

## 3.8 GREENHOUSE GAS EMISSIONS

This section includes a description of the existing environmental setting; an overview of the greenhouse gas (GHG) emissions regulatory framework that guides the decision-making process; a summary of the assessment methodology used to model GHG emissions; thresholds and other criteria for determining impact significance; and analysis of potential impacts of the proposed project.

### 3.8.1 ENVIRONMENTAL SETTING

#### OVERVIEW

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation is absorbed by GHGs; as a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. GHGs are present in the atmosphere naturally, are released by natural and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. GHG emissions have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

#### GLOBAL WARMING POTENTIAL

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO<sub>2</sub>. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere ("atmospheric lifetime"). The reference gas for GWP is CO<sub>2</sub>; therefore, CO<sub>2</sub> has a GWP of 1. The other main GHGs that have been attributed to human activity include CH<sub>4</sub>, which has a GWP of 28, and N<sub>2</sub>O, which has a GWP of 265 (IPCC 2013). For example, 1 ton of CH<sub>4</sub> has the same contribution to the greenhouse effect as approximately 28 tons of CO<sub>2</sub>. GHGs with lower emissions rates than CO<sub>2</sub> may still contribute to climate change, because they are more effective at absorbing outgoing infrared radiation than CO<sub>2</sub> (i.e., high GWP). The concept of CO<sub>2</sub> equivalence (CO<sub>2</sub>e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation. GHG emissions are typically measured in terms of pounds or tons of CO<sub>2</sub>e, and are often expressed in metric tons of CO<sub>2</sub> equivalent emissions (MTCO<sub>2</sub>e).

#### GREENHOUSE GASES AND SOURCES

The following are the principal GHG pollutants that contribute to climate change and their emission sources:

- ▶ Carbon Dioxide: CO<sub>2</sub> enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees, and wood products, and also as a result of other chemical reactions.
- ▶ Methane: CH<sub>4</sub> is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- ▶ Nitrous Oxide: N<sub>2</sub>O is produced by both natural and human-related sources. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N<sub>2</sub>O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.
- ▶ Fluorinated gases: These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:
  - CFCs: These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.
  - PFCs: PFCs are emitted as by-products of industrial processes and are also used in manufacturing.
  - SF<sub>6</sub>: This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.
  - HCFCs: These have been introduced as temporary replacements for CFCs and are also GHGs.
  - HFCs: These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated at local levels contribute to global concentrations of GHGs, which result in changes to the climate and environment.

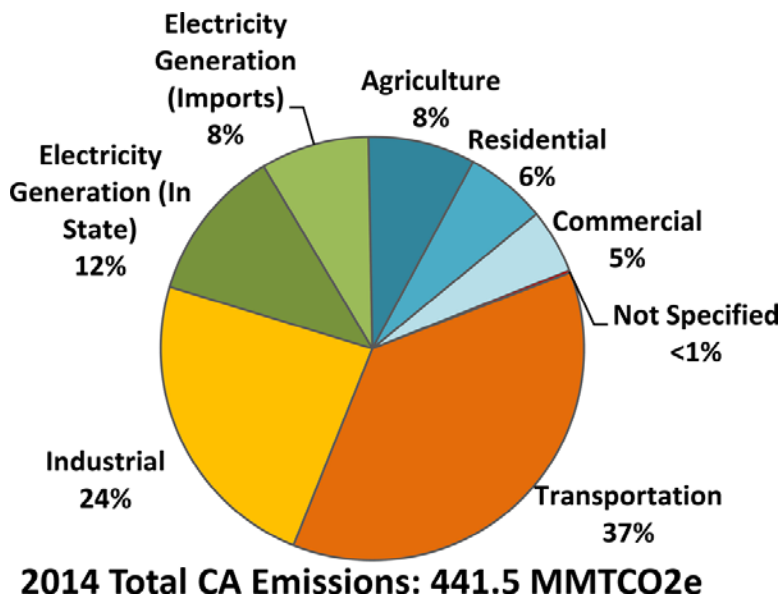
## **STATEWIDE GHG EMISSION INVENTORY**

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. These variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2013).

Global surface temperature has increased by approximately 1.53 degrees Fahrenheit (°F) over the last 140 years (IPCC 2013); however, the rate of increase in global average surface temperature has not been consistent. The last three decades have warmed at a much faster rate per decade (IPCC 2013).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2013).

The California Air Resources Board (ARB) prepares an annual GHG inventory for emissions produced in the state. Greenhouse gases are typically analyzed by “sector” or type of activity that results in GHG emissions. As shown in Exhibit 3.8-1, California produced 441.5 million MTCO<sub>2</sub>e in 2014. Combustion of fossil fuel in the transportation category was the single largest source of California’s GHG emissions in 2014, accounting for 37 percent of total GHG emissions in the state. The transportation category was followed by the industrial category, which accounts for 24 percent of the state’s total GHG emissions, and the electric power category (including in-state and out-of-state sources), which accounts for 20 percent of total GHG emissions in California (ARB 2016a).



Source: ARB 2016a

**Exhibit 3.8-1**

**2014 California GHG Emissions by Sector**

### LOCAL GHG EMISSIONS INVENTORIES

In 2009, a GHG emissions inventory was conducted for the incorporated cities of Sacramento, Rancho Cordova, Citrus Heights, Elk Grove, Folsom, Isleton, and Galt and the unincorporated areas of Sacramento County. The inventory estimated emissions using the baseline year of 2005 using the ICLEI (Local Governments for Sustainability) Clean Air and Climate Protection Model. The inventory identified GHG emissions from multiple sectors, including: on-road transportation; waste; water related (indirect emissions); agriculture; wastewater treatment (direct emissions); high GWP GHGs; off-road vehicles; Sacramento International Airport; residential, commercial, and industrial energy demand, and industrial processing. In 2005, Sacramento County produced a little more than 13 million MTCO<sub>2</sub>e. As with the state as a whole, on-road transportation is the largest section of GHG emissions, contributing to more than 48 percent of total countywide GHG emissions.

The County’s 2005 inventory for Elk Grove is provided in Table 3.8-1. The City of Elk Grove produced 842,971 MTCO<sub>2</sub>e, which contributed to about 6 percent of the total county GHG emissions. As with California and Sacramento County as a whole, transportation is the top source of GHG emissions in Elk Grove. According to the countywide 2005 inventory that included Elk Grove, on-road transportation accounted of more than 40 percent of the total GHG inventory. Residential building energy (electricity and natural gas) was the second-leading source of GHG emissions in Elk Grove, with approximately 28 percent of the total emissions.

Sector	Emissions MTCO <sub>2</sub> e	Percentage of Inventory
Residential	234,771	27.9%
Commercial and Industrial	101,607	12.1%
Industrial Specific	-	0.0%
On-Road Transportation	338,005	40.1%
Off-Road Vehicle Use	55,171	6.5%
Waste	40,350	4.8%
Wastewater Treatment	12,691	1.5%
Water-Related	4,370	0.5%
Agriculture	2,631	0.3%
High Global Warming Potential Greenhouse Gases	53,374	6.3%
<b>Total</b>	<b>842,971</b>	<b>100.0%</b>

Notes: MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent  
Source: Sacramento County Department of Environmental Review and Assessment 2009

After the County published the GHG inventory in 2009, the City of Elk Grove re-evaluated and updated its local inventory as part of the City’s climate action plan development process. The update incorporates new data and a different methodology for calculating emissions. The inventory update found that Elk Grove produced 737,838 MTCO<sub>2</sub>e in 2005. As with the countywide inventory, transportation is the top source of GHG emissions for Elk Grove in the updated inventory, accounting for more than 48 percent of the total GHG emissions. The GHG emission inventory conducted by the City of Elk Grove is presented in Table 3.8-2.

Sector	Emissions MTCO <sub>2</sub> e	Percentage of Inventory
Transportation	357,309	48.43%
Residential	229,841	31.15%
Commercial/Industrial	101,607	13.77%
Waste	39,791	5.39%
Water-Related	4,371	0.59%
Agriculture	4,919	0.67%
<b>Total</b>	<b>737,838</b>	<b>100%</b>

Notes: MTCO<sub>2</sub>e = metric tons of carbon dioxide equivalent  
Source: City of Elk Grove 2013

## 3.8.2 REGULATORY FRAMEWORK

### FEDERAL PLANS, POLICIES, LAWS AND REGULATIONS

While there are no federal GHG-related requirements that directly apply to the proposed SOIA, the information below is helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

The Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007, that CO<sub>2</sub> is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. In December 2009, the EPA Administrator signed a final action under Section 202(a) of the Clean Air Act, which identifies six GHGs that constitute a threat to public health and welfare. In light of this, EPA developed standards and regulations to limit the emissions of GHGs from new motor vehicles and for specific stationary sources, as well as a renewable fuel standard program.

### **U.S. Environmental Protection Agency “Endangerment” and “Cause or Contribute” Findings**

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA which applies to the federal government’s ability to regulate GHG emissions:

- ▶ *Endangerment Finding:* The current and projected concentrations of the six key GHGs—CO<sub>2</sub>, methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride (SF<sub>6</sub>)—in the atmosphere threaten the public health and welfare of current and future generations.
- ▶ *Cause or Contribute Finding:* The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

### **Mandatory Greenhouse Gas Reporting Rule**

On September 22, 2009, EPA published the Final Mandatory Greenhouse Gas Reporting Rule (Reporting Rule) in the Federal Register. The Reporting Rule requires reporting of GHG data and other relevant information from fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 MT or more of CO<sub>2</sub>e per year. Facility owners are required to submit an annual report with detailed calculations of facility GHG emissions for emissions from the previous calendar year. The Reporting Rule also mandates recordkeeping and administrative requirements to enable EPA to verify the annual GHG emissions reports.

### **Council on Environmental Quality Guidance**

On December 18, 2014, the Council on Environmental Quality (CEQ) released revised draft guidance that supersedes the draft GHG and climate change guidance released by CEQ in February 2010. The revised draft guidance applies to all proposed federal agency actions, including land and resource management actions. This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change for the environmental effects of a proposed action (CEQ 2014). The guidance encourages agencies to draw from their experience and expertise to determine the appropriate level (broad, programmatic or project- or site-specific) and type (quantitative or qualitative) of analysis required to comply with the National Environmental Policy Act (NEPA). The guidance recommends that agencies consider 25,000 MTCO<sub>2</sub>e on an annual basis as a reference point below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished based on available tools and data (CEQ 2014).

On August 1, 2016, updated CEQ guidelines were published. In this document, no numeric threshold was established for GHG. Agencies are directed to consider the potential effects of a proposed action and alternatives

on climate change as indicated by assessing GHG emissions (e.g., to include, where applicable, carbon sequestration) (CEQ 2016).

### **EPA and National Highway Traffic Safety Administration Standards**

The EPA and National Highway Traffic Safety Administration (NHTSA) issued joint final rules to further improve fuel economy and reduce GHG emissions for passenger cars and light trucks. Final standards have been issued for model years 2017 to 2021 and non-final standards have been issued for years 2022–2025. Non-final standards are intended to help manufacturers prepare for future standards. EPA issued final GHG standards for all nine model years 2017 to 2025 and will be conducting a mid-term evaluation of longer-term standards for model years 2022–2025. The 2017–2025 standards are anticipated to save approximately 4 billion barrels of oil and 2 billion metric tons of GHG emissions. In 2025, if all standards are met through fuel efficiency improvements, the average industry fleetwide fuel efficiency for light duty cars and trucks would be approximately 54.5 miles per gallon (EPA 2012).

In addition to standards for light duty cars and trucks, EPA and NHTSA are also currently implementing Phase 1 of the Medium- and Heavy-Duty Vehicle GHG Emissions and Fuel Efficiency Standards, which apply to model years 2014–2018. It is anticipated that medium- and heavy-duty vehicles built to these standards from 2014–2018 would reduce CO<sub>2</sub> emissions by approximately 270 million metric tons over the lifetime of the standards (EPA 2011b). Phase 2 of these standards would apply to model years 2021–2027 and is anticipated to reduce GHG emissions by 1 billion metric tons over the lifetime of the standards (EPA 2015).

### **STATE PLANS, POLICIES, LAWS, AND REGULATIONS**

California's has launched major initiatives for reducing GHG emissions. ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CAA). The legal framework for GHG emission reductions has come about through Executive Orders, legislation, regulations, and court decisions. Some of the major components of California's climate change initiative are highlighted below.

#### **Assembly Bill 1493**

Assembly Bill (AB) 1493 requires ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 to 2025.

#### **Executive Order S-3-05**

Executive Order S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. Executive Order S-3-05 declared that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emissions targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

## **Assembly Bill 32**

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions to 1990 levels by 2020. AB 32 also identifies ARB as the state agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target.

In December 2008, ARB adopted the Climate Change Scoping Plan (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (ARB 2008). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of California's GHG inventory. ARB acknowledges that land use planning decisions will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors.

ARB is required to update the Scoping Plan at least once every five years to evaluate progress and develop future inventories that may guide this process. ARB approved the first update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (ARB 2014). The Scoping Plan update includes a status of the 2008 Scoping Plan measures and other federal, state, and local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020. The Scoping Plan Update determined that the State is on schedule to achieve the 2020 target (i.e., 1990 levels by 2020). However, an accelerated reduction in GHG emissions is required to achieve the S-3-05 2050 reduction target of 80 percent below 1990 levels by 2050.

The statewide measures adopted under the direction of AB 32, and as outlined in the Scoping Plan, would reduce GHG emissions associated with existing development, as well as new development. ARB has released the 2030 Target Scoping Plan Update Concept Paper to initiate a discussion regarding how to most effectively achieve a 40 percent reduction in GHG emissions by 2030 as compared to 1990 statewide GHG emissions (consistent with Executive Order B-30-15, which is outlined below) (ARB 2016b).

## **Senate Bill 32**

Senate Bill 32 (SB 32) extends the provisions of AB 32 from 2020 to 2030 with a new target of 40 percent below 1990 levels by 2030. The companion bill, AB 197, adds two non-voting members to the ARB, creates the Joint Legislative Committee on Climate Change Policies consisting of at least three Senators and three Assembly members, requires additional annual reporting of emissions, and requires Scoping Plan updates to include alternative compliance mechanisms for each statewide reduction measure, along with market-based compliance mechanisms and potential incentives.

## **Executive Order S-1-07**

EO S-1-07, issued in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40 percent of statewide emissions. EO S-1-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. This regulation was re-adopted in 2015 and went into effect on January 1, 2016. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.

## **Senate Bill 97**

Senate Bill (SB) 97 required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

## **Senate Bill 375**

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB adopted regional GHG targets for passenger vehicles and light trucks for 2020 and 2035 for the 18 MPOs in California. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate "alternative planning strategy" to meet the targets.

The Sacramento Area Council of Governments' (SACOG) GHG targets are per capita CO<sub>2</sub> emission reductions from passenger vehicles of 7 percent by 2020 and 16 percent by 2035 relative to 2005 levels. SACOG adopted the MTP/SCS in 2016.

## **Executive Order B-30-15**

In April 2015, Governor Edmund Brown issued an executive order establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's Executive Order S-3-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014. ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CAA.

## **ARB Advanced Clean Cars Program/Zero Emission Vehicle Program**

Assembly Bill (AB) 1493 (Chapter 200, Statutes of 2002), also known as the Pavley regulations, required ARB to adopt regulations by January 1, 2005, that would result in the achievement of the "maximum feasible" reduction in GHG emissions from vehicles used in the state primarily for noncommercial, personal transportation.

In January 2012, ARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars (13 CCR 1962.1 and 1962.2). The Advanced Clean Cars requirements include new GHG standards for model year 2017 to 2025 vehicles. ARB anticipates that the new standards will reduce motor vehicle GHG emissions by 34 percent in 2025 (ARB 2011).

The Advanced Clean Cars Program also includes the LEV III amendments to the LEV regulations (13 CCR 1900 et seq.); Zero Emission Vehicle Program and the Clean Fuels Outlet Regulation. The Zero Emission Vehicle Program is designed to achieve California's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of the very cleanest cars available. These zero-emission vehicles, which include battery electric, fuel cell, and plug-in hybrid electric vehicles, are now entering the marketplace. They are



expected to be fully commercial by 2020. The Clean Fuels Outlet regulation ensures that fuels, such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to market.

### **Executive Order B-16-12**

Executive Order B-16-12 orders State entities under the direction of the Governor including ARB, the Energy Commission, and Public Utilities Commission to support the rapid commercialization of zero emission vehicles (ZEV). It directs these entities to achieve various benchmarks related to zero emission vehicles, including:

- ▶ Infrastructure to support up to one million zero emission vehicles by 2020;
- ▶ Widespread use of zero emission vehicles for public transportation and freight transport by 2020;
- ▶ Over 1.5 million zero emission vehicles on California roads by 2025;
- ▶ Annual displacement of at least 1.5 billion gallons of petroleum fuels by 2025; and
- ▶ A reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050.

### **Executive Order S-01-07 (Low Carbon Fuel Standard)**

Executive Order S-01-07 (17 CCR 95480 et seq.) requires the state to achieve a 10 percent or greater reduction by 2020 in the average fuel carbon intensity for transportation fuels in California regulated by ARB. ARB identified the Low Carbon Fuel Standard (LCFS) as a discrete early action item under AB 32, and the final ARB resolution (No. 09-31) adopting the LCFS was issued on April 23, 2009. ARB re-adopted LCFS in 2015.

### **2009 California Climate Adaptation Strategy**

The State of California published the *2009 California Climate Adaptation Strategy*, which summarizes climate change impacts and provides recommendations on strategies to adapt to its effects. The strategies cover seven sectors which include public health, biodiversity and habitat, oceans and coastal resources, water, agriculture, forestry, and transportation and energy. In 2014, the California Natural Resources Agency published an update to this plan called *Safeguarding California: Reducing Climate Risk*. This document provides policy guidance on the preparation, prevention, and response to the effects of climate change within the state of California.

## **REGIONAL AND LOCAL PLANS, POLICIES, LAWS AND REGULATIONS**

The ARB also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations.

### **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 transportation plan (MTP) in coordination with Sacramento, Yolo, Yuba, Sutter, El Dorado, and Placer counties and the 22 cities

within those counties (excluding the Tahoe Basin). This plan incorporates county wide transportation planning covering a 20-year planning horizon which must be updated every 4 years. As a requirement of SB 375, MPOs need to develop a Sustainable Communities Strategy (SCS) as part of the MTP to identify strategies and policies to reduce greenhouse gas emissions from passenger vehicles to meet state targets established by ARB.

SACOG's MTP/SCS for 2035 (the MTP/SCS) was adopted on April 19, 2012. SACOG's MTP/SCS calls for meeting and exceeding ARB's GHG reduction goals for passenger vehicles and light-duty trucks of 7 percent by 2020 and 16 percent by 2035, where 2005 is the baseline year for comparison (SACOG 2012). SACOG's 2016 MTP/SCS was adopted on February 18th, 2016. The 2016 MTP/SCS demonstrates how the region can accommodate expected regional population growth and the increased demand for transportation in the region, while also showing that the region could achieve a reduction in per-capita passenger vehicle miles traveled (VMT). The MTP/SCS includes 31 policies and multiple strategies to address the principles of smart land use; environmental quality and sustainability; financial stewardship; economic vitality; access and mobility; and equity and choice. Highlights of MTP/SCS policies include:

1. **Policy:** Provide information, tools, incentives and encouragement to local governments that have chosen to grow consistent with Blueprint principles.
2. **Policy:** Educate and provide information to policymakers, local staff, and the public about the mutually supportive relationship between smart growth development, transportation, and resource conservation.
3. **Policy:** SACOG encourages local jurisdictions in developing community activity centers well-suited for high-quality transit service and complete streets.
4. **Policy:** SACOG encourages every local jurisdiction's efforts to facilitate development of housing in all price ranges, to meet the housing needs of the local workforce and population, including low-income residents, and forestall pressure for long external trips to work and essential services.
5. **Policy:** SACOG should continue to inform local governments and businesses about a regional strategy for siting industry and warehousing with good freight access.
6. **Policy:** SACOG encourages local governments to direct greenfield developments to areas immediately adjacent to the existing urban edge through data-supported information, incentives and pursuit of regulatory reform for cities and counties.
7. **Policy:** Implement the Rural-Urban Connection Strategy (RUCS) which ensures good rural-urban connections and promotes the economic viability of rural lands while also protecting open space resources to expand and support the implementation of the Blueprint growth strategy and the MTP/SCS.
8. **Policy:** Support and invest in strategies to reduce vehicle emissions that can be shown as cost effective to help achieve and maintain clean air and better public health.
9. **Policy:** use the best information available to implement strategies and projects that lead to reduced GHG emissions.

10. **Policy:** Consider strategies to green the system, such as quieter pavements, cleaner vehicles, and lower energy equipment where cost effective, and consider regional funding contributions to help cover the incremental cost.
11. **Policy:** SACOG in partnership with community and employer organizations intends to support proactive and innovative education and transportation demand management programs covering all parts of the urbanized areas, to offer a variety of choices to driving alone.
12. **Policy:** SACOG should study, consult with, and help coordinate local agency activities to provide for smoother movement of freight through and throughout the region.
13. **Policy:** SACOG intends to preserve some capacity on major freeways within the region for freight and other interregional traffic by providing additional capacity for local and regional traffic on major arterials running parallel to the major freeways.
14. **Policy:** Support road, transit, and bridge expansion investments that area supportive of MTP/SCS land use patterns.
15. **Policy:** Prioritize transit investments that result in an effective transit system that serves both transit-dependent and choice riders.
16. **Policy:** SACOG encourages locally determined developments consistent with Blueprint principles and local circulation plans to be designed with walking, bicycling, and transit use as primary transportation consideration.

### **Sacramento Metropolitan Air Quality Management District**

The SMAQMD is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. The SMAQMD adopted the *CEQA Guide to Air Quality Assessment in Sacramento County* which provides guidance on addressing and mitigating GHG emission impacts caused by industrial, commercial, and residential development. In a 2014 Resolution, the SMAQMD Board approved continued use of GHG reduction plans (also known as climate action plans) for addressing potential GHG emissions-related impacts. For jurisdictions not using GHG reduction plans or projects where use of a GHG reduction plan is not appropriate, SMAQMD approved significance thresholds, including a 1,100 MT CO<sub>2</sub>e/year threshold for construction-related emissions, a 1,100 MT CO<sub>2</sub>e/year threshold for operational emissions, and a 10,000 MT CO<sub>2</sub>e/year threshold for stationary source emissions (SMAQMD 2014).

### **City of Elk Grove General Plan**

The City of Elk Grove General Plan establishes goals and policies to guide long-term development and conservation for areas within the City's jurisdiction. Many of the policies and actions cited in Section 3.3, Air Quality would reduce GHG emissions, as well. The City's policies and actions that affect the generation of GHG emissions and may apply to the potential future development within the SOIA Area are highlighted below.

- ▶ **CAQ-1:** Reduce the amount of water used by residential and non-residential uses by encouraging water conservation.

- **CAQ-1-Action 1:** Implement the City’s Water Conservation Ordinance.
  - **CAQ-1-Action 2:** Actively encourage water conservation by both agricultural and urban water users.
  - **CAQ-1-Action 3:** Work with urban and agricultural water purveyors to establish long range conservation plans which set specific conservation objectives and utilize, to the extent possible, a common planning horizon, plan framework and estimating/forecasting procedures.
  - **CAQ-1-Action 4:** Promote the use of drought-tolerant vegetation to minimize water consumption by providing information to developers and designers.
- ▶ **H-6:** Support energy-conserving programs in the production and rehabilitation of affordable housing to reduce household energy costs, improve air quality, and mitigate potential impacts of climate change in the region.
- **H-6 Action 1:** Continue to promote and support energy efficiency in new construction by encouraging developers to utilize Sacramento Municipal Utility District (SMUD) energy programs and other energy efficiency programs and to be consistent with the Sustainability Element of the General Plan and the City’s Climate Action Plan.
  - **H-6 Action 2:** Continue to encourage participation in SMUD’s PV (photovoltaic) Pioneer program by issuing PV system permits at no charge upon SMUD’s approval.

The City included a voluntary Sustainability Element as part of the General Plan. This element, along with the City’s Climate Action Plan, serves as the framework for developing a GHG reduction strategy in compliance with CEQA Guidelines Section 15183.5(b). The Sustainability Element directs the City to implement and adopt a climate action plan (CAP) through Policy S-5 and S-5 Action 1.

- ▶ **S-5:** Reduce GHG emissions from community-wide sources, including City facilities and operations, by a minimum of 15 percent below 2005 levels by 2020, consistent with the standards and requirements of AB 32.
- **S-5 Action 1:** Adopt and implement a Climate Action Plan that will identify goals, measures, and actions to achieve the City’s GHG reduction target.

### **City of Elk Grove Climate Action Plan**

The City Council adopted the CAP and Sustainability Element of the General Plan in 2013. 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, transportation, land use, water use, and solid waste strategies.

The City’s intent is for new development projects consistent with the CAP and the General Plan to avoid additional environmental analysis for GHG emissions-related impacts. Implementation of the CAP on a project-by-project basis is intended to achieve a 15 percent reduction below 2005 GHG emission levels by 2020. The CAP includes the following topics for emission reduction strategies: An Innovative and Efficient Built Environment; Resource Conservation; Transportation Alternatives and Congestion Management; and Municipal Programs. Table 3.8-3 presents GHG reduction measures from the City’s CAP.

<b>Table 3.8-3. City of Elk Grove Climate Action Plan Applicable GHG Reduction Measures</b>		
	<b>Reduction Measures</b>	<b>Policy Topic</b>
BE-6	Building Stock: New Construction. Adopt CALGreen Tier 1 standards to require all new construction to achieve a 15% improvement over minimum Title 24 CALGreen Energy requirements.	Built Environment
BE-7	Building Stock: Appliances and Equipment in New Development. Encourage the use of energy-efficient appliances and equipment in new buildings that maximize efficiency.	Built Environment
BE-8	Community Forestry. Plan trees in appropriate densities and locations that will maximize energy conservation and air quality benefits.	Built Environment
BE-9	Cool Paving Materials. Encourage the use of high-albedo material for future outdoor surfaces to the greatest extent feasible, including but not limited to parking lots, median barriers, roadway improvements, and sidewalks.	Built Environment
BE-10	On-Site Renewable Energy Installations. Promote voluntary installations of on-site solar photovoltaics in new and existing development, and revise standards to facilitate the transition to solar water heaters and solar photovoltaics in new development.	Built Environment
BE-11	Off-Site Renewable Energy. Encourage participation in SMUD's off-site renewable energy programs, which allow building renters and owners to choose locally produced 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 sent to the landfill from Elk Grove and achieve an 80% diversion by 2020.	Resource Conservation
RC-2	Water Conservation. Reduce the amount of water used by residential and nonresidential uses.	Resource Conservation
RC-3	Recycled Water. Promote and remove barriers to the use of greywater systems and recycled water for irrigation purposes.	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	Intracity Transportation Demand Management. The City shall support and contribute to regional efforts to reduce demand for intercity (regional) personal vehicle travel.	Transportation Alternatives & Congestion Management
TACM-5	Pedestrian and Bicycle Travel. Provide for safe and convenient pedestrian and bicycle travel through implementation of the Bicycle and Pedestrian Master Plan and increased bicycle parking standards.	Transportation Alternatives & Congestion Management
TACM-6	Public Transit. Continue to improve and expand transit services for commuters and non-commuters traveling within Elk Grove and regionally, providing the opportunity for workers living in other areas of Sacramento County to use all forms of public transit - including bus rapid transit and light rail - to travel to jobs in Elk Grove, as well as for Elk Grove residents to use public transit to commute to jobs outside the City.	Transportation Alternatives & Congestion Management
TACM-7	Jobs/Housing Balance. Continue to improve Elk Grove's jobs/housing ratio and seek to achieve sufficient employment opportunities in Elk Grove for all persons living in the City.	Transportation Alternatives & Congestion Management
TACM-9	Efficient and Alternative Vehicles. Promote alternative fuels and efficient vehicles throughout the community.	Transportation Alternatives & Congestion Management
TACM-10	Car Sharing. Promote the use of vehicles and transportation options other than single-occupant vehicles.	Transportation Alternatives & Congestion Management
TACM-11	Safe Routes to School. Implement SACOG's Safe Routes to School Policy.	Transportation Alternatives & Congestion Management
TACM-12	Traffic Calming and Anti-Idling. Improve traffic flow and reduce unnecessary idling through use of traffic calming devices and enforcement of idling restrictions.	Transportation Alternatives & Congestion Management
MP-2	Municipal Facilities: New. All City facilities shall incorporate energy-conserving design and construction techniques.	Municipal Programs
MP-7	Municipal Water Use. Improve the efficiency of municipal water use through retrofits and employee education.	Municipal Programs
MP-8	Municipal Waste. Reduce municipal waste through employee education and environmentally preferable purchasing.	Municipal Programs

### 3.8.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### METHODOLOGY

The construction and operational emissions from potential development of the SOIA Area were modeled using the same methods and assumptions as those described in Section 3.3 of this EIR, “Air Quality.” The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to calculate GHG emissions in addition to criteria air pollutant and precursor emissions. Refer to Appendix B for a detailed summary of the CalEEMod modeling assumptions, inputs, and outputs.

#### THRESHOLDS OF SIGNIFICANCE

Significance criteria are based on Appendix G of the State CEQA Guidelines. The proposed project would have a significant impact on greenhouse gas emissions and energy if its implementation would:

- ▶ Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- ▶ Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

As stated in Appendix G, 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 has adopted annual GHG emission thresholds of 1,100 MTCO<sub>2</sub>e for construction and 1,100 MTCO<sub>2</sub>e for operational GHG emissions. SMAQMD’s guidance was developed with the intent to allow assessments of projects for consistency with AB 32. However, AB 32 is focused on the year 2020. If there is future annexation of all or portions of the SOIA Area in the future, and if there are future development proposals within the SOIA Area, and if such future development proposals are approved and constructed, such future developments may produce emissions beyond 2035. Therefore, it would be appropriate also to consider whether emissions rates would contribute to the State’s emission reduction goals in Executive Order B-30-15, SB 32, and Executive Order S-3-05, as well. Executive Order B-30-15 and SB 32 call for a statewide reduction in GHG emissions to 40 percent below 1990 levels by 2030. Executive Order S-3-05 calls for a reduction to 80 percent below 1990 levels by 2050.

These four sets of guidance for the State government – AB 32, Executive Order B-30-15, SB 32, and Executive Order S-3-05 – though they do not directly create any obligation for LAFCOs or local governments, 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 AB 32, Executive Order B-30-15, and Executive Order S-3-05 emissions reductions, the impact is not cumulatively considerable (*Center for Biological Diversity, et al. v. California Department of Fish and Wildlife*, page 12; Crockett 2011).

Having established the State policy and regulatory framework for assessing cumulative significance of GHG emissions, this EIR answers the two checklist questions provided by CEQA Guidelines Appendix G in a single

impact assessment. Whether or not the SOIA would generate GHG emissions that would have a significant impact on the environment depends on whether the rate of GHG emissions from potential future development within the SOIA Area 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.

The GHG emissions efficiency of a project or plan is the amount of emission per some unit of measurement. For development projects and plans, one appropriate unit of normalization is service population. Service population is the sum of residential population and employment. When dividing total GHG emissions by service population, a lead agency is able to evaluate whether the GHG emissions rate of projects and plans is consistent with the State's emission reduction targets. This approach is consistent with the intent of AB 32, which is to accommodate population and economic growth in California, but do so in a way that achieves a lower rate of GHG emissions. With a reduced rate of emissions per resident + employee, California can accommodate expected population growth and achieve economic development objectives, while also abiding by AB 32's emissions target and supporting efforts to reduce emissions beyond 2020 (consistent with Executive Order B-30-15, SB 32, and Executive Order S-3-05).

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 and employment statewide for the same year. This would yield an emissions "budget" for each California resident and employee, and allow a community to assess whether or not its emissions rate is consistent with this emissions budget.

Since there is no proposed timeline for possible future development within the SOIA Area, it is necessary to develop an assumption to use for the purposes of analysis. Given the level of development that potentially could be incorporated within the SOIA Area in the future, if development is proposed in this area, a longer-term timeline is appropriate. This EIR uses 2035 as a timeline for the purposes of analysis. This is the last year available in CalEEMod for GHG emissions modeling.

A GHG efficiency threshold per service population (MT CO<sub>2</sub>e/SP/year) for year 2035 has been developed based on the original AB 32 year 2020 target, the Executive Order B-30-15 and SB 32 year 2030 target, and the Executive Order S-3-05 year 2050 target. By interpolating between the goals for 2030 and 2050 for year 2035, in the year 2035 the State would need to achieve an emissions level of 50 percent below 1990 levels. The associated population and employment data for year 2035 were obtained from Department of Finance and Employee Development Department (EDD), respectively (DOF 2013, EDD 2015).<sup>1</sup> The statewide GHG efficiency in year 2035 then can be calculated by dividing the required emissions level by forecast statewide population and employment.

The statewide emissions targets, population, and employment must be tailored, however, to focus in on the emission sources that are relevant, and could in the future be influenced by City of Elk Grove policies and reduction strategies. In order to develop an appropriate GHG efficiency target, the non-land use-related emissions and jobs must be removed from consideration. For emissions, this means removing consideration of agriculture and forestry, aviation, industrial combined heat and power, manufacturing, mining, national security, oil and gas

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<sup>1</sup> DOF projections are available for five-year increments between 2010 and 2060, while EDD employment projections are available for 2012 and 2022. Employment for 2035 can be calculated using the relationship between total forecast population and employment for other years.

extraction, petroleum refining, pipelines, rail, and water-borne vehicles. For employment this means removing from consideration jobs associated with farming, fishing, forestry, mining, logging, quarrying, oil and gas, heavy industry with substantial process/stationary source emissions, and construction.<sup>2</sup> By removing these emissions and jobs from the calculation of statewide GHG efficiency, the efficiency target is tailored for land use-related projects.

Table 3.8-4 presents the land use-related statewide emissions, population, and employment figures, and calculates the proposed 2035 GHG efficiency target to evaluate GHG emissions.

<b>Table 3.8-4. Statewide Efficiency Target – Land Use-Related Emissions and Employment</b>					
	2012	2020	2022	2035	2050
Population	38,030,609 <sup>1</sup>	40,619,346 <sup>2</sup>	41,320,928 <sup>3</sup>	45,747,645 <sup>2</sup>	49,779,362 <sup>2</sup>
Employment	15,108,800 <sup>4</sup>	17,012,480 <sup>5</sup>	17,488,400 <sup>4</sup>	19,361,935 <sup>6</sup>	21,068,292 <sup>6</sup>
Service Population (population + employment)	53,139,409	57,631,826	58,809,328	65,109,580	70,847,654
Emissions (MT CO <sub>2</sub> e/yr)	-	293,400,000 <sup>7</sup>	-	146,700,000 <sup>8</sup>	56,680,000 <sup>8</sup>
Emissions Efficiency Targets (MT CO <sub>2</sub> e/SP/yr)	-	5.09	-	2.25	0.83

Source: Analysis by AECOM 2016, sources listed below.

Note: MMT CO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; BAU = business-as-usual

<sup>1</sup> Department of Finance (DOF) Table E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011–2015, with 2010 benchmark. Available online at: <<http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php>>

<sup>2</sup> DOF Table P-1 State and County Population Projections, July 1, 2010–2060 (5-year increments). Available online at: <<http://www.dof.ca.gov/research/demographic/projections/>>

<sup>3</sup> Interpolated from DOF estimates for 2020 (40,619,346) and 2025 (42,373,301). See note 2 for population estimation source.

<sup>4</sup> Employee Development Department (EDD) Employment Projections. Available online at: <<http://www.labormarketinfo.edd.ca.gov/data/employment-projections.html>>. Sorted to remove jobs from farming, fishing, and forestry occupations sector, production occupations sector, and extraction workers subsector of construction and extraction occupations sector.

<sup>5</sup> Interpolated from 2012 and 2022 revised estimates.

<sup>6</sup> EDD provides 2- and 10-year employment estimates that currently extend to 2022, so the ratio of employment to population estimated in 2022 (i.e., 42.3%) was applied to the DOF population estimates for 2035 and 2050 to estimate employment in those years.

<sup>7</sup> Revised 2020 GHG emissions limit from land use-related sectors, which removed emissions from the following sectors and sub-sectors: agriculture and forestry, aviation, combined heat and power for industrial, manufacturing, mining, national security, oil and gas extraction, petroleum refining, pipelines, rail, and water-borne.

<sup>8</sup> Statewide emissions shown assume the state will achieve 1990 emission levels by 2020, 40% below 1990 levels in 2030 (per Executive Order B-30-15), 80% below 1990 levels in 2050 (per S-3-05), and 50% below 1990 levels as interpolated between the 2030 and 2050 statewide GHG reduction targets.

<sup>2</sup> Removing construction-related employment could be viewed as a conservative aspect to the methodology outlined in this section since construction emissions are amortized and included as a part of the overall emissions estimate. However, construction-related employment tends to be transient, can be highly variable, and may not be appropriate to include fully within the denominator of the ratio of emissions over service population.



## IMPACT ANALYSIS

**IMPACT 3.8-1** Contribution to significant climate change cumulative impact. *GHG emissions attributable to possible future development within the SOIA Area during construction and operational phases is considered a cumulatively considerable contribution to the significant cumulative impact of climate change.*

The project does not propose land use change, development, or changes to City of Elk Grove General Plan goals or policies or changes to the City’s CAP. However, land use assumptions were developed for this analysis to allow LAFCo to consider potential environmental effects that could result from potential future development within the SOIA Area, as well as possible off-site infrastructure improvement impacts such as roads, sewer lines, drainage facilities, and water lines. Table 3.8-5 presents the maximum annual and total construction-related and annual operational emissions associated with the land use scenario used to analyze impacts of the proposed SOIA. The timing and extent of any off-site improvements is not currently known.

<b>Table 3.8-5. Estimated GHG Emissions</b>	
Emissions Source	GHG Emissions (MTCO <sub>2</sub> e)
<b>Construction GHG Emissions</b>	
Maximum Annual Construction Emissions	6,091
Total Potential Development Construction Emissions*	24,364
Amortized Construction Emissions**	812
<b>Operational GHG Emissions</b>	
Area	86
Energy	66,776
Mobile	113,491
Waste	6,553
Water	6,038
<b>Total Annual Operational Emissions</b>	<b>191,945</b>
<b>Total Emissions, including Amortized Construction Emissions + Operational Emissions***</b>	<b>192,757</b>
<b>Total Service Population Associated with SOIA Analysis Scenario</b>	<b>33,350</b>
<b>Emissions per Service Population (MTCO<sub>2</sub>e/year/service population)****</b>	<b>5.78</b>
Notes:	
* Total construction emissions are estimated by multiplying the annual worst-case constructions, which represents construction emissions associated with development of 25% of the total proposed land uses, by four.	
** Construction emissions are amortized over 30 years.	
*** Total project GHG emissions include annual operational emissions and amortized construction emissions.	
**** GHG efficiency-based metric is calculated as the annual GHG emissions divided by the estimated service population of the SOIA Area under the analysis scenario used throughout this EIR. The assumed service population is the residential population (4,769 residents in multi-family units and 8,581 residents in single-family units) added to the number of jobs. The assumed total number of jobs is 20,000. So, the total service population would be approximately 33,350.	
Totals do not add due to rounding.	
Source: Modeled by AECOM in 2016	

Construction-related GHG emissions would be generated primarily from exhaust emissions associated with off-road construction equipment, heavy-duty material haul trucks, and construction worker commutes. The intensity

and pace of construction would be dependent on market and economic conditions. As described in Section 3.3, “Air Quality,” in order to estimate annual construction emissions for a plan-level analysis when buildout information is unknown, SMAQMD recommends an assumption that 25 percent of the total plan or project is constructed in a single year. This assumption is intended to provide conservative results and would overestimate annual emissions associated with possible future development within the SOIA Area.

Amortized construction emissions from the potential development are below the 1,100 MT CO<sub>2</sub>e/year threshold that is recommended by SMAQMD for construction related emissions. However, if 25 percent of the development included in the SOIA analysis scenario is under construction in a single year, this would generate 6,091 MT CO<sub>2</sub>e, which would exceed the SMAQMD construction threshold.

If there is development in the SOIA Area in the future, this would generate long-term operational emissions from day-to-day activities associated with the potential future land uses. Operational GHG emission sources would include energy consumption (i.e., electricity and natural gas), transportation, and water and wastewater. Operational emissions were modeled for the latest year available in CalEEMod at the time of modeling (2035). As shown in Table 3.8-5, total annual operational emissions are estimated to be 191,945 MT CO<sub>2</sub>e/year. When amortized construction emissions are added in, annual emissions would be 192,757 MT CO<sub>2</sub>e/year. This exceeds SMAQMD’s recommended threshold for operational emissions.

Total GHG emissions are divided by assumed total SOIA Area population and employment (total population + employment = services population) in order to compare the proposed SOIA emissions to required statewide GHG emissions rates needed to achieve the State’s emission targets for 2030 (Executive B-30-15) and 2050 (Executive Order S-3-05). Using the analysis scenario developed for this EIR, total GHG emissions would be 5.78 MT CO<sub>2</sub>e/year, which exceeds the emissions rate for land use related emissions needed to demonstrate consistency with AB 32, Executive Order B-30-15, SB 32, and Executive Order S-3-05.

As discussed in 3.8.2, Regulatory Framework, the City of Elk Grove adopted a CAP and a General Plan Sustainability Element in 2013. The primary motivation for the City to adopt the CAP was 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 2016). The City estimates that the CAP, when implemented on a project-by-project basis would achieve a 15 percent GHG emissions reduction in 2020 compared to 2005 levels. Although the SOIA Area is identified as a potential Study Area for the ongoing City of Elk Grove General Plan Update, the CAP does not account for future development of the SOIA Area. Whether and to what degree the City’s CAP or future versions of a CAP that addresses post-2020 emissions reduction would be applied to possible future development under the SOIA is unknown. However, even if future development within the SOIA Area achieved a 15 percent reduction in total emissions, this would still not be sufficient to reduce total emissions below SMAQMD’s target of 1,100 MT CO<sub>2</sub>e/year for operational emissions. Also, if future development within the SOIA Area achieved a 15 percent reduction in total emissions, this would still not be sufficient to demonstrate consistency with statewide GHG emissions rates needed to achieve the State’s emission targets for 2030 (Executive B-30-15 and SB 32) or 2050 (Executive Order S-3-05).

As discussed elsewhere in this EIR, SACOG did not include the SOIA Area as an area that would develop during the planning horizon of the 2016 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 13,909 dwelling units and 19,863 jobs by 2036 without consideration of any

development within the SOIA Area (SACOG 2016b). SACOG's MTP/SCS forecast provides a jobs/housing units ratio of 1.4 for the development anticipated to occur between present and 2036. If this jobs/housing ratio is achieved, it would change the current estimated jobs/housing units ratio from 0.6 to 0.8 in 2036 (SACOG 2016a, page 134). If annexation is proposed and approved in the future within the SOIA Area and if development is proposed and approved in the future, it is possible such future development would exceed the forecast included in SACOG's MTP/SCS. If the City is successful in attracting more development between present and 2036 than forecast by SACOG or if the SOIA Area between present and 2036, 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. Whether or not this possible future variation relative to regional planning assumptions would be beneficial or detrimental to meeting per-capita reduction targets is unknown at this time.

However, because emissions under the analysis scenario could exceed an GHG emissions rate sufficient to demonstrate consistency with statewide GHG emissions rates needed to achieve the State's emission targets for 2030 (Executive B-30-15 and SB 32) or 2050 (Executive Order S-3-05), the impact is **cumulatively considerable**.

## **Mitigation Measures**

### **Mitigation Measure 3.8-1: Achieve GHG Emissions Rate Consistent with State Guidance.**

At the time of submittal of any application to annex territory within the SOIA Area, the City of Elk Grove shall provide an emissions estimate, suite of reduction strategies, and monitoring mechanism consistent with recommendations of CEQA Guidelines Section 15183.5 for GHG reduction programs. This GHG reduction program for the SOIA Area can be an update to the City's existing Climate Action Plan or a stand-alone GHG reduction program. Analysis assumptions, methodology, and emission factors used by the City shall be submitted for review to the SMAQMD. In addition, the City will provide proof of consultation with the SMAQMD to demonstrate compliance with this measure to LAFCo.

The City will require that development in the SOIA Area comply with applicable GHG reduction strategies necessary to demonstrate that the SOIA Area would achieve a GHG emissions rate per service population that would be consistent with the emissions rate for land use-related emissions needed to achieve the State's emission targets for 2030 (Executive B-30-15 and SB 32) and 2050 (Executive Order S-3-05).

## **Significance after Mitigation**

Mitigation Measure 3.8-1 requires the City of Elk Grove to incorporate the SOIA Area in the City's CAP or develop a stand-alone CAP for emissions attributable to future development within the SOIA Area. Mitigation Measure 3.8-1 also requires that such a GHG reduction program demonstrate consistency with State guidance on GHG emissions reductions per unit of development, which, in this case means emissions per service population for land use-related emissions. Achieving the performance standard established in this mitigation measure would allow the City to demonstrate that development within the SOIA Area would be consistent with the Statewide framework that, in California, has been established for assessing the cumulative significance of GHG emissions impacts. However, LAFCo cannot at this time guarantee the success of this mitigation measure in achieving an emissions rate that would be consistent with AB 32, Executive Order B-30-15, 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. The impact is **significant and unavoidable**.