

3.8 GREENHOUSE GAS EMISSIONS

Comments received on the Notice of Preparation (NOP) were reviewed during preparation of this SEIR. A comment letter was submitted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) related to mitigation strategies to reduce the project’s emissions of greenhouse gases. The City reviewed and considered this information during preparation of this chapter.

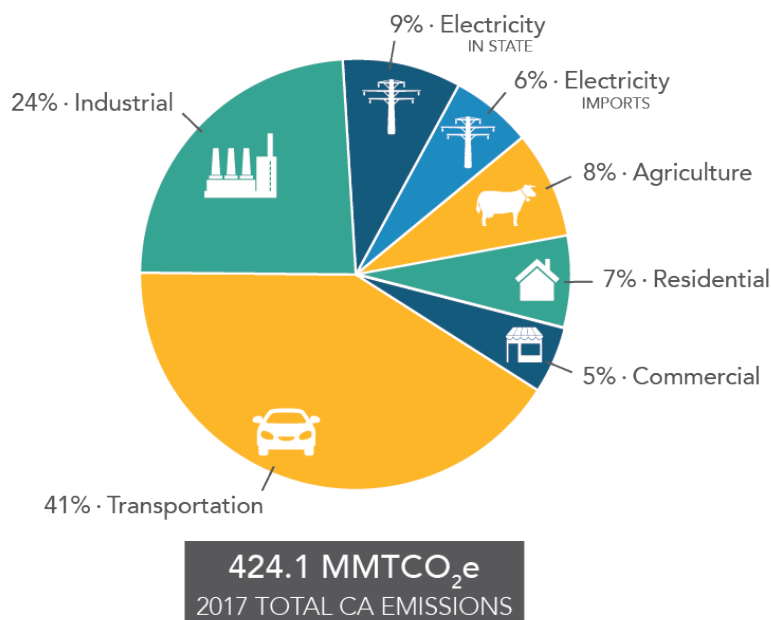
3.8.1 ENVIRONMENTAL SETTING

The environmental setting for the proposed Project as it relates to greenhouse gases (GHGs) has not changed since the 2019 SOIA EIR was prepared.

GHGs typically persist in the atmosphere for extensive periods time, long enough to be dispersed throughout the globe and result in long-term global impacts. As such, the proposed Project will not, by itself, contribute significantly to climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. Accordingly, this section considers the cumulative contribution of implementation of the proposed project to the significant cumulative impact of climate change.

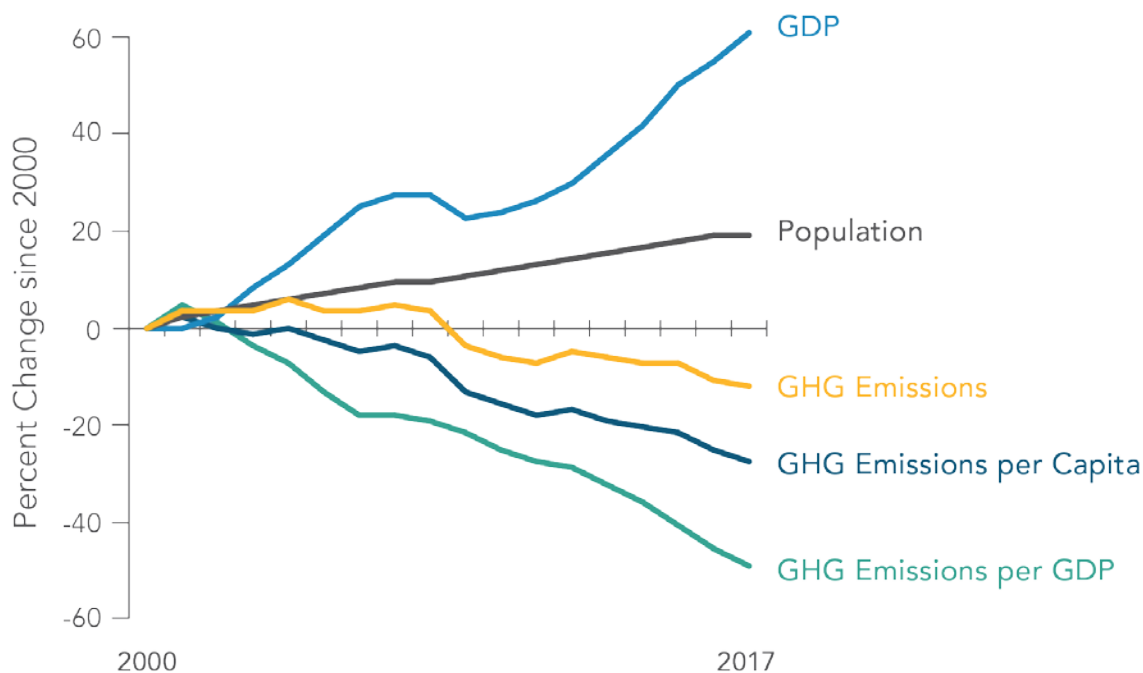
The California Air Resources Board (ARB) prepares an annual, statewide GHG emissions inventory, including an analysis of emissions by sector, or type of activity. As shown in Exhibit 3.8-1, California produced 424.1 million MT CO₂e in 2017 (the latest available full year of reporting). Combustion of fossil fuel in the transportation sector was the single largest source of California’s GHG emissions in 2017, accounting for 41 percent of total GHG emissions. Transportation was followed by industry, which accounted for 24 percent, and then the electricity sector (including in-state and out-of-state sources) accounted for 9 percent of total GHG emissions (ARB 2019).

California has implemented several programs and regulatory measures to reduce GHG emissions. Exhibit 3.8-2 demonstrates California’s progress in achieving statewide GHG emissions reduction targets. Since 2007,



Source: ARB 2019

Exhibit 3.8-1. California 2017 GHG Emissions Inventory by Sector



Source: ARB 2019

Exhibit 3.8-2. Trends in California GHG Emissions (Years 2000 to 2017)

California’s GHG emissions have been declining; GHG emissions have continued to decline even as population and gross domestic product have increased.

In 2009, a community-wide GHG emissions inventory was conducted for the City through a regional effort for Sacramento County and each jurisdiction within the county. The inventory estimated GHG emissions produced from activities in the year 2005, including transportation, waste, water, and energy-related activities. A community-wide GHG inventory update for the City of Elk Grove was completed as part of the City’s General Plan and CAP update process using data from 2013 (the most current available data at the time). The 2005 and 2013 community-wide inventories were conducted using the 2012 U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, commonly known as the U.S. Community Protocol. Since 2009, the City has revised the 2005 community-wide inventory twice: once during development of the City’s Climate Action Plan to adjust for new data and methods and a second time in 2015 for the General Plan Update to incorporate new data, GHG accounting methods, and up-to-date protocols. In 2017, as part of the City of Elk Grove’s General Plan update and Climate Action Plan (CAP) update process, a GHG inventory update was completed using the new baseline year of 2013. Additionally, the 2005 inventory was updated to use GWP values from the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report to match the values used for the 2013 inventory. Revisions allow for a consistent comparison between the 2005 and 2013 inventories. The 2005 and 2013 inventories are summarized in Table 3.8-1.

Table 3.8-1 City of Elk Grove GHG Emissions Inventory (2005 – 2013)					
Sector	2005 MT CO ₂ e	Percent of 2005 Total	2013 MT CO ₂ e	Percent of 2013 Total	Percent Change 2005 to 2013
Residential buildings	225,190	27.9 %	231,400	25.3 %	+ 3 %
Non-residential buildings	103,170	12.8 %	129,860	14.2 %	+ 26 %
Transportation	348,370	43.1 %	430,340	47.0 %	+ 24 %
Off-road equipment	83,800	10.4 %	93,340	10.2 %	+ 11 %
Solid waste	36,380	4.5 %	23,720	2.6 %	- 35 %
Landfills	2,980	0.4 %	2,540	0.3 %	- 15 %
Water and wastewater	3,070	0.4 %	7,177	0.8 %	+ 134 %
Agriculture	5,450	0.7 %	1,020	0.1 %	- 81 %
Total	808,410	100 %	919,407	100 %	+ 13 %
Notes: ¹ MT CO ₂ e = metric tons of carbon dioxide equivalent; ² Totals may not be the exact sum due to rounding. Source: City of Elk Grove 2019a					

As with the state, as a whole on-road transportation is the largest source of GHG emissions in the City, contributing more than 43 percent of the total. For the City, the proportion of overall emissions attributable to the transportation sector increased between 2005 and 2013 from approximately 43 percent to approximately 47 percent.

3.8.2 REGULATORY FRAMEWORK

The regulatory framework surrounding GHG emissions, as it pertains to the proposed Project, is described in the 2019 SOIA EIR. The following highlights changes in the regulatory framework since the time the 2019 SOIA EIR was drafted.

Executive Order B-55-18 (2018)

Executive Order B-55-18 acknowledges the environmental, community, and public health risks posed by future climate change. It further recognizes the climate stabilization goal adopted by 194 states and the European Union under the Paris Agreement. Based on the worldwide scientific agreement that carbon neutrality must be achieved by midcentury, Executive Order B-55-18 establishes a new state goal to achieve carbon neutrality as soon as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter. The Executive Order charges the ARB with developing a framework for implementing and tracking progress towards these goals. Executive Order B-55-18 is only binding on state agencies.

California Code of Regulations (CCR) Title 20, Part 6

The California Energy Commission (CEC) is responsible for implementing the CCR Title 24, Part 6, *Energy Efficiency Standards for Residential and Nonresidential Buildings*. The Title 24 standards are updated on a three-year basis and have been incrementally working toward the State's 2020 goal of zero-net-energy use of all new homes. The most recent update was adopted in 2019 and went into effect on January 1, 2020. Implementation of

these standards will result in the average new home using zero-net-energy and nonresidential buildings using about 30 percent less energy than those built to the 2016 standards.

Senate Bill 100

Senate Bill (SB) 100 was adopted in September of 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is designated by the State and federal governments as the Metropolitan Planning Organization (MPO) and is responsible for developing a regional Metropolitan Transportation Plan (MTP) and Sustainable Communities Strategy (SCS) in coordination with Sacramento, Yolo, Yuba, Sutter, El Dorado, and Placer counties and the 22 cities within those counties (excluding the Tahoe Basin).

SACOG plays a central role in transportation infrastructure planning for the region, while also serving as a forum for the study, planning, and resolution of other planning issues facing the local member governments. The most recent MTP/SCS for the SACOG region was adopted in November 2019. The 2020 MTP/SCS lays out a plan that links land use, air quality, and transportation needs. The MTP/SCS includes strategies and policies to reduce greenhouse gas emissions from passenger vehicles to meet state targets established by ARB.

City of Elk Grove General Plan and Climate Action Plan

On February 27, 2019, the City concurrently updated and adopted the General Plan and Climate Action Plan (CAP). The CAP is intended to carry out the General Plan goals and policies to reduce GHG emissions and address the impacts of climate change. The General Plan contains the following policies and actions that affect the generation of GHG emissions and may apply to the potential future development of the Project site are highlighted below.

Urban and Rural Development

- ▶ **Policy LU-1-9:** Encourage employee intensive commercial and industrial uses to locate within walking distance of fixed transit stops. Encourage regional public transit to provide or increase coordinated services to areas with high concentrations of residents, workers, or visitors.

- ▶ **Policy LU-4-1:** Establish activity centers as community gathering places characterized by the following design element related actions.
 - Prioritize pedestrian and bicycle access.
 - Ensure local and regional transit connections are provided throughout each activity year.

Economy and the Region

- ▶ **Policy RC-1-5:** In addition to establishing a primary Major Employment Center, consider options to develop additional Major Employment Centers in portions of the City with enough available undeveloped land and potential sufficient transit access to support such a center.
- ▶ **Policy RC-3-1:** Integrate economic development and land use planning in Elk Grove with planning for regional transportation systems.
- ▶ **Policy RC-3-4:** Advocate for fixed-transit service in Elk Grove as part of a coordinated regional network designed and routed to serve Major Employment Centers, residential centers, shopping centers, and colleges and universities.

Mobility

- ▶ **Policy MOB-1-1:** Achieve State-mandated reductions in VMT by requiring land use and transportation projects to comply with the specific metrics and limits. These metrics and limits shall be used as thresholds of significance in evaluating projects subject to CEQA.
- ▶ **Policy MOB-1-4:** Consider all transportation modes and the overall mobility of these modes when evaluating transportation design and potential impacts during circulation planning.
- ▶ **Policy MOB-3-1:** Implement a balanced transportation system using a layered network approach to building Complete Streets that ensure the safety and mobility of all users, including pedestrians, cyclists, motorists, children, seniors, and people with disabilities.
- ▶ **Policy MOB-3-2:** Support strategies that reduce reliance on single-occupancy private vehicles and promote the viability of alternative modes of transport.
- ▶ **Policy MOB-3-7:** Develop a complete and connected network of sidewalks, crossings, paths, and bike lanes that are convenient and attractive, with a variety of routes in pedestrian-oriented area.
- ▶ **Policy MOB-3-15:** Utilize reduced parking requirements when and where appropriate to promote walkable neighborhoods and districts and to increase the use of transit and bicycles.
- ▶ **Policy MOB-3-16:** Establish parking maximums, where appropriate, to prevent undesirable amounts of motor vehicle traffic in areas where pedestrian, bike, and transit use are prioritized.
- ▶ **Policy MOB-3-17:** Ensure new multifamily and commercial developments provide bicycle parking and other bicycle support facilities appropriate for the users of the development.
- ▶ **Policy MOB-4-1:** Ensure that community and area plans, specific plans, and development projects promote pedestrian and bicycle movement via direct, safe, and pleasant routes that connect destinations inside and outside the plan or project area. This may include convenient pedestrian and bicycle connections to public transportation.

- ▶ **Policy MOB-4-5:** Encourage employers to offer incentives to reduce the use of vehicles for commuting to work and increase commuting by active transportation modes. Incentives may include a cash allowance in lieu of a parking space and onsite facilities and amenities for employees such as bicycle storage, shower rooms, lockers, trees, and shaded seating areas.
- ▶ **Policy MOB-5-1:** Support a pattern of land uses and development projects that are conducive to the provision of a robust transit service.
- ▶ **Policy MOB-5-4:** Support mixed-use and high-density development applications close to existing and planned transit stops.
- ▶ **Policy MOB-5-6:** Provide the appropriate level of transit service in all areas of Elk Grove, through fixed-route service in urban areas, and complementary demand response service in rural areas, so that transit-dependent residents are not cut off from community services, events, and activities.
- ▶ **Policy MOB-5-7:** Maintain and enhance transit services throughout the City in a manner that ensures frequent, reliable, timely, cost-effective, and responsive service to meet the City’s needs. Enhance transit services where feasible to accommodate growth and transit needs as funding allows.
- ▶ **Policy MOB-5-8:** Support and use infrastructure improvements and technological advancements such as intelligent transportation management tools to facilitate the movement and security of goods through the City in an efficient manner.
- ▶ **Policy MOB-5-9:** Assist in the provision of support facilities for emerging technologies such as advanced fueling stations (e.g., electric and hydrogen) and smart roadway signaling/signage.
- ▶ **Policy MOB-5-10:** Work with a broad range of agencies to encourage and support programs that increase regional average vehicle occupancy. Examples include providing traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, road and parking pricing, and other methods.
- ▶ **Policy MOB-5-11:** Encourage and create incentives for the use of environmentally friendly materials and innovative approaches in roadway designs that limit runoff and urban heat island effects. Examples include permeable pavement, bioswales, and recycled road base, asphalt, and concrete.

Natural Resources

- ▶ **Policy NR-2-2:** Maximize and maintain tree coverage on public lands and in open spaces.
- ▶ **Policy NR-2-4:** Maintain and enhance an urban forest by preserving and planting trees in appropriate densities and locations to maximize energy conservation and air quality benefits.
- ▶ **Policy NR-3-8:** Reduce the amount of water used by residential and nonresidential uses by requiring compliance with adopted water conservation measures.
- ▶ **Policy NR-3-9:** Promote the use of greywater systems and recycled water for irrigation purposes.
- ▶ **Policy NR-3-12:** Advocate for native and/or drought-tolerant landscaping in public and private project.

- ▶ **Policy NR-3-6:** Continue interagency partnerships to support water conservation.
- ▶ **Policy NR-4-1:** Require all new development projects which have the potential to result in substantial air quality impacts to incorporate design, and/or operational features that result in a reduction in emissions equal to 15 percent compared to an “unmitigated baseline project.” An unmitigated baseline project is a development project which is built and/or operated without the implementation of trip reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.
- ▶ **Policy NR-4-4:** Promote pedestrian/bicycle access and circulation to encourage residents to use alternative modes of transportation in order to minimize direct and indirect emissions of air contaminants.
- ▶ **Policy NR-4-5:** Emphasize demand management strategies that seek to reduce single-occupant vehicle use in order to achieve State and federal air quality plan objectives.
- ▶ **Policy NR-4-6:** Offer a public transit system that is an attractive alternative to the use of private motor vehicles.
- ▶ **Policy NR-4-8:** Require that development projects incorporate best management practices during construction activities to reduce emissions of criteria pollutants.
- ▶ **Policy NR-5-1:** By 2030 reduce community-wide greenhouse gas emissions to 4.1 metric tons of carbon dioxide equivalents (MT CO₂e) per capita. By 2050 reduce community-wide greenhouse gas emissions to 1.4 MTCO₂e per capita to meet the State’s 2050 greenhouse gas emissions reduction goals.
- ▶ **Policy NR-5-2:** Improve the health and sustainability of the community through improved regional air quality and reduction of greenhouse gas emissions that contribute to climate change.
- ▶ **Policy NR-5-3:** Support efforts by the Sacramento Metropolitan Air Quality Management District and the California Air Resources Board to decrease greenhouse gas emissions from stationary sources.
- ▶ **Policy NR-5-4:** Preserve, protect, and enhance, as appropriate, the community’s carbon sequestration resources to improve air quality and reduce net carbon emissions.
- ▶ **Policy NR-6-1:** Promote energy efficiency and conservation strategies to help residents and businesses save money and conserve valuable resources.
- ▶ **Policy NR-6-3:** Promote innovation in energy efficiency.
- ▶ **Policy NR-6-5:** Encourage renewable energy options that are affordable and benefit all community members.
- ▶ **Policy NR-6-6:** Encourage the use of solar energy systems in homes, commercial businesses, and City facilities as a form of renewable energy.
- ▶ **Policy NR-6-7:** Promote energy conservation measures in new development to reduce on-site emissions and seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development. \

Sustainable Development

- ▶ **Policy SD-2-1:** Incorporate green building techniques and best management practices in the site design, construction, and renovation of all public projects
- ▶ **Policy SD-2-2:** Support innovation and green building best management practices for all new private development

City of Elk Grove Climate Action Plan

The City Council adopted its first Climate Action Plan (CAP) in 2013. The first update to the CAP was adopted in February 2019 and amended in December 2019. The CAP identifies sources of GHG emissions attributable to land uses and activities within City limits and identifies measures to reduce emissions through energy use, land use, solid waste, and transportation strategies. The CAP includes the following topics for emission reduction strategies: An Innovative and Efficient Built Environment; Resource Conservation; and Transportation Alternatives and Congestion Management. The amended 2019 CAP is structured to serve as a programmatic tiering document for the purposes of CEQA. For analysis of GHG emissions impacts under CEQA, projects can achieve streamlining pursuant to the provisions of Section 15183.5 by including all applicable GHG reduction measures in the CAP as a part of project location or design and/or as mitigation measures in the environmental document, thus demonstrating that the project would have a cumulatively less than significant impact on the environment

Table 3.8-2 presents GHG reduction measures from the City’s 2019 CAP.

Table 3.8-2 City of Elk Grove Climate Action Plan Applicable GHG Reduction Measures		
	Reduction Measures	Policy Topic
BE-4	Building Stock: Encourage or Require Green Building Practices in New Construction. Encourage new construction projects to comply with CALGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24 Part 6 Building Energy Efficiency Standards.	Built Environment
BE-5	Building Stock: Phase in Zero Net-Energy Standards in New Construction. Phase in zero net energy (ZNE) standards for new construction, beginning in 2020 for residential projects and 2030 for commercial projects. Specific phase-in requirements and ZNE compliance standards will be supported by updates in the triennial building code updates, beginning with the 2019 update.	Built Environment
BE-6	Building Stock: Electrification in New and Existing Residential Development. Encourage and incentivize new residential developments to include all electrical appliances and HVAC systems in the design of new projects. Support local utilities in implementing residential retrofit programs to help homeowners convert to all electrical appliances and HVAC systems. Explore the feasibility of phasing in minimum standards for all-electric developments.	Built Environment
BE-7	Building Stock: Solar Photovoltaics in New and Existing Residential and Commercial Development. Encourage and require installation of on-site solar photovoltaic (PV) in new single-family and low-rise multi-family developments. Promote installation of on-site PV systems in existing residential and commercial development.	Built Environment
BE-8	SMUD Greenergy and SolarShare Programs. Encourage participation in SMUD’s offsite renewable energy programs (i.e., Greenergy, SolarShares), which allow building renters and owners to opt into cleaner electricity sources.	Built Environment
RC-1	Waste Reduction. The City shall facilitate recycling, reduction in the amount of waste, and reuse of materials to reduce the amount of solid waste generated.	Resource Conservation

Table 3.8-2 City of Elk Grove Climate Action Plan Applicable GHG Reduction Measures		
	Reduction Measures	Policy Topic
RC-2	Organic Waste Reduction. The City will target reduction of organic waste disposal, consistent with statewide goals, of 50 percent of 2014 levels by 2020 and 75 percent by 2025, using alternatives such as composting, anaerobic digestion, and biomass energy	Resource Conservation
TACM-1	Local Goods. Promote policies, programs, and services that support the local movement of goods in order to reduce the need for travel.	Transportation Alternatives & Congestion Management
TACM-2	Transit-Oriented Development. Support higher-density, compact development along transit by placing high-density, mixed-use sites near transit opportunities.	Transportation Alternatives & Congestion Management
TACM-3	Intracity Transportation Demand Management. The City shall continue to implement strategies and policies that reduce the demand for personal motor vehicle travel for intracity (local) trips.	Transportation Alternatives & Congestion Management
TACM-4	Pedestrian and Bicycle Travel. Provide for safe and convenient pedestrian and bicycle travel through implementation of the Bicycle, Pedestrian and Trails Master Plan and increased bicycle parking standards.	Transportation Alternatives & Congestion Management
TACM-6	Limit Vehicle Miles Traveled. Achieve a 15 percent reduction in daily VMT compared to existing conditions (2015) for all new development in the City, consistent with state mandated VMT reduction targets for land use and transportation projects.	Transportation Alternatives & Congestion Management
TACM-7	Traffic Calming Measures. Increase the number of streets and intersections that have traffic calming measures.	Transportation Alternatives & Congestion Management
TACM-8	Tier 4 Final Construction Equipment. Require all construction equipment used in Elk Grove to achieve EPA-rated Tier 4 Final diesel engine standards by 2030 and encourage the use of electrified equipment where feasible.	Transportation Alternatives & Congestion Management
TACM-9	EV Charging Requirements. Adopt an electric vehicle (EV) charging station ordinance that establishes minimum EV charging standards for all new residential and commercial development. Increase the number of EV charging stations at municipal facilities throughout the City.	Transportation Alternatives & Congestion Management

Source: City of Elk Grove 2019b

3.8.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system. Therefore, impacts are analyzed within the context of the potential contribution to the cumulatively significant impact of climate change.

GHG emissions were estimated using similar methods as those described in Section 3.4 of this EIR, “Air Quality.” In addition to criteria air pollutants, CalEEMod Version 2016.3.2 and the Road Construction Emissions Model were also used to estimate GHG emissions associated with construction and operational activities. Detailed modeling inputs, assumptions, and calculations are available in Appendix E.

For construction, GHG emissions were estimated for off-road construction equipment, material delivery trucks, haul trucks, and construction worker vehicles. For operational activities, GHG emissions were estimated for activities associated with mobile, area, and energy sources, as well as solid waste disposal and water consumption. The specific timing of construction and operation of any individual use within the Project site is unknown, and subject to market conditions and other factors outside the control of the City. This EIR assumes a 20-year development period. Therefore, GHG emissions associated with operations of all future development

within the Project site were estimated for the full development of potential land uses within the Project site in the year 2040; this incorporated the fleet mix for the year 2040¹ to reflect the anticipated turnover of vehicles over the duration of the construction period and resultant increase in fuel efficiency and decrease in emissions from motor vehicles, but conservatively used the 2018 (most recent) carbon intensity factor for electricity and an adjusted energy intensity to account for implementation of the 2019 Title 24 standards without projecting future reductions in electricity carbon intensity or increases in building energy efficiency.

In order to provide a more comprehensive assessment of cumulative GHG emissions, construction-related GHG emissions that would result from construction of all assumed land uses and infrastructure improvements were summed and then amortized over a 25-year operational lifetime² and added to the operational emissions associated with these land uses. The annual operational emissions, along with the amortized construction emissions, were compared with applicable significance thresholds to determine cumulative significance.

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the CEQA Guidelines. The proposed Project would have a significant impact associated with the generation of GHG emissions and climate change if implementation of the proposed Project would:

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

Assembly Bill (AB) 32, Executive Order B-30-15, SB 32, and Executive Order S-3-05 represent the framework for CEQA analysis of GHG emissions impacts in California. For development projects and plans, it is important to evaluate whether a subject project “incorporates efficiency and conservation measures sufficient to contribute its portion of the overall greenhouse gas reductions necessary” for the State to achieve its own mandates (*Center for Biological Diversity, et al. v. California Department of Fish And Wildlife, the Newhall Land And Farming Company*, California Supreme Court, Case No. 5217763). If a project or plan demonstrates that the rate of GHG emissions is efficient enough to provide its share of State emissions reduction targets, the impact is not cumulatively considerable (*Center for Biological Diversity, et al. v. California Department of Fish and Wildlife*, page 12; Crockett 2011).

As stated in Appendix E, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. For land development and construction projects, SMAQMD considers a project to exceed GHG emission thresholds³ if:

¹ This varies from the methodology used for the estimate of maximum daily criteria air pollutants described in Section 3.4, “Air Quality,” of this EIR, which modeled operational emissions for the year 2022 to represent a conservative estimate of the maximum potential daily emissions.

² The 25-year operational lifetime is a conservative estimate of the operational life of a typical development project. Estimates derived from the State of California Executive Order D-16-00 and US Green Building Council’s, *The Costs and Financial Benefits of Green Building* (SMAQMD 2020).

³ SMAQMD adopted an updated land development GHG threshold, including Best Management practices on April 23, 2020, via resolution 2020-009.

- ▶ the annual construction-related emissions exceed 1,100 MT CO₂e/year; or
- ▶ the project fails to demonstrate consistency with the State Climate Change Scoping Plan by implementing the following best management practices (BMP), or equivalent on-site or off-site mitigation, as applicable:
 - All projects must implement Tier 1 BMPs (BPM 1 and 2):
 - BMP 1 – projects shall be designed and constructed without natural gas infrastructure;
 - BMP 2 – projects shall meet the current CalGreen Tier 2 standards, except all electric vehicle capable spaces shall instead be electric vehicle ready.
 - Projects that exceed 1,100 metric tons/year after implementation of Tier 1 BMPs must implement Tier 2 BMPs (BMP 3):
 - BMP 3 – residential projects shall achieve a 15 percent reduction in vehicle miles traveled per resident and office projects shall achieve a 15 percent reduction in vehicle miles traveled per worker compared to existing average vehicle miles traveled for the county, and retail projects shall achieve a no net increase in total vehicle miles traveled to show consistency with SB 743.

The City of Elk Grove has adopted GHG emissions targets that, if achieved, based on emissions reduction quantification under the updated CAP and analysis in the General Plan EIR, would enable the City to continue to reduce community-wide emissions in proportion to the State’s GHG reduction targets (City of Elk Grove 2019a, b).

The GHG emissions efficiency of a project or plan is the amount of emission per some unit of measurement. An efficiency target can be developed that mirrors statewide emissions reduction legislation and executive orders. To create an efficiency target, one would simply divide the statewide emissions target for a specified target year by the forecast population for the same year. This would yield an emissions “budget” for each California resident, and allow a community to assess whether or not its emissions rate is consistent with this emissions budget.

The City identified, and adopted, the following recommended per-capita GHG efficiency targets to reduce the City’s annual GHG emissions, consistent with the framework used to develop the State’s emissions reduction targets:

- ▶ 4.1 MT CO₂e per capita by 2030.
- ▶ 1.4 MT CO₂e per capita by 2050.

Similarly, a GHG efficiency target may also be expressed on a per-service population basis, in which service population is defined as the total number of residents plus employment. Using equivalent assumptions with regard to the locally relevant emissions sources accounted for by the City in establishing its per capita GHG efficiency threshold, the following GHG emissions per service population would be required to reduce emissions in proportion to the State’s GHG reduction targets:

- ▶ 2.8 MT CO₂e per service population by 2030.
- ▶ 0.8 MT CO₂e per service population by 2050.

For the purposes of analysis, GHG emissions efficiency targets for the year 2040 were extrapolated based upon the City's 2030 and 2050 targets, assuming a linear reduction in emissions over time to meet the 2050 target. The following GHG emissions efficiency threshold would apply to operations in the year 2040:

- ▶ 2.75 MT CO₂e per capita in 2040.
- ▶ 1.81 MT CO₂e per service population in 2040.

The current SMAQMD approach to GHG thresholds and operational BMPs was established after the adoption of the General Plan and CAP. Therefore, while these BMPs are not explicitly contained within the City's planning documents, they are relevant for consideration in an analysis of GHG-related impacts for projects within SMAQMD's jurisdiction and are considered to demonstrate consistency with the State Scoping Plan. Because the Project would accommodate a mix of land uses that is assumed to include residential, commercial, industrial, and open space, using a per-service-population GHG efficiency threshold for operational emissions is an appropriate quantitative metric of evaluation and, along with the SMAQMD thresholds, is presented in the analysis below to establish a determination of significance for the proposed Project.

Having established the State policy and regulatory framework for assessing cumulative significance of GHG emissions, and using both the air district points of reference and the GHG emissions efficiency threshold to demonstrate the required GHG emissions rate to achieve consistency with State legislation and Executive Orders, this SEIR answers the two checklist questions provided by CEQA Guidelines Appendix G in a single impact assessment. Whether or not the proposed Project would generate GHG emissions that would have a significant impact on the environment depends on whether the proposed Project would comply with the SMAQMD thresholds of significance and whether the rate of GHG emissions (per service population) from potential future development within the Project site would include a fair share of emissions reduction, consistent with the State's own reduction targets under AB 32, Executive Order B-30-15, SB 32 and Executive Order S-3-05.

IMPACT ANALYSIS

Impact 3.8-1. Generation of Greenhouse Gas Emissions or Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of GHGs.

GHG emissions attributable to construction and operations of future development within the Project site, as well as off-site improvements to support development of the Project site, are considered to result in a **cumulatively considerable** contribution to the significant cumulative impact of climate change.

The proposed Project will generate GHG emissions due to construction and operation of proposed on-site land uses and off-site improvements. Construction-related GHG emissions would be generated primarily from exhaust emissions associated with off-road construction equipment, construction worker commutes, and vendor and haul truck trips. Operational GHG emission sources would include energy consumption (i.e., electricity and natural gas), transportation, solid waste, and water and wastewater. GHG emissions generated by these sources were quantified using emission factors and methodologies described in Section 3.4, "Air Quality." As described in Section 3.4, "Air Quality," in order to estimate annual construction emissions for a plan-level analysis when specific land use development information is unknown, SMAQMD recommends a conservative assumption that 25 percent of the total plan or project is constructed in a single year. This assumption would provide conservative results and would overestimate annual emissions associated with possible future development within the Project site since it is very unlikely that 25 percent of this relatively large development area would actually be under

construction in any given year. In addition, the construction-related emissions estimates use the conservative assumption that construction would occur in the earliest possible year (2021). Because of this conservative assumption, actual emissions would be less than the estimates presented in this SEIR due to use of a more modern and cleaner burning (less emitting) construction equipment and vehicle fleet mix in future years.

Table 3.8-3 summarizes the maximum annual and total construction-related and annual operational emissions associated with development of the Project site and off-site improvements. In order to provide a more comprehensive assessment of cumulative GHG emissions, construction-related GHG emissions that would result from full buildout of the General Plan were summed and then amortized over an estimated 25-year operational lifetime and added to the operational emissions associated with these land uses.

Table 3.8-3 Estimated GHG Emissions Associated with Development of the Project Site and Off-Site Improvement Areas	
Emissions Source	GHG Emissions (MT CO ₂ e)
Construction GHG Emissions	
Maximum Annual Construction Emissions	5,499
Total Potential Construction Emissions ¹	18,494
Amortized Construction-Related Emissions ²	740
Annual Operational GHG Emissions	
Area	12
Energy	17,403
Mobile	64,757
Waste	4,016
Water	1,478
Total Annual Operational Emissions	87,667
Total Annual Project Emissions, including Amortized Construction + Operational Emissions	88,406
Total Residents Associated with Development of the Project Site	2,283
Total Employment Generated by Development of the Project Site	7,708
Total Service Population Associated with Proposed Project	9,990
Emissions per Capita (MT CO₂e/capita) at Full Buildout^{3,4}	38.7
Emissions per Service Population (MT CO₂e/ service population) at Full Buildout^{3,4}	8.9
Notes: GHG = greenhouse gas; MT CO ₂ e = metric tons of carbon dioxide equivalents	
¹ Total construction emissions are estimated by multiplying the annual worst-case construction scenario for on-site development, which represents construction emissions associated with development of 25% of the total proposed land uses, by four, and then adding construction-related emissions of off-site development.	
² Total Potential Construction emissions are amortized over 25 years. The operational lifetime estimate is derived from the State of California Executive Order D-16-00 and US Green Building Council's October 2003 report on The Costs and Financial Benefits of Green Buildings (SMAQMD 2020).	
³ Full buildout of all land uses within the Project site were modeled for the year 2040.	
⁴ GHG efficiency-based metric is calculated using the sum of the amortized construction-related emissions and the annual operational emissions.	
Note: Totals do not add due to rounding.	
Source: Modeled by AECOM in 2020.	

Amortized annual construction emissions would be below the 1,100 MT CO₂e/year threshold that is recommended by SMAQMD for construction related emissions. In addition, if construction were to occur at a steady pace over the anticipated 20-year construction duration and the total construction emissions were generated equally over each year, average annual GHG emissions would be approximately 925 MT CO₂e per year, which would be less than the SMAQMD construction threshold for annual GHG emissions. However, if 25 percent of the assumed land uses within the Project site were constructed in a single year, as modeled in the maximum potential construction scenario, this would generate approximately 5,499 MT CO₂e, which would exceed the SMAQMD construction threshold.

Future development of assumed land uses within the Project site would generate long-term operational emissions from day-to-day activities. As shown in Table 3.8-3, the sum of amortized construction and total annual operational emissions from the proposed Project would result in GHG emissions of 38.7 MT CO₂e per capita and 8.9 MT CO₂e per service population. This exceeds both the per capita and per service population emissions thresholds developed for this SEIR for 2040 of 2.75 MT CO₂e and 1.81 MT CO₂e, respectively.

As discussed in 3.8.2, “Regulatory Framework,” the City of Elk Grove updated its General Plan and CAP in 2019. The primary motivation for the City to adopt and regularly update the CAP is to “enable new development projects consistent with the CAP and General Plan to tier from the CAP’s environmental review process and minimize subsequent project-level analysis” (City of Elk Grove 2019b).

The City’s General Plan includes goals and policies related to sustainability and resource protection, including the reduction of GHG emissions consistent with State and local goals (General Plan Goal NR-5). The CAP details the strategies to reduce GHG emissions and provides specific actions and target indicators to achieve the intended reduction levels. The City estimates that implementation of the GHG reduction strategies of the CAP would enable the City to achieve the State-recommended GHG reduction targets for 2020 and 2030 and demonstrate initial progress towards meeting the State’s long-term 2050 goal.

The Project site was included as part of the East Study Area in the evaluation of the City of Elk Grove General Plan Update and CAP Update in 2019. The CAP GHG Reduction Measure TACM-6 and General Plan Policy MOB-1.1 are consistent with SMAQMD BMP-3, which identifies VMT reductions to ensure consistency with SB 743. However, SMAQMD BMP-1 and BMP-2, which require all projects to be designed without natural gas and meet CalGreen Tier 2 standards with electric vehicle ready parking spaces, can only be considered in the context of development proposals since these BMPs relate to design details.

SACOG did not include the Project site as an area that would develop during the planning horizon of the 2020 MTP/SCS. SACOG has developed population and employment projections that inform and are informed by land use and transportation planning throughout the region. According to these projections, the City would add 12,870 dwelling units and 15,750 new employees by 2040 without consideration of any development within the Project site (SACOG 2019). If the City is successful in attracting more development between present and 2040 than forecast by SACOG, this would vary from the planning assumptions used by SACOG to develop the MTP/SCS and assess the region’s progress toward ARB’s per-capita GHG reduction goals for passenger vehicles and light-duty trucks.

The City’s intent is for future projects in the East Study Area to facilitate development that would create a better balance between the types of local jobs available and the skills and interests of the local labor force (Project

Objective #5). If residents of Elk Grove are able to reduce their vehicle commute or use non-vehicular modes to reach employment, this could help to reduce the most important source of GHG emission: transportation.

The City will require future developments to incorporate applicable CAP reduction measures, including implementing strategies and policies to reduce the demand for personal motor vehicle travel for intracity (local) trips (Reduction Measure TACM 3); providing for safe and convenient pedestrian and bicycle travel (Reduction Measure TACM 4); achieving a 15-percent reduction in daily VMT compared to existing conditions (2015) for all new development (Reduction Measure TACM 6); and implementing minimum EV charging standards for all new residential and commercial development (Reduction Measure TACM 9).

While the application of the City's Project Objectives and CAP would reduce GHG emissions, since there are no land use plans or development proposals available for analysis at this time, it is not possible to quantify these reductions and compare the resulting emissions estimate to GHG emissions significance thresholds. Therefore, the impact is **cumulatively considerable**.

Mitigation Measures

Mitigation Measure 3.8-1a: Achieve GHG Emissions Rate Consistent with State Guidance (2019 SOIA EIR Mitigation Measure 3.8-1)

Prior to issuance of building permits, Project Building Plans shall demonstrate compliance with the following applicable measures included in the City's Climate Action Plan, to the satisfaction of the City of Elk Grove Planning Division:

- BE-4: The Project shall comply with 2016 CalGreen Tier 1 standards, including a 15 percent improvement over minimum Title 24, Part 6, Building Energy Efficiency Standards. If building permits are issued subsequent to January 1, 2020, the Project shall provide a level of efficiency at least that of Tier 1 of the 2016 CalGreen Code, or baseline of the current CalGreen Code, whichever is more efficient.
- BE-5: Should any residential portion of the Project (including single-family and multi-family) be constructed after January 1, 2025, these units shall be constructed as Zero Net Energy units. The Project shall achieve a Total Energy Design Rating (Total EDR) and Energy Efficiency Design Rating (Efficiency EDR) of zero, consistent with the standards in Title 24, Part 6 of the California Code of Regulations, for all units permitted after January 1, 2025.
- BE-6: At least 10 percent of all residential units shall include all-electric appliances and HVAC systems, including, but not limited to, (A) a heat pump water heater with a minimum Uniform Energy Factor of 2.87, and (B) an induction cooktop/range for all cooking surfaces in the unit.
- TACM-8: A minimum of 25 percent of the off-road construction fleet used during construction of the Project shall include Environmental Protection Agency certified off-road Tier 4 diesel engines (or better).
- TACM-9: The Project shall, at a minimum, provide the following minimum electrical vehicle service equipment:

- EV-ready for all single-family units;
 - For multi-family units, 2.5 percent of parking stalls with EV charging equipment installed and 2.5 percent of parking stalls EV-ready; and
 - For retail uses, 3 percent of parking stalls with EV charging equipment installed and 3 percent of parking stalls EV-ready.
- Should the City adopt a higher standard prior to issuance of any applicable building permit, such higher standards shall apply.

Mitigation Measure 3.8-1b: Implement the SMAQMD BMPs, or equivalent on-site or off-site mitigation, as applicable for land use operations

The City of Elk Grove shall require, as a part of plans for development within the Project site, the implementation of the following SMAQMD BMPs, or BMPs as they may be revised in the future, or equivalent on-site or off-site mitigation, as applicable. If equivalent on-site or off-site mitigation is used in-lieu of the below measures, it must be demonstrated that the proposed measures would achieve an equivalent or greater reduction in the GHG emissions rate.

- All projects must implement Tier 1 BMPs (BPM 1 and 2):
 - BMP 1 – projects shall be designed and constructed without natural gas infrastructure;
 - BMP 2 – projects shall meet the current CalGreen Tier 2 standards, except all electric vehicle capable spaces shall instead be electric vehicle ready.
- Projects that exceed 1,100 metric tons/year after implementation of Tier 1 BMPs must implement Tier 2 BMPs (BMP 3):
 - BMP 3 – residential projects shall achieve a 15 percent reduction in vehicle miles traveled per resident and office projects shall achieve a 15 percent reduction in vehicle miles traveled per worker compared to existing average vehicle miles traveled for the county, and retail projects shall achieve a no net increase in total vehicle miles traveled to show consistency with SB 743.

Significance after Mitigation

Mitigation Measure 3.8-1a requires that future development within the Project site demonstrate consistency with the City’s CAP and other feasible reduction strategies needed to achieve a GHG emissions rate that is consistent with the State legislative framework. Achieving the performance standard established in this mitigation measure would allow the City to demonstrate that development within the Project site would be consistent with the State legislative framework that, in California, has been established for assessing the cumulative significance of GHG emissions impacts. Mitigation Measure 3.8-1b requires that future development within the Project site implement the SMAQMD BMPs, or equivalent on-site or off-site mitigation. Implementation of these measures would further reduce future operational GHG emissions over the lifetime of the proposed development. Table 3.8-4 presents what the GHG emissions rate of future land use operations would be assuming, at a minimum, the full

development of the Project site would achieve the VMT limits outlined in General Plan Policy MOB-1-1 and demonstrate consistency with SMAQMD BMP 3 and SB 743.

Table 3.8-4 Estimated GHG Emissions Associated with Development of the Project Site with VMT Reductions Consistent with General Policy MOB-1-1	
Emissions Source	GHG Emissions (MT CO ₂ e)
Construction GHG Emissions	
Maximum Annual Construction Emissions	5,499
Total Potential Construction Emissions ¹	18,494
Amortized Construction-Related Emissions ²	740
Operational GHG Emissions	
Area	12
Energy	17,403
Mobile	27,616
Waste	4,016
Water	1,478
Total Annual Operational Emissions	50,526
Total Project Emissions, including Amortized Construction + Operational Emissions	51,266
Total Residents Associated with Development of the Project Site	2,283
Total Employment Generated by Development of the Project Site	7,708
Total Service Population Associated with Proposed Project	9,990
Emissions per Capita (MT CO₂e/capita) at Full Buildout^{3,4}	22.5
Emissions per Service Population (MT CO₂e/ service population) at Full Buildout^{3,4}	5.1
Notes: GHG = greenhouse gas; MT CO ₂ e = metric tons of carbon dioxide equivalents	
¹ Total construction emissions are estimated by multiplying the annual worst-case construction scenario for on-site development, which represents construction emissions associated with development of 25% of the total proposed land uses, by four, and adding construction-related emissions of off-site development.	
² Total Potential Construction emissions are amortized over 25 years. The operational lifetime estimate is derived from the State of California Executive Order D-16-00 and US Green Building Council's October 2003 report on The Costs and Financial Benefits of Green Buildings (SMAQMD 2020).	
³ Full buildout of all land uses within the project site were modeled for the year 2040, and mitigation emissions assume VMT limits of General Plan Policy MOB-1-1 are achieved at full development of the project site.	
⁴ GHG efficiency-based metric is calculated using the sum of the amortized construction-related emissions and the annual operational.	
Totals do not add due to rounding.	
Source: Modeled by AECOM in 2020	

As shown in Table 3.8-4, achievement of the VMT reduction targets would substantially reduce the GHG emissions rate of the Project's future operations and amortized construction emissions. The estimate in Table 3.8-4 includes only the benefit of VMT reductions and does not include benefits associated with an increase in the use of electric or other alternative fuel vehicles that could result from the implementation of City programs designed to increase electric vehicle use beyond the regional average fleet mix (such as CAP Reduction Measure TACM 9). However, meeting the City's VMT limits alone would not achieve the required GHG emissions reduction required to demonstrate consistency with the State's GHG emissions reductions target for 2030 or long-term goal for 2050. Additional emissions reductions would be achieved through the implementation of other energy-

reduction measures, such as the use of on-site solar photovoltaic systems to off-site building energy demand, implementation of new construction without natural gas infrastructure, increased resource conservation measures to reduce water demand and solid waste generation of future operations, and other feasible reduction measures. However, it is not possible at this time to guarantee the success of this mitigation measure in achieving an emissions rate that would be consistent with AB 32, SB 32, and S-3-05, particularly given the need to monitor a GHG reduction strategy and make revisions that take into account new regulatory guidance, technology, and economic changes that make emission reduction strategies that are not currently feasible become feasible in the future. There is no additional feasible mitigation. As with the 2019 SOIA EIR, the impact is **cumulatively considerable and unavoidable**.