures that align with the state’s carbon neutrality goals under Executive Order B-55-18 and per-capita targets under SB 32.

2022 CAP demonstrates consistency with the latest legislative reduction target established by AB 1279 and can be used for a streamlined GHG analysis.

To demonstrate consistency with the 2022 CAP GHG emission-reduction targets for 2045, the proposed Project's 2045 emissions will be compared to the 2022 CAP's long-term per-capita efficiency target of zero MT CO₂e per person per year.

Mass Emissions and Health Effects

On December 24, 2018, in *Sierra Club et al. v. County of Fresno et al.* (Friant Ranch), the California Supreme Court determined that the EIR for the proposed Friant Ranch project failed to adequately analyze the project's air quality impacts on human health. The EIR prepared for the project, which involved a master planned retirement community in Fresno County, showed that project-related mass emissions would exceed the San Joaquin Valley Air Pollution Control District's regional significance thresholds. In its findings, the California Supreme Court affirmed the holding of the Court of Appeal that EIRs for projects must not only identify impacts to human health, but also provide an "analysis of the correlation between the project's emissions and human health impacts" related to each criterion air pollutant that exceeds the regional significance thresholds or explain why it could not make such a connection. In general, the ruling focuses on the correlation of emissions of toxic air contaminants and criteria air pollutants and their impact to human health.

In 2009, the USEPA issued an endangerment finding for six GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—to regulate GHG emissions from passenger vehicles. The endangerment finding is based on evidence that shows an increase in mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heat waves and ozone levels. The effects of climate change are identified in Table 3.8-4. Though identified effects such as sea level rise and increased extreme weather can indirectly impact human health, neither the USEPA nor CARB has established ambient air quality standards for GHG emissions. The state's GHG reduction strategy outlines a path to avoid the most catastrophic effects of climate change, and the state's GHG reduction goals and strategies are based on the path to reducing statewide cumulative GHGs as outlined in AB 32, SB 32, and EO S-03-05.

Because no single project is large enough to result in a measurable increase in global concentration of GHG emissions, climate change impacts of a project are considered on a cumulative basis. Without federal ambient air quality standards for GHG emissions and given the cumulative nature of GHG emissions and the Air District's significance thresholds, which are tied to reducing the state's cumulative GHG emissions, it is not feasible at this time to connect the project's specific GHG emissions to the potential health impacts of climate change.

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3.8.4 Project Impact Analysis

The following GHG emissions analysis is based on the conditions present at the time the Notice of Preparation was issued in March 2023. The City of Livermore Travel Demand Model is keyed to a base year of 2020. The 2020 data was adjusted for population and employment in the EIR Study Area in calendar year 2023. Therefore, the impacts of the proposed Project are largely compared to existing conditions in 2023.

METHODOLOGY

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely to occur in conjunction with future development. The GHG emissions inventory includes the following sectors:

- **Building Energy.** Emissions associated with electricity and natural gas use for residential and nonresidential land uses in the EIR Study Area were based on the energy information provided by PG&E and Ava Energy. Energy usage for national laboratories (Lawrence Livermore National Laboratory and Sandia National Laboratories) was estimated based on facility square footage and annual energy use factors by land use type from the CalEEMod Users Guide. Forecasts are adjusted for increases in housing units for residential electricity and natural gas use and nonresidential square footage for nonresidential electricity and natural gas use. A weighted average of the carbon intensity factors was calculated using electricity consumption from PG&E and Ava Energy. For the 2045 scenario, Ava Energy's carbon intensity factor was assumed to be zero, reflecting an assumption that Ava Energy achieves and maintains its stated goal of 100 percent carbon-free energy supply by 2030 (Ava Energy 2026).
- **Transportation.** Transportation emissions forecasts were modeled using emissions rates from CARB's EMFAC2021, version 1.0.2 web database, including the USEPA's Off-Model Adjustment Factors to Remove the Impact of Advanced Clean Trucks, Zero-Emission Airport Shuttle, Heavy-Duty Omnibus and Warranty Phase I Regulations ("EMFAC2021 adjustment factors"). Model runs were based on daily VMT data provided by Kittelson and Associates, Inc. (see Appendix B, *Air Quality and Greenhouse Gas Emissions Data*) adjusted for population and employment in the EIR Study Area in calendar year 2023 (existing) and 2045 (forecasted) emission rates. The VMT figures are based on the origin-destination method using the Alameda Countywide Transportation Model based on the recommendations of CARB's Regional Targets Advisory Committee under SB 375. Consistent with CARB's methodology within the Climate Change Scoping Plan Measure Documentation Supplement (CARB 2025b), daily VMT was multiplied by 347 days per year to account for reduced traffic on weekends and holidays to determine annual emissions.

- **Off-Road Equipment.** OFFROAD is a database of equipment use and associated emissions for each county compiled by CARB. Off-road equipment in the EIR Study Area is based on year 2023 (existing) and 2045 (forecasted) emission rates for Alameda County obtained from CARB's Off-Road Web Query, version 1.1.0 and 1.1.2, web database. OFFROAD was used to estimate criteria air pollutant emissions from agricultural, construction equipment, lawn and garden, and light commercial/industrial equipment in the county and EIR Study Area. Agricultural equipment is based on the percentage of farmland acreage in the EIR Study Area compared to Alameda County and forecasted based on the change in farmland acreage in the EIR Study Area. Because the OFFROAD database is based on county-level data, construction equipment use in the EIR Study Area is estimated based on the proportion of building permits issued in Alameda County that are issued in the EIR Study Area, based on data compiled by the US Census, and conservatively assumes that construction equipment use for the forecast year does not account for equipment or fleet turnover. Similarly, lawn and garden equipment is based on the percentage of housing units in the EIR Study Area compared to Alameda County and forecast based on the change in housing growth in the EIR Study Area. Light commercial equipment is estimated based on employment for the EIR Study Area as a percentage of Alameda County and forecast based on the change in employment in the EIR Study Area.
- **Refrigerant Leakage.** Refrigerants are based on the statewide 2021 refrigerant use and statewide population based on the 2021 census data to derive emissions per person. Emissions from this sector are based on AR5.
- **Solid Waste Disposal.** GHG emissions from solid waste disposed of by residents and employees in the EIR Study Area were quantified based on the waste-in-place method. This method assumes that the degradable organic component in waste decays slowly throughout a few decades, during which CH₄ and biogenic CO₂ are formed. If conditions are constant, the rate of CH₄ production depends solely on the amount of carbon remaining in the waste. As a result, emissions of CH₄ from waste deposited in a disposal site are highest in the first few years, then gradually decline. Significant CH₄ production typically begins one or two years after waste disposal in a landfill and continues for 10 to 60 years or longer. Waste disposal was averaged over several years to account for fluctuations in average annual solid waste disposal. Waste generated was based on data obtained from the California Department of Resources Recycling and Recovery (CalRecycle). Data from 2023 was used to provide an estimate of GHG emissions for existing conditions. GHG emissions from solid waste disposal in the existing year were modeled using CARB's Landfill Emissions Tool v.1.9, which includes waste characterization data from CalRecycle. Because the landfill gas captured is not under the jurisdiction of the City of Livermore, the landfill gas emissions from the capture system are not included in the inventory. Only fugitive sources of GHG emissions from landfills are included. Modeling assumes a 75 percent reduction in fugitive GHG emissions from the landfill's Landfill Gas Capture System. The landfill gas capture efficiency is based on CARB's LGOP, v.1.1. Total GHG emissions from waste disposal in 2045

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were forecast based on the percentage increase in service population for the EIR Study Area. The emissions forecast does not account for reductions from increasing waste diversion.

- **Water Use and Wastewater Treatment.** GHG emissions from this sector include indirect GHG emissions from the embodied energy associated with water use and wastewater generation and fugitive GHG emissions from processing wastewater. The total annual existing and proposed water demand/wastewater generation in the EIR Study Area are based on water demand factors for existing and proposed conditions (see Appendix B, *Air Quality and Greenhouse Gas Emissions Data*). Indoor water demand was assumed to equal 100 percent of wastewater generation. Electricity use from water use is estimated using energy rates identified in the 2022 CalEEMod Users Guide. Then energy is multiplied by the carbon intensity of energy. Wastewater treatment also results in direct CH₄ emissions from wastewater processing, which are based on the emission rates identified in the 2022 CalEEMod Users Guide (CAPCOA 2022).

Industrial sources of emissions that require a permit from the Air District are not included in the community inventory. Life-cycle emissions are not included in this analysis because not enough information is available for the proposed Project; therefore, they would be speculative.⁶ Black carbon emissions are not included in the GHG analysis because CARB does not include this short-lived climate pollutant in the state's GHG emissions inventory but treats it separately.⁷

a) Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Significant and unavoidable. To evaluate whether the proposed Project's GHG emissions may directly or indirectly result in a significant impact on the environment, this analysis compares the Project's emissions to a 2045 efficiency threshold of zero MT CO₂e per person per year. This threshold reflects the State's 2045 GHG reduction (AB 1279) and is consistent with the 2022 CAP. As shown in Table 3.8-6, *GHG Emissions Forecast in the EIR Study Area*, implementation of

⁶ Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analysis was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (CNRA 2009). Because the amount of materials consumed during the operation or construction of the proposed Project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials is also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (LCI 2008).

⁷ Particulate matter emissions, which include black carbon, are analyzed in Section 3.3, *Air Quality*. The majority of anthropogenic sources come from transportation—specifically, heavy-duty vehicles. The share of black carbon emissions from transportation is dropping rapidly and is expected to continue to do so between now and 2030 as a result of California's air quality programs. The remaining black carbon emissions will come largely from woodstoves/fireplaces, off-road applications, and industrial/commercial combustion (CARB 2022).

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the proposed Project would result in a net decrease in GHG emissions from existing conditions and in GHG emissions per service population (SP). The primary reason for the net decrease in community-wide GHG emissions is due to Ava Energy’s goal of carbon-free electricity by 2030, which would substantially reduce GHG emissions by replacing fossil-fuel power with clean sources, like wind and solar. On-road transportation would also see a decrease primarily because of future implementation of on-road vehicle emission regulations assumed to be in effect in EMFAC2021 that was used for estimating 2045 vehicle emissions.

Table 3.8-6 GHG Emissions Forecast in the EIR Study Area

Emissions Sector	GHG Emissions (MTCO ₂ e/year)					
	Existing Land Uses (2023)	%	Proposed Project (2045)	%	Net Change	%
Building Electricity	75,550	11%	3,599	1%	-71,951	-95%
Building Natural Gas	102,851	15%	143,928	21%	41,077	40%
On-Road Transportation	446,668	64%	437,675	63%	-8,993	-2%
Off-Road Vehicles and Equipment	11,045	2%	11,210	2%	165	1%
Solid Waste/Landfills	24,659	4%	33,141	5%	8,482	34%
Refrigerants	39,631	6%	59,381	9%	19,750	50%
Water Use	1,685	<1%	88	<1%	-1,598	-95%
Wastewater Treatment	1,078	<1%	815	<1%	-264	-24%
Total Community Emissions	703,167	100%	689,836	100%	-13,331	-2%
Service Population (SP) ¹	145,150	—	195,080	—	49,930	34%
MTCO ₂ e/SP	4.8	—	3.5	—	-1.3	-27%
2022 CAP 2045 Per Capita Goal	—	—	0 MTCO ₂ e/SP	—	—	—
Per Capita Goal Achieved?	—	—	Does Not Achieve Per Capita Goal	—	—	—

Source: Appendix B, *Air Quality and Greenhouse Gas Emissions Data*.

Note: MTCO₂e = Metric ton of carbon dioxide-equivalent.

Based on global warming potentials in the Intergovernmental Panel on Climate Change Fifth Assessment Report. Emissions may not total to 100 percent due to rounding.

1. Service Population accounts for total population and jobs. See Table 2-3, *Proposed 2045 Buildout Projections in the EIR Study Area*, in Chapter 2, *Project Description*.

As shown in Table 3.8-6, it is anticipated that year 2045 conditions would result in an overall decrease in emissions compared to the existing baseline. However, the proposed Project’s emissions would not achieve the 2022 CAP’s long-term per-capita efficiency target of zero

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MTCO₂e per person per year and would not be considered consistent with the long-term year goals under AB 1279.

Adopted State measures would result in reductions of mobile and energy sources to reduce GHG emissions, such as:

- The updated Title 24 Building Energy Efficiency Standards require new buildings to achieve increased energy-efficiency targets.
- The Climate Change Scoping Plan Low Carbon Fuel Standard (LCFS) mandates reduced carbon intensity of fuels used in off-road equipment.
- SB 1383 aims for a 75 percent reduction in organic waste by 2025 aimed at tackling climate change.
- SB 350 directs CARB, in coordination with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC), to establish 2030 GHG emissions targets for the electricity sector in general and each electricity provider.

These State measures are primarily regulatory or programmatic in nature and rely on multiple parties' compliance or on statewide program implementation. Because future project-level compliance, energy mix, or fuel use cannot be precisely predicted, their effects cannot be reliably quantified in the GHG inventory and forecast. However, they are acknowledged as contributing to overall long-term GHG reductions.

The Land Use (LU) Element, Mobility (MO) Element, Infrastructure (INF) Element, Open Space and Conservation (OS) Element, and Safety (S) Element of the proposed General Plan 2045 contain goals and policies that require local planning and development decisions to consider impacts from GHG emissions. The following goals and policies would serve to minimize long-term GHG emissions and mobile-source emissions:

- **Goal LU-1:** Create a well-integrated, sustainable, and livable community by locating new development in areas that can maximize the use of existing public services and facilities.
 - **Policy LU-1.2: Housing Choices and Employment Opportunities.** Plan for a range of housing choices and employment space that meets the needs of all Livermore's residents and workforce. Promote a citywide balance between jobs and housing (1.25-1.75) to support economic vitality and reduce commute-related impacts.
 - **Policy LU-1.6: Climate-Responsive and Green Building Practices.** Promote environmentally responsive site and building design that reduces construction impacts and supports long-term climate resilience. Encourage the use of green building practices in both public and private development, consistent with CalGreen and Title 24 standards.

- **Policy LU-1.7: Transit-Supportive Development.** Facilitate new development in major commercial and transit-supportive development areas, including the Downtown, Isabel Neighborhood, Brisa Neighborhood, Midtown area, and appropriate areas around Livermore Municipal Airport, to maximize the density and intensity specified in the Land Use Plan and to efficiently use land and infrastructure resources.
- **Policy LU-1.8: Sustainable Land Practices.** Advance land use strategies that reduce greenhouse gas emissions and vehicle miles traveled, including compact development, walkable and bikeable neighborhoods, and access to transit and services.
- **Policy LU-1.9: Infill and Reinvestment.** Prioritize development for locations in or in close proximity to transit, nodes for active transportation, or major commercial sites or other activity centers. Update the Development Code and Specific and Neighborhood Plans accordingly.
- **Goal LU-4:** Establish mixed-use districts that integrate housing, commercial, and employment uses to increase housing supply, support economic vitality, and create walkable neighborhoods with a strong sense of place.
 - **Policy LU-4.1: Mixed-Use District Planning.** Plan and implement high-density mixed-use districts in strategic locations, such as near transit, commercial hubs, and employment centers, to integrate housing, commercial, and employment uses. These districts should be designed to be walkable, inclusive, and compatible with surrounding neighborhoods, supporting the needs of residents, employers, and the workforce.
 - **Policy LU-4.2: Housing Integration and Livability.** Facilitate the inclusion of diverse and affordable housing types within mixed-use developments to promote proximity between jobs and housing, support inclusive communities, and reduce vehicle miles traveled (VMT). Ensure residential components are designed to minimize exposure to noise and traffic impacts, particularly along arterial corridors.
 - **Policy LU-4.5: Multimodal Access and Connectivity.** Design mixed-use districts to support walking, biking, and transit access, reducing reliance on single-occupancy vehicles and enhancing connectivity between homes, jobs, and services.
- **Goal LU-10:** Advance a strong and resilient Livermore through sustainable land use planning.
 - **Policy LU-10.1: Prioritize Infill and Mixed-Use Development.** Direct new development to infill sites and mixed-use zones within existing urban areas to facilitate compact and walkable environments. Concentrate new growth near transit corridors and employment centers to reduce vehicle miles traveled, lower greenhouse gas emissions, and limit the expansion of urban infrastructure.
- **Goal MO-1:** Design and maintain streets that are safe, comfortable, convenient, and accommodate all users.
 - **Policy MO-1.1: Complete Streets Approach.** Plan for Complete Streets that support all transportation systems throughout the city and consider and balance the needs of all users, including vulnerable users and underserved communities.

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- **Goal MO-2:** Reduce the number and length of single-occupancy vehicle trips.
 - **Policy MO-2.1: Transportation Mode Choice.** Support and provide viable transportation alternatives to reduce vehicle miles traveled.
 - **Policy MO-2.2: Transportation Priorities.** Make transit and active transportation safe and feasible choices for residents by prioritizing transportation modes as follows: (1) public transit and active transportation, (2) zero-emission vehicles, and (3) fossil fuel vehicles. Support this prioritization through funding, development standards, education, and other allocation of resources.
 - **Policy MO-2.4: Transportation Demand Management (TDM) Implementation.** Promote and implement Transportation Demand Management strategies to reduce vehicle miles traveled and reliance on single-occupancy vehicles across all development types.
 - A. New Development: Require Transportation Demand Management measures through development agreements, partnerships with Transportation Management Associations (TMAs), and collaboration with regional stakeholders.
 - B. Existing Development: Encourage adoption of Transportation Demand Management measures by offering incentives such as grants, tax benefits, or reduced fees.
 - C. Organizational Support: Provide technical assistance for the formation and operation of Transportation Management Associations and other entities that facilitate Transportation Demand Management programs.
- **Goal MO-3:** Provide comfortable access to jobs, schools, recreation, shopping, and transit on foot or by bicycle as part of daily life in a healthy and active community.
 - **Policy MO-3.1: Active Transportation Plan.** Regularly update and implement the City's Active Transportation Plan as a guide for developing pedestrian, bicycle, and trail networks.
 - **Policy MO-3.2: Bicycle/Pedestrian Connectivity.** Improve connectivity for cyclists and pedestrians between and through neighborhoods and to and from activity centers in collaboration with the community and stakeholders.
- **Goal MO-4:** Make transit a viable option by supporting frequent, reliable, cost-efficient, and connected service.
 - **Policy MO-4.1: Local Transit Ridership.** Increase local transit ridership and service as an alternative to driving by supporting Livermore Amador Valley Transit Authority and Altamont Corridor Express services.
- **Goal INF-2:** Provide sufficient water supplies and facilities that meet current and future needs in an efficient and sustainable manner.
 - **Policy INF-2.4: Recycled Water.** Use and expand the use of recycled water for appropriate uses, where and when available.
 - **Policy INF-2.5: On-Site Water Reuse.** Allow on-site stormwater capture and greywater reuse in commercial and residential settings.

- **Goal INF-4:** Collect and convey stormwater in ways that are safe, sanitary, environmentally acceptable, and financially sustainable.
 - **Policy INF-4.2: Storm Drainage Studies.** Require new development and major redevelopment projects to evaluate how stormwater runoff will affect local and regional drainage and flood systems. Projects must include plans for detention and drainage facilities to prevent increased flood risk.
 - **Policy INF-4.3: Impervious Surfaces.** Minimize impervious surfaces in new development and integrate green infrastructure to assist in stormwater management.
 - **Policy INF-4.4: Green Stormwater Infrastructure on City Property.** Install green infrastructure and other natural stormwater management infrastructure on City property and at City facilities, as appropriate.
 - **Policy INF-4.5: Stream Modifications.** Allow stream modifications when necessary to contain flood flows. Modifications shall enhance and/or restore creek natural habitat while providing stormwater management.
- **Goal OS-1:** Conserve the value and function of Livermore’s open space for natural resource protection, recreation, and scenic value.
 - **Policy OS-1.1: Diverse Open Space System.** Foster an open space system that supports the natural function of the land, protects sensitive wildlife and plant species, preserves important views, and creates opportunities for recreation.
 - **Policy OS-1.2: Greenbelts.** Secure and maintain a greenbelt of nonurbanized land surrounding Livermore to serve as a buffer between communities and to preserve, enhance, and expand an integrated network of open space.
 - **Policy OS-1.3: Open Space Preservation and Restoration.** Prioritize opportunities to preserve, restore, rewild, and enhance natural landscapes to support environmental and community health.
 - **Policy OS-1.4: Open Space Acquisition and Connection.** Prioritize land acquisition efforts that would result in the creation and expansion of permanent open spaces or corridors that link existing or create new protected natural resource areas.
 - **Policy OS-1.5: Open Space Public Access.** Maintain existing and establish new public access to public open space lands as appropriate, while also preserving the character and conservation value of the open space.
 - **Policy OS-1.6: Open Space Easement Designation.** Work with local stakeholders and agencies to use open space easements to preserve sensitive habitat and resources.
 - **Policy OS-1.7: Open Space Easement Monitoring.** Monitor City-owned open space easements on an ongoing basis and work with other easement holders to comply with the terms of the easements.

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- **Policy OS-1.8: Open Space Preservation Agency Coordination.** Coordinate with the County of Alameda, East Bay Regional Park District, Livermore Area Recreation and Park District, Tri-Valley Conservancy, and other partner organizations to preserve and protect important resources inside and outside the urban growth boundary.
- **Policy OS-1.9: Brushy Peak Regional Preserve.** Coordinate with the Livermore Area Recreation and Park District and East Bay Regional Park District to support efforts to preserve and protect the Brushy Peak Regional Preserve consistent with the goals of the Livermore Area Recreation and Park District’s Parks, Recreation, and Trails Master Plan and East Bay Regional Park District’s Master Plan.
- **Policy OS-1.10: Preservation of Natural Amenities.** Preserve and enhance, or work with other agencies, as appropriate (e.g., with joint grant applications, sharing of staff resources and legal services), to preserve and enhance the following natural amenities:
 - a. Ridgelines
 - b. Oak Woodlands and Grasslands
 - c. Grasslands
 - d. Riparian Woodland
 - e. Arroyos and Creeks
 - f. Knolls
 - g. Doolan Canyon
 - h. Arroyo Mocho/Cedar Mountain
 - i. Corral Hollow
 - j. Sycamore Grove
 - k. Hilltops (North Livermore Urban Growth Boundary Initiative)
 - l. Slopes (North Livermore Urban Growth Boundary Initiative)
 - m. Viewscapes (North Livermore Urban Growth Boundary Initiative)
 - n. Frick Lake
 - o. Springtown Alkali Sink
- **Goal OS-2:** Preserve and enhance biological resources.
 - **Policy OS-2.2: East Alameda County Conservation Strategy.** Require all development projects involving ground-disturbing activities to submit an Environmental Assessment Form as part of a complete application. The City will use this assessment to identify potential effects on special-status species and sensitive habitats and require that project design and implementation are consistent with the applicable avoidance, minimization, and, where necessary, compensatory mitigation measures set forth in Tables 3.2 through 3.12 of the East Alameda County Conservation Strategy

- **Policy OS-2.3: Livermore Habitat Conservation Plan.** Adopt and implement the Livermore Habitat Conservation Plan to address impacts to the federally listed species that result from implementation of the City’s Capital Improvement Program and Stream Maintenance Program, and other projects implemented by the City to support General Plan buildout.
- **Policy OS-2.4: Existing Native Vegetation.** Conserve Livermore’s native trees and vegetation, which are important biological resources in the Planning Area.
- **Policy OS-2.5: Cluster Development.** Work with project applicants to cluster new development to minimize its overall footprint in areas of ecological sensitivity, such as hillsides, alkali springs, creek corridors, and watersheds, and preserve space for habitat and wildlife connectivity.
- **Policy OS-2.6: Avoidance of Sensitive Features.** Protect wetland and biological resources by requiring new development to avoid areas that support wildlife and plant habitats that contribute to ecological connectivity. Instead, integrate these features into overall development to support long-term ecological health.
- **Policy OS-2.9: Riparian Enhancements.** Promote the long-term health and ecological function of riparian areas by ensuring that adjacent development supports the protection, enhancement, and restoration of native riparian vegetation.
- **Policy OS-2.14: Biological Resource Preservation Grant Funding.** Work with local, regional, and State natural resource agencies and area nonprofit organizations to develop programs and apply for grants to fund preservation of sensitive biological resources, including arroyos, wetlands, riparian areas, and grasslands.
- **Goal OS-3:** Protect Livermore’s groundwater resources, waterways, tributaries, and associated riparian habitats.
 - **Policy OS-3.1: Water Quality.** Maintain and improve the quality and quantity of Livermore’s surface water, groundwater, and groundwater recharge areas.
 - **Policy OS-3.3: Runoff Regulation.** Regulate runoff from urban uses to protect the quality of surface water and groundwater.
- **Goal OS-6:** Protect and improve Livermore’s air quality.
 - **Policy OS-6.10: Vehicle Emissions Reduction.** Work with regional municipalities and State agencies to reduce automobile-related vehicle emissions.
 - **Policy OS-6.11: Vehicle Trip Reduction Incentives.** Develop incentives to reduce vehicle trips and increase ridesharing to reduce pollutants generated by vehicular combustion engines.
 - **Policy OS-6.12: Anti-Idling Requirements.** Reduce and limit idling of municipal, community, and/or commercial vehicles.

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- **Policy OS-6.15: Public Transit Support.** Work with transit providers and implement local improvements to maximize the use of regional and local mass transit systems. To this end, the City shall actively support:
 - a) Federal, State, and regional funding for construction of Valley Link passenger rail service.
 - b) The designation of special lanes on Interstate 580 for the exclusive use of commuter buses during peak-traffic periods.
 - c) Efficient operations of local and regional transit systems to minimize the travel time between communities and major generating areas served by the regional system.
 - d) Transit connections to ACE, BART, and future rail stations in close coordination with the Livermore Amador Valley Transit Authority.
 - e) Improved bicycle and pedestrian connections to ACE stations and the Livermore transit center.
- **Policy OS-6.16: Privately Owned Zero-Emission Equipment.** Work with local and regional partners to publicize the advantage of zero-emission equipment and any available financial incentives.
- **Policy OS-6.17: Low-Emission City Vehicles.** Purchase City vehicles that have alternative fuel systems with reduced emissions as suitable models are available.
- **Goal OS-7:** Make Livermore strong and resilient by acting to significantly reduce greenhouse gas emissions and adapt to a changing climate.
 - **Policy OS-7.1: Climate Action Plan Updates.** Update the Livermore Climate Action Plan (CAP) at least every five years, maintaining the CAP as a Qualified Greenhouse Gas (GHG) Reduction Strategy under the Guidelines for the California Environmental Quality Act as laid out by the State and Bay Area Air Quality Management District. The CAP shall include an inventory of the level of GHG emissions within the city for a recent year, in comparison to a 2005 baseline, and shall set out specific policies and actions to be undertaken by the City to reduce GHG emissions to a level that meets or exceeds State GHG reduction targets. The policies and actions will include incentives, actions, and requirements to reduce the city's GHG emissions, the GHG emissions of the private sector, and actions that the City will take in concert with public agencies, the private sector, and other stakeholders to reduce GHG emissions. Updates to the CAP will include a public and stakeholder engagement process.
 - **Policy OS-7.2: Climate Action Plan Implementation.** Continue to implement the Climate Action Plan (CAP). Identify key City staff and partner agencies responsible for implementing CAP strategies and actions. Integrate CAP strategies and actions into annual department workplans and budget. Continue to identify and pursue funding mechanisms for CAP implementation.

- **Policy OS-7.3: Planning for Climate Change.** Account for the effects of climate change in updating or amending the General Plan or Development Code, disaster planning efforts, City projects, infrastructure planning, future policies, and long-term strategies, as feasible. Recognize potential climate change consequences, such as flooding, wildfire, hotter temperatures, and changing air quality. Protect the community from the effects of climate hazards, including against risks of displacement and challenges in rebuilding after major incidents.
- **Policy OS-7.4: Climate Awareness.** Maintain a climate protection action-awareness campaign as well as support and coordinate other similar efforts in order to make residents, public institutions and businesses aware of the link between their everyday energy use and greenhouse gas emissions.
- **Policy OS-7.5: Climate Action Coordination.** Coordinate climate action efforts and implementation of climate adaptation projects across City departments.
- **Goal OS-8:** Promote a clean, reliable, and equitable energy system by increasing energy efficiency, expanding the use of renewable and carbon-free energy sources, and reducing greenhouse gas emissions from buildings, transportation, and infrastructure.
 - **Policy OS-8.1: Climate Action Plan Implementation.** Implement Climate Action Plan strategies to improve energy efficiency and conservation, promote carbon-free energy sources, and reduce energy-related greenhouse gas emissions.
 - **Policy OS-8.2: Per-Capita Energy Use.** Reduce per-capita energy use.
 - **Policy OS-8.3: Clean and Resilient Energy for Public Facilities.** Ensure City facilities and operations use clean, reliable, and resilient energy sources that reduce emissions and support long-term sustainability. Prioritize energy systems that improve efficiency and maintain essential services during power disruptions.
 - **Policy OS-8.4: Sustainable Energy through Electrification.** Develop strategies and standards to advance sustainable energy by requiring efficient, all-electric appliances in new buildings, where feasible. Encourage property owners to transition existing buildings to electric appliances over time through partnerships, incentives, and public education that promotes clean energy.
 - **Policy OS-8.5: Energy-Efficient Development Decisions.** Consider the energy efficiency of proposed development when making land use and development review decisions.
 - **Policy OS-8.6: Solar Access.** Consider solar access, siting structures to maximize natural heating and cooling, and landscaping during the design review process to aid passive cooling protection from prevailing winds and maximize year-round solar access.
- **Goal S-7:** Minimize flood risks to people, property, and critical infrastructure.
 - **Policy S-7.1: Climate Resilience to Flooding.** Strengthen community resilience to flooding by integrating climate adaptation strategies into stormwater management, land use planning, infrastructure investment, and emergency preparedness to reduce risks to people, property, and infrastructure.

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- **Policy S-7.5: Flood-Resilient Infrastructure.** Require new public and private service facilities in flood zones to be floodproofed to or above the base flood elevation, including required freeboard, as determined on a project-specific basis.
- **Policy S-7.7: Climate-Informed Design.** Incorporate the best-available climate science into flood risk assessments, infrastructure design, and land use decisions such as projections for increased rainfall, storm frequency, floodplain shifts, and long-term impacts on erosion and groundwater.
- **Policy S-7.10: Storm Drain Risk Mitigation.** Consider the risk of storm drain blockage when reviewing development proposals in flood-prone areas.
- **Goal-S-9: Reduce the impact of drought on Livermore communities by supporting resilient water supplies.**
 - **Policy S-9.1: Integrated Water Resource Management.** Promote sustainable water use and climate resiliency by encouraging rainwater capture, greywater systems, and green infrastructure, along with other water-efficient landscaping and building practices that reduce overall water demand.
 - **Policy S-9.2: Sustainable Landscaping Practices.** Support the transition to water-efficient and climate-appropriate landscaping on public and private property, and provide incentives, technical assistance, and educational resources to reduce outdoor water use.
 - **Policy S-9.3: Water Reuse and Recycling.** Encourage the use of alternative water sources, including greywater and rainwater, in residential, commercial, and institutional developments to reduce reliance on potable water.
 - **Policy S-9.4: Agricultural Water Stewardship.** Collaborate with regional partners to promote water-efficient agricultural practices that increase resilience to drought and changing weather patterns and support long-term water sustainability and agricultural viability in the Livermore Valley.
- **Goal S-10: Make Livermore resilient to the impacts of severe weather and extreme temperatures.**
 - **S-10.2: Heat Mitigation in Private Development.** Encourage new and existing developments to increase resilience to heat by incorporating heat-mitigating, energy-efficient features into their facilities, landscapes, and structures.
 - **S-10.3: Clean and Efficient Climate Control Systems.** Promote the transition to clean, energy-efficient heating and cooling technologies that enhance heat resilience in residential and commercial buildings while also reducing greenhouse gas emissions and improving indoor air quality.
 - **Policy S-10.6: Cooling Centers.** Ensure access to safe, climate-resilient public facilities during extreme heat events that accommodate all ages, languages, and functional needs. Promote awareness of these centers through the City’s website, social media, and outreach at public events and venues.

- **Policy S-10.7: Landscaping with Native Vegetation.** Encourage the use of native vegetation, pollinators, and natural or green infrastructure to absorb the impacts of extreme heat.
- **Policy S-10.8: Tree Maintenance.** Regularly maintain and trim City-owned trees and remove dead trees or hazardous trees to reduce risks during severe weather events. Facilitate and enforce private landowner responsibility for trimming trees and removing dead or hazardous trees through education, technical support, and applicable City ordinances.
- **Policy S-10.9: Heat-resistant Farming Techniques.** Collaborate with agricultural partners to support and promote heat-resistant farming practices, such as testing heat-tolerant crops, using climate-adaptive irrigation, and improving soil management to increase resilience to extreme heat.
- **S-10.10: Electrical Grid Reliability.** Coordinate with energy providers, infrastructure operators, and state regulators to ensure the safety and reliability of the local electrical grid to improve energy resilience and minimize the impacts of severe weather and extreme temperatures. Underground existing utilities to reduce damage and service interruptions from severe weather.
- **S-10.11: Solar Energy.** Work with local contractors, electricians, and solar energy installers to increase installation of solar and battery systems for residents, businesses, and public agencies.

See Table 3.8-7, *2022 CAP Consistency Analysis*, for proposed General Plan 2045 goals and policies that are consistent with the CAP, which would also serve to minimize GHG emissions.

While implementation of the proposed General Plan 2045 policies and other statewide measures would reduce GHG emissions associated with the proposed Project to the extent feasible, and GHG emissions are projected to slightly decrease compared to the existing baseline as shown in Table 3.8-6, the proposed Project's emissions would not meet the 2022 CAP's long-term per-capita efficiency target of zero MT CO₂e per person per year. Therefore, impacts would be *potentially significant*.

Impact GHG-1: Implementation of the proposed Project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Implementation of Policy OS-7.1 would require the City to monitor the CAP and ensure that the CAP aligns with the GHG reduction targets of AB 1279 and the latest applicable statewide legislative GHG emission reduction standards. It would also require the City to track and monitor GHG emissions. In addition, CAP measures and General Plan policies that increase energy efficiency, reduce water use, and offset electricity use through solar panels would reduce GHG emissions to the extent feasible.

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However, given the projected growth in population and employment within the EIR Study Area, the reductions needed from existing land uses, and the magnitude of reductions required to achieve the State's long-term GHG targets, it cannot be determined with certainty that Policy OS-7.1 and related CAP measures would achieve the substantial reductions necessary to meet AB 1279 targets. Achieving these statewide targets relies, in part, on future technological advancements and statewide actions that are outside the City's authority and cannot be imposed as feasible mitigation at the General Plan program level. No additional feasible mitigation measures are available that would reduce emissions to a level consistent with the long-term State targets until the 2022 CAP is updated pursuant to Policy OS-7.1.

Therefore, because no further feasible mitigation is available and the proposed Project would not meet State GHG reduction targets and is inconsistent with the 2022 CAP, GHG emissions under the proposed Project would remain **significant and unavoidable**.

b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Significant and unavoidable.

2022 Climate Action Plan

Consistency with 2022 CAP Long-Term Per-Capita Goal

As shown in Table 3.8-6, the proposed Project would not achieve the 2022 CAP's long-term per-capita efficiency target of zero MT CO₂e per person per year. Therefore, implementation of the proposed Project would conflict with the underlying goal of the 2022 CAP to reduce citywide GHG emissions.

Consistency with 2022 CAP Strategies

The City developed 23 CAP strategies to lower GHG emissions from a range of sources, including buildings and energy, transportation and land use, waste and materials, and carbon sequestration. As identified in Table 3.8-7, the proposed Project would not conflict with the applicable 2022 CAP Strategies.

Table 3.8-7 City’s CAP Consistency Analysis

CAP Adaptation Strategy	Consistency Analysis
Energy Resilience	
<p>Strategy E-1: Enhance community energy resilience.</p>	<p>Consistent. Future development would be required to be constructed in accordance with current State and City building codes as applicable. Compliance with the latest building codes would help increase energy efficiency and require on-site or backup energy capabilities, which reduce the demand on the grid.</p> <p>Moreover, the proposed Project contains various policies related to the promotion of energy resiliency and increasing regional grid reliability. Policies OS-7.2 and OS-8.1 support CAP strategies to improve energy efficiency and reduce energy-related GHG emissions. Policies OS-8.3 and S-10.10 support electrical grid agencies efforts to improve local grid resilience and encourage renewable energy neighborhood microgrids, especially in equity priority communities. Policies OS-8.4 through OS-8.6 and S-10.2 and S-10.3 support energy-efficient development and environmentally regenerative features to reduce energy demands. Implementation of these policies would enhance community energy resilience by prioritizing local sources of renewable energy.</p>
Drought	
<p>Strategy D-1: Improve water conservation and reuse.</p>	<p>Consistent. Future development would be required to be constructed in accordance with current State and City development codes as applicable. Compliance with the most recent California Building Standards Code and CALGreen mandatory measures will require the installation of water-efficient appliances and fixtures, such as low-flow toilets, faucets, showerheads, and other plumbing fittings. LMC Chapter 13.25, <i>Water Efficient Landscape</i>, also establishes standards for designing, installing, and maintaining water-efficient landscapes.</p> <p>Additionally, the proposed Project contains various goals and policies related to the improvement of water conservation and on-site water reuse that would support this strategy. Policies S-9.1, S-9.3, INF-2.4, and INF-2.5 support retention and reuse of rainwater and greywater systems. Policies S-9.2 and S-9.4 promote the use of water-efficient landscaping and low-water use agricultural techniques. Policies OS-3.1, OS-3.3, and INF-4.2 aim to regulate runoff from urban uses to protect the quality of surface water and groundwater.</p>

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Table 3.8-7 City’s CAP Consistency Analysis

CAP Adaptation Strategy	Consistency Analysis
Flooding	
<p>Strategy F-1: Improve stormwater management.</p>	<p>Consistent. Future development would be required to be constructed in accordance with current State and City development codes as applicable. Additionally, LMC Chapter 13.45, <i>Stormwater Management and Control Program</i>, contains regulations to reduce pollutants in stormwater discharges and better control the discharge to municipal storm sewers.</p> <p>The proposed Project also contains various goals and policies related to the improvement of stormwater management. Policies S-7.1, S-7.5, S-7-7, S-7.10, and INF-4.2 aim to implement regional flood mitigation strategies and structural floodproofing services. Policies S-9.1, INF-2.4, and INF-2.5 encourage the retention and reuse of rainwater. Policies OS-2.5, OS-2.6, OS-2.9, OS-2.14, and INF-4.3 through INF-4.5 support minimizing impacts to native riparian vegetation and conserving native trees.</p> <p>Compliance with the most recent California Building Standards Code and CALGreen mandatory measures and the proposed General Plan 2045 goals and policies will help improve stormwater management by requiring reduced impervious surfaces, promoting efficient water use, and supporting compliance with post-construction stormwater regulation.</p>
Extreme Heat	
<p>Strategy H-1: Increase resilience to extreme heat events.</p>	<p>Consistent. The proposed Project contains various policies related to heat resilience. Policies S-10.6, S-10.7, S-10.8, and S-10.9 would increase the resilience to extreme heat events by expanding the urban canopy, providing shade structures, and providing local cooling centers to be used during extreme heat events.</p>
Wildfire	
<p>Strategy WF-1: Mitigate wildfire risk and improve preparedness.</p>	<p>Consistent. The proposed Project contains various policies related to minimization of wildfire risk. Policies S-5.1 through S-5.8 would require a fire safety plan for new major developments in or near a Fire Hazard Severity Zone and promote the use of best development and site design practices identified by the Fire Department to reduce vulnerabilities to fire hazards. Policies S-5.8 and S-5.9 support reduction of fire hazards through site preparation, layout design, and fire-retarding building design and materials to reduce fire risk. These goals and policies would mitigate wildfire risk by requiring certain requirements in wildfire-prone areas that have been shown to reduce vulnerabilities to fire hazards, reducing fuel load, and improving community preparedness through the preparation of fire safety plans.</p>

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Table 3.8-7 City’s CAP Consistency Analysis

CAP Adaptation Strategy	Consistency Analysis
Buildings and Energy	
<p>Strategy B-1: Require new buildings to be all-electric and incentivize electrification retrofits of existing buildings.</p>	<p>Consistent. Future development would be required to be constructed in accordance with State and City building codes current at the time, which include provisions that support building electrification. The City has adopted amendments to the 2022 CALGreen code that requires most new buildings to be constructed all-electric and to install more EV chargers than required by the State code.</p> <p>Moreover, the proposed Project contains various policies related to the promotion of energy efficiency. Policies OS-8.6 and S-10.11 support increased installation of solar, battery systems, and solar access for residents, businesses, and public agencies. Policy OS-8.4 requires new building applicants to install all-electric appliances and encourages existing building owners to replace appliances with all-electric models.</p> <p>Compliance with State and City building codes that require building electrification, including CALGreen mandatory measures, and proposed General Plan 2045 goals and policies would promote building electrification and electrification retrofits of existing buildings.</p>
<p>Strategy B-2: Decarbonize electricity from the grid and increase local renewable energy generation.</p>	<p>Consistent. The proposed Project contains various policies related to decarbonization. Policies S-10.10 and OS-8.3 support PG&E, Ava Community Energy, and other Tri-Valley jurisdictions’ efforts to improve grid resilience. These policies would promote decarbonization of electricity from the grid and increase renewable energy generation by prioritizing local sources of renewable energy.</p>
Transportation and Land Use	
<p>Strategy T-1: Facilitate a transition to electric vehicles.</p>	<p>Consistent. The proposed Project contains various policies related to the electrification of vehicles. Policy MO-11.4 requires all new and significantly remodeled gas stations to include a Level 3 electric vehicle charger at a minimum. Policies MO-11.1, MO-11.3, and OS-6.9 support the adoption of zero-emission vehicles or alternative fuel systems with reduced emissions and zero-emission power sources for refrigerated trucks. These policies would facilitate a transition to zero-emission vehicles by incentivizing the use of zero-emissions vehicles and requiring the provision of EV charging infrastructure.</p>
<p>Strategy T-2: Facilitate a transition to transit and shared mobility services.</p>	<p>Consistent. The proposed Project contains various policies related to transit services. Policies LU-1.9, LU-4.1, LU-10.1, OS-6.11, OS-6.15, MO-2.2, and MO-2.4 aim to increase ridesharing and expand transportation alternatives by encouraging mixed-use development, creating safe active transportation, and implementing transportation demand-management strategies for new development. These policies support reliable and safe transit systems and shared mobility services.</p>

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Table 3.8-7 City’s CAP Consistency Analysis

CAP Adaptation Strategy	Consistency Analysis
Strategy T-3: Improve active transportation infrastructure.	Consistent. The proposed Project contains various policies related to active transportation infrastructure. Policies LU-1.9, LU-4.5, LU-10.1, and MO-2.2 support infill development near transit and aim to make active transportation safe and feasible for residents. Policies MO-3.1, MO-3.2, MO-3.4, and MO-3.6 aim to improve connectivity for cyclists and pedestrians. These policies support an active transportation infrastructure, encouraging alternative modes of transit.
Strategy T-4: Support sustainable land use practices.	Consistent. The proposed Project contains various policies related to sustainable land use practices. Policies LU-1.2, LU-1.7 through LU-1.9, LU-4.1, and LU-4.3 aim to locate infill, mixed-use, and higher-density development in areas that maximize the existing public services and improve the jobs/housing balance. These policies would support compact and mixed-use development, which would promote sustainable development.
Waste and Materials	
Strategy W-1: Reduce the amount of waste that is landfilled.	Consistent. Future development would be required to comply with all applicable federal, State, and local nonhazardous waste diversion requirements, including those in the applicable mandatory measures of CALGreen. LMC Chapter 8.08, <i>Solid Waste Management</i> , implements the requirements of AB 939 and SB 1383 by prioritizing waste reduction and the recycling of solid and organic waste to the maximum extent feasible prior to landfill disposal. Compliance with these mandatory requirements would result in the reduction of waste that is landfilled.
Strategy W-2: Expand use of low-carbon and recycled building materials.	Consistent. Future development would be required to be constructed in accordance with current State and City building codes as applicable, which encourage sustainable construction practices, including material conservation and resource efficiency.
Carbon Sequestration	
Strategy S-1: Maximize local carbon sequestration.	Consistent. The proposed Project contains various policies related to carbon sequestration. Policies OS-1.1 through OS-1.10, OS-2.2, and OS-2.3 help preserve, restore, rewild, and enhance Livermore’s open space and sensitive habitats. Policy OS-2.4 aims to conserve native trees and vegetation. These policies would support local carbon sequestration through the preservation of open spaces.
Municipal Strategies & Actions	
Strategy M-1: Enhance resilience at public facilities.	Consistent. The proposed Project contains various policies related to the resilience of public facilities. Policy OS-8.3 ensures City facilities and operations use, clean, reliable, and resilient energy sources.

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Table 3.8-7 City’s CAP Consistency Analysis

CAP Adaptation Strategy	Consistency Analysis
Strategy M-2: Electrify municipal facilities and operations.	Consistent. The proposed Project contains various policies related to electrification. Policy OS-6.16 aims to replace City-owned gasoline- and diesel-powered equipment with zero-emission models. Policy OS-8.3 promotes energy systems that improve efficiency and maintain essential services during power disruptions. These policies would result in the electrification of municipal facilities and operations by prioritizing, and in some cases requiring, such electrification.
Strategy M-3: Electrify the City’s vehicle fleet and encourage City employees to utilize alternative transportation and teleworking opportunities.	Consistent. The City was awarded a grant from the California Energy Commission’s Charging Infrastructure for Government Fleets program, which supports public agencies in accelerating the adoption of zero-emission vehicle technologies. This grant will add 100 EV charging ports to five municipal facilities by January 2027 and help the City toward their goal of 100 percent zero-emission fleet by 2045. The proposed Project contains various policies related to the transition to low-emission vehicles. Policies MO-11.1 and OS-6.17 support the adoption of low-emission vehicles or alternative fuel systems with reduced emissions and are consistent with this strategy.
Strategy M-4: Conserve water in municipal landscaping and improve on-site stormwater management.	Consistent. The proposed Project contains various policies related to water conservation. Policy INF-4.4 aims to install green infrastructure, rain gardens, and other natural stormwater management infrastructure at City facilities, which would conserve water in municipal landscaping.
Strategy M-5: Purchase more sustainable products to reduce waste from City operations.	Consistent. The City Council has adopted an Environmentally Preferable Purchasing and Practices (EPP) policy that helps guide the City to purchase products that minimize environmental impacts and reduce waste. Additionally, LMC Chapter 2.68, <i>Contracts and Purchasing</i> , incorporates the EPP policy, requiring environmental considerations, such as recycled content and the use of products made from recovered organic waste. As described throughout this table, the proposed Project includes goals and policies that would support these requirements, and, therefore, would not conflict with or obstruct the City’s EPP policy.
Strategy M-6: Utilize public lands to increase local carbon sequestration and reduce urban heat island effect.	Consistent. The proposed Project contains various policies related to carbon sequestration and urban heat island effects. Policies OS-1.1 through OS-1.10, OS-2.2, and OS-2.3 would preserve, restore, rewild, and enhance Livermore’s open space and sensitive habitats. Policy OS-2.4 aims to conserve native trees and vegetation. Policies S-10.6 and S-10.9 support efforts to ensure public facilities, public events, and farming are resilient to high heat. These goals and policies would support local carbon sequestration and reduce urban heat island effects.

Source: City of Livermore 2022b.

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CARB Scoping Plan

CARB's Scoping Plan is applicable to State agencies but is not directly applicable to cities/counties and individual projects (i.e., the Scoping Plan does not require local jurisdictions to adopt its policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the State agencies from the Scoping Plan result in GHG emissions reductions at the local level. So local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down.

Statewide strategies to reduce GHG emissions in the latest 2022 Scoping Plan include implementing SB 100, which would achieve 100 percent clean electricity by 2045; LCFS; California Appliance Energy Efficiency regulations; California RPS; changes in the standards, and other early action measures as necessary to ensure the State is on target to achieve the GHG emissions-reduction goals of AB 32, SB 32, and AB 1279. Additional policies include the Off-Road Zero-Emission Targeted Manufacturer rule, Clean Off-Road Fleet Recognition Program, In-use Off-Road Diesel-Fueled Fleets Regulation, Off-Road Zero-Emission Targeted Manufacturer rule, Clean Off-Road Fleet Recognition Program, and Amendments to the In-use Off-Road Diesel-Fueled Fleets Regulation. The 2022 Scoping Plan would continue to implement SB 375. GHGs would be further reduced through the Cap-and-Trade Program carbon pricing and SB 905. SB 905 requires CARB to create the Carbon Capture, Removal, Utilization, and Storage Program to evaluate, demonstrate, and regulate carbon dioxide removal projects and technology.

Table 3.8-6 shows a large decrease in GHG emissions from building energy sources based on implementation of SB 100, which accelerates the State's RPS program and requires power utility providers to supply 100 percent of in-State electricity sales sourced from eligible renewable and carbon-free generation sources. Because compliance with the RPS is evaluated on a three-year average, power utility providers, such as PG&E and Ava Energy, will be required to provide 100 percent renewable and carbon-free electricity by 2045.

Forecasted GHG emissions would be further reduced over time by the 2022 Scoping Plan measures, as described above, cleaner technology, and fleet turnover. Future development would be required to comply with statewide, regional, and local agencies to achieve the statewide GHG reduction goals.

The same proposed General Plan 2045 goals and policies identified under impact discussion (a) and in Table 3.8-7 would help reduce long-term GHG emissions and would result in an overall reduction in GHG emissions from existing conditions, making progress toward the statewide carbon neutrality target for 2045. Therefore, implementation of the proposed Project would not conflict with the CARB Scoping Plan.

Plan Bay Area

Plan Bay Area 2050 is the Bay Area's Regional Transportation Plan/Sustainable Community Strategy that identifies the sustainable vision for the Bay Area (ABAG and MTC 2021). In addition to significant transit and roadway performance investments to encourage focused growth, Plan Bay Area 2050 directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, safety programs, and PDA planning. As shown on Figure 3-1, *Priority Development Areas and Transit Priority Areas*, in Chapter 3, *Environmental Analysis*, the EIR Study Area includes three PDAs.

As described previously, the proposed General Plan 2045 includes goals and policies that would support development on infill parcels in previously developed areas, including within PDAs. Given that future growth would be concentrated in areas currently served by public services and infrastructure, it would reduce infrastructure investment needed to serve future development, and it would reduce consumption of transportation energy resources. Thus, the proposed Project would not conflict with the overall goals of Plan Bay Area 2050 in concentrating new development in locations where there is existing infrastructure.

Summary

The proposed Project would be consistent with the applicable 2022 CAP Strategies, the 2020 Scoping Plan, and Plan Bay Area 2050. However, implementation of the proposed Project would not achieve the 2022 CAP per-capita efficiency target and therefore conflicts with the 2022 CAP. As described under impact discussion (a), implementation of the proposed Project would not achieve the 2022 CAP long-term per-capita efficiency target of zero MTCO_{2e} per person per year. Therefore, impacts would be *potentially significant*.

Impact GHG-2: Implementation of the proposed Project could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Implementation of CAP measures would increase energy efficiency, reduce water use, and offset electricity use through solar panels and would reduce GHG emissions to the extent feasible. However, given the growth in population and employment within the EIR Study Area, the reductions needed from existing land uses, the magnitude of emissions reductions needed to achieve the long-term efficiency threshold, and federal legal constraints on the implementation and effectiveness of State actions for emission reduction, it is uncertain whether consistency with the 2022 CAP and implementation of proposed Policy 7.1 would achieve the substantial reductions needed to achieve the long-term efficiency threshold. Because the proposed Project would conflict with the underlying goal of the 2022 CAP, this impact is **significant and unavoidable**.

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3.8.5 Cumulative Impact Analysis

Because GHG emissions are not confined to a particular air basin but are dispersed worldwide, the following discussion considers the proposed Project's cumulative contribution to global impacts and to meet the State's carbon neutrality targets.

Would the project have a cumulative effect related to GHG emissions?

Significant and unavoidable. Because GHG emissions are cumulative in nature and not confined to a particular air basin, impacts described previously under impact discussions (a) and (b) are not project-specific impacts, but the proposed Project's contribution to this cumulative impact. As described previously, various proposed General Plan 2045 goals and policies would help minimize GHG emissions.

As described under impact discussion (a), the proposed Project would result in a 2 percent reduction in GHG emissions in year 2045; however, the proposed Project would exceed the long-term efficiency threshold of zero MT CO_{2e} per person per year in 2045. Therefore, the proposed Project would not achieve the long-term year 2045 reduction goal and State's carbon neutrality goal set by AB 1279.

As described under impact discussion (b), the proposed Project would not obstruct implementation of the City's 2022 CAP strategies, CARB's Scoping Plan, or Plan Bay Area 2050. However, the proposed Project would not achieve the City's 2022 underlying per-capita goal for year 2045. Accordingly, project-related GHG emissions and their cumulative contribution to global climate change would be *potentially significant*.

Impact GHG-3: Implementation of the proposed Project could result in a significant cumulative impact with respect to generation of greenhouse gas (GHG) emissions that may have a significant impact on the environment and conflict with an applicable plan adopted for the purpose of reducing GHG emissions.

Proposed General Plan 2045 Policy OS-7.1 would require the City to monitor the CAP to align GHG emissions targets in the city with the state's carbon neutrality goal set by AB 1279. This policy would also ensure that the City is tracking and monitoring GHG emissions. The proposed Project aligns with plans and regulations aimed at reducing their cumulative environmental impacts. However, given the projected growth in population and employment within the EIR Study Area, the reductions needed from existing land uses, and the magnitude of reductions required to achieve the State's long-term GHG targets, it cannot be determined with certainty that Policy OS-7.1 and related CAP measures would achieve the substantial reductions necessary to meet AB 1279 targets. Achieving these statewide targets relies, in part, on future technological advancements and statewide actions that are outside the City's authority and cannot be imposed as feasible mitigation at the General Plan program level. No additional

feasible mitigation measures are available that would reduce emissions to a level consistent with the long-term State targets until the 2022 CAP is updated pursuant to proposed Policy OS-7.1, and implementation of the proposed Project would contribute to cumulative GHG impacts; therefore, the proposed Project would have a **significant and unavoidable** cumulative impact with respect to GHG emissions.

3.8.6 References

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