This section discusses regional greenhouse gas (GHG) emissions, climate change, and energy conservation impacts that could result from implementation of the Project. This section provides a background discussion of greenhouse gases and climate change linkages and effects of global climate change. This section also provides background discussion on energy use of the Project. This section is organized with an existing setting, regulatory setting, approach/methodology, and impact analysis.

The analysis and discussion of the GHG, climate change, and energy conservation impacts in this section focuses on the Project's consistency with local, regional, statewide, and federal climate change and energy conservation planning efforts and discusses the context of these planning efforts as they relate to the Project. Disclosures of the Project's estimated energy usage and greenhouse gas emissions are provided.

Emissions of GHGs have the potential to adversely affect the environment in a cumulative context. The emissions from a single project will not cause global climate change; however, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. Therefore, the analysis of GHGs and climate change presented in this section is presented in terms of the Project's contribution to cumulative impacts and potential to result in cumulatively considerable impacts related to GHGs and climate change.

Comments were received during the public review period or scoping meeting for the Notice of Preparation regarding this topic from the Sacramento Metropolitan Air Quality Management District (SMAQMD) (July 13, 2018) and the Sacramento Municipal Utility District (SMUD) (August 6, 2018). Each of the comments related to this topic are addressed within this section.

3.6.1 ENVIRONMENTAL SETTING

GREENHOUSE GASES AND CLIMATE CHANGE LINKAGES

Various gases in the Earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Naturally occurring greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. Although the direct greenhouse gases CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era (i.e., ending about 1750) to 2011, concentrations of these three greenhouse gases have increased globally by 40, 150, and 20 percent, respectively (IPCC, 2013).

Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now

retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO_2, CH_4, O_3, water vapor, N_2O, and chlorofluorocarbons (CFCs).

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by the industrial sector (California Energy Commission, 2018a).

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California produced approximately 440 million gross metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2016 (California Energy Commission, 2018a). To meet the annual statewide targets set by the California Air Resources Board, California would need to reduce emissions to below 431 $MMTCO_2e$ by 2020, and to below 260 $MMTCO_2e$ by 2030 (California Air Resources Board, 2017).

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2016, accounting for 41% of total GHG emissions in the state. This category was followed by the industrial sector (23%), the electricity generation sector (including both in-state and out of-state sources) (16%), the agriculture sector (8%), the residential energy consumption sector (7%), and the commercial energy consumption sector (5%) (California Energy Commission, 2018a).

EFFECTS OF GLOBAL CLIMATE CHANGE

The effects of increasing global temperature are far-reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature as a result of increased GHGs are anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

If the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. The snowpack portion of the supply could potentially decline by 50% to 75% by the end of the 21st century (National Resources Defense Council, 2014). This phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean

temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

Sea level has risen approximately seven inches during the last century and it is predicted to rise an additional 22 to 35 inches by 2100, depending on the future GHG emissions levels (California Environmental Protection Agency, 2010). If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion and disruption of wetlands. As the existing climate throughout California changes over time, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result. According to the most recent California Climate Change Assessment (*California's Fourth Climate Change Assessment*) (2019), the impacts of global warming in California are anticipated to include, but are not limited to, the following.

Wildfires

In recent years, the area burned by wildfires has increased in parallel with increasing air temperatures. Wildfires have also been occurring at higher elevations in the Sierra Nevada mountains, a trend which is expected to continue under future climate change. Climate change will likely modify the vegetation in California, affecting the characteristics of fires on the land. Land use and development patterns also play an important role in future fire activity. Because of these complexities, projecting future wildfires is complicated, and results depend on the time period for the projection and what interacting factors are included in the analysis. Because wildfires are affected by multiple and sometimes complex drivers, projections of wildfire in future decades in California range from modest changes from historical conditions to relatively large increases in wildfire regimes.

Public Health

Nineteen heat-related events occurred from 1999 to 2009 that had significant impacts on human health, resulting in about 11,000 excess hospitalizations. However, the National Weather Service issued Heat Advisories for only six of the events. Heat-Health Events (HHEs), which better predict risk to populations vulnerable to heat, will worsen drastically throughout the state: by midcentury, the Central Valley is projected to experience average Heat-Health Events that are two weeks longer, and HHEs could occur four to ten times more often in the Northern Sierra region.

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. Climate change poses direct and indirect risks to public health, as people will experience earlier death and worsening illnesses. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions.

Energy Resources

Higher temperatures will increase annual electricity demand for homes, driven mainly by the increased use of air conditioning units. High demand is projected in inland and Southern California,

and more moderate increases are projected in cooler coastal areas. However, the increased annual residential energy demand for electricity is expected to be offset by reduced use of natural gas for space heating. Increases in peak hourly demand during the hot months of the year could be more pronounced than changes in annual demand. This is a critical finding for California's electric system, because generating capacity must match peak electricity demand.

Water Supply

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply.

Current management practices for water supply and flood management in California may need to be revised for a changing climate. This is in part because such practices were designed for historical climatic conditions, which are changing and will continue to change during the rest of this century and beyond. As one example, the reduction in the Sierra Nevada snowpack, which provides natural water storage, will have implications throughout California's water management system. Even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

Crop growth and development will be affected, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Climate change will make forests more susceptible to extreme wildfires. *California's Fourth Climate Change Assessment* found that by 2100, if greenhouse gas emissions continue to rise, the frequency of extreme wildfires burning over approximately 25,000 acres would increase by nearly 50 percent, and that average area burned statewide would increase by 77 percent by the end of the century. In the areas that have the highest fire risk, wildfire insurance is estimated to see costs rise by 18 percent by 2055 and the fraction of property insured would decrease.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60% to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

Rising Sea Levels

A new model estimates that, under mid to high sea-level rise scenarios, 31 to 67 percent of Southern California beaches may completely erode by 2100 without large-scale human interventions. Statewide damages could reach nearly $17.9 billion from inundation of residential and commercial buildings under 50 centimeters (~20 inches) of sea-level rise, which is close to the 95th percentile of potential sea-level rise by the middle of this century. A 100-year coastal flood, on top of this level of sea-level rise, would almost double the costs.

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Rising sea levels would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

ENERGY CONSUMPTION

Energy in California is consumed from a wide variety of sources. Fossil fuels (including gasoline and diesel fuel, natural gas, and energy used to generate electricity) are most widely used form of energy in the State. However, renewable source of energy (such as solar and wind) are growing in proportion to California's overall energy mix. A large driver of renewable sources of energy in California is the State's current Renewable Portfolio Standard (RPS), which requires the State to derive at least 33% of electricity generated from renewable resources by 2020, and 50 percent by 2030.

Overall, in 2015, California's per capita energy usage was ranked 49th in the nation (U.S. EIA, 2017). Additionally, California's per capita rate of energy usage has remained relatively constant since the 1970's. Many State regulations since the 1970's, including new building energy efficiency standards, vehicle fleet efficiency measures, as well as growing public awareness, have helped to keep per capita energy usage in the State in check.

The consumption of nonrenewable energy (primarily gasoline and diesel fuel) associated with the operation of passenger, public transit, and commercial vehicles results in GHG emissions that ultimately result in global climate change. Other fuels such as natural gas, ethanol, and electricity (unless derived from solar, wind, nuclear, or other energy sources that do not produce carbon emissions) also result in GHG emissions and contribute to global climate change.

Electricity Consumption

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 71 percent of the electrical power needed to meet California's demand is produced in the state. Approximately 29 percent of its electricity is imported from the Pacific Northwest and the Southwest (California Energy Commission, 2019). In 2010, California's in-state generated electricity was derived from natural gas (53.4 percent), large hydroelectric resources (14.6 percent), coal (1.7 percent), nuclear sources (15.7 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (14.6 percent) (California Energy Commission, 2019). The percentage of renewable resources as a proportion of California's overall energy portfolio is increasing over time, as directed the State's Renewable Portfolio Standard (RPS).

According to the California Energy Commission (CEC), total statewide electricity consumption increased from 166,979 gigawatt-hours (GWh) in 1980 to 228,038 GWh in 1990, which is an estimated annual growth rate of 3.66 percent. The statewide electricity consumption in 1997 was 246,225 GWh, reflecting an annual growth rate of 1.14 percent between 1990 and 1997 (California Energy Commission, 2019). Statewide consumption was 274,985 GWh in 2010, an annual growth rate of 0.9 percent between 1997 and 2010. The Sacramento Area Council of Governments (SACOG) region consumed 18,398 GWh in 2010 (SACOG MTP/SCS 2035 Draft EIR, 2011) and 17,824 GWh in 2016 (CEC, 2016), roughly 6.7 percent of the state total. The SACOG region includes the counties of El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba as well as the 22 cities within these six counties.

Oil

The primary energy source for the United States is oil, which is refined to produce fuels like gasoline, diesel, and jet fuel. Oil is a finite, nonrenewable energy source. World consumption of petroleum products has grown steadily in the last several decades. As of 2018, world consumption of oil had reached 100 million barrels per day (U.S. EIA, 2019a). The United States, with approximately five percent of the world's population, accounts for approximately 21 percent of world oil consumption, or approximately 20.5 million barrels per day (U.S. EIA, 2019b). The transportation sector relies heavily on oil. In California, petroleum based fuels currently provide

approximately 96 percent of the state's transportation energy needs (California Energy Commission, 2018b).

Natural Gas

In 2010, the SACOG region consumed 529.5 million therms of natural gas. Natural gas supplies are derived from underground sources and brought to the surface at gas wells. Once it is extracted, gas is purified and the odorant that allows gas leaks to be detected is added to the normally odorless gas. Natural gas suppliers, such as PG&E, then send the gas into transmission pipelines, which are usually buried underground. Compressors propel the gas through the pipeline system, which delivers it to homes and businesses.

The state produces approximately 12 percent of its natural gas, while obtaining 22 percent from Canada and 65 percent from the Rockies and the Southwest (California Energy Commission, 201b). In 2006, California produced 325.6 billion cubic feet of natural gas (California Energy Commission, 2019). PG&E is the largest publicly-owned utility in California and provides natural gas for residential, industrial, and agency consumers within the SACOG area, including the City of Rancho Cordova.

3.6.2 REGULATORY SETTING

FEDERAL

Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: National ambient air quality standards (NAAQS) for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The U.S. Environmental Protection Agency (USEPA) is responsible for administering the FCAA. The FCAA requires the USEPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the USEPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The USEPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992 (EPAct)

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Intermodal Surface Transportation Efficiency Act (ISTEA)

ISTEA (49 U.S.C. § 101 et seq.) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that metropolitan planning organizations (MPOs), such as SACOG, were to address in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a criterion, along with cost and other values that determine the best transportation solution.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

SAFETEA-LU (23 U.S.C. § 507), renewed the Transportation Equity Act for the 21st Century (TEA-21) of 1998 (23 U.S.C.; 49 U.S.C.) through FY 2009. SAFETEA-LU authorized the federal surface transportation programs for highways, highway safety, and transit. SAFETEA-LU addressed the many challenges facing our transportation system today—such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment—as well as laying the groundwork for addressing future challenges. SAFETEA-LU promoted more efficient and effective federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility to solve transportation problems in their communities. SAFETEA-LU was extended in March of 2010 for nine months, and expired in December of the same year. In June 2012, SAFETEA-LU was replaced by the Moving Ahead for Progress in the 21st Century Act (MAP-21), which will take effect October 1, 2012.

U.S. Federal Climate Change Policy

According to the USEPA, "the United States government has established a comprehensive policy to address climate change" that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, "the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science." The federal government's goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including "ENERGY STAR", "Climate Leaders", and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide USEPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

STATE

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as CEC. The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Energy Action Plan

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 Energy Action Plan II, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change.

State of California Energy Action Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 1997 California Energy Plan. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces VMT and accommodates pedestrian and bicycle access.

Assembly Bill 1493

In response to AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are

further reduced each model year through 2016. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

The CARB requested a waiver of federal preemption of California's Greenhouse Gas Emissions Standards. The intent of the waiver is to allow California to enact emissions standards to reduce carbon dioxide and other greenhouse gas emissions from automobiles in accordance with the regulation amendments to the CCRs that fulfill the requirements of AB 1493. The U.S. EPA granted a waiver to California to implement its greenhouse gas emissions standards for cars.

Assembly Bill 1007

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) directed the CEC to prepare a plan to increase the use of alternative fuels in California. As a result, the CEC prepared the State Alternative Fuels Plan in consultation with the state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan – Executive Order #S-06-06

Executive Order #S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

California Executive Orders S-3-05 and S-20-06, and Assembly Bill 32

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050. EO-S-20-06 establishes responsibilities and roles of the Secretary of Cal/EPA and state agencies in climate change

In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that the CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

EO S-13-08

EO S-13-08 was issued on November 14, 2008. The EO is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Assembly Bill 32 - Climate Change Scoping Plan

On December 11, 2008, the CARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of the CARB's plans to achieve GHG reductions in California required by Assembly Bill (AB) 32 through subsequently enacted regulations. The Scoping Plan contains the main strategies California will implement to reduce carbon dioxide-equivalent (CO_2e) emissions by 169 million metric tons (MMT), or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of CO_2e under a business-as-usual scenario. (This is a reduction of 42 MMT CO_2e, or almost 10 percent, from 2002–2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.) The Scoping Plan also breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- the Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- a renewable portfolio standard for electricity production (21.3 MMT CO_2e).

The CARB updated the Scoping Plan in 2013 (*First Update to the Scoping Plan*) and again in 2017 (the *Final Scoping Plan*). The 2013 Update built upon the initial Scoping Plan with new strategies and recommendations, and also set the groundwork to reach the long-term goals set forth by the

state. Successful implementation of existing programs (as identified in previous iterations of the Scoping Plan) has put California on track to meet the 2020 target. The 2017 Update expands the scope of the plan further by focusing on the strategy for achieving the state's 2030 GHG target of 40 percent emissions reductions below 1990 levels (to achieve the target codified into law by SB 32), and substantially advances toward the state's 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels.

The 2017 Update relies on the preexisting programs paired with an extended, more stringent Cap-and-Trade Program, to delivery climate, air quality, and other benefits. The 2017 Update identifies new technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health.

Senate Bill 32

Senate Bill 32, which passed into law in 2016, sets the target of reducing greenhouse gas emissions to 40 percent below the 1990 level by the year 2030. SB 32 extends the original set of greenhouse gas targets provided by the passage of AB 32 (the Global Warmings Solutions Act of 2006). This new target sets an aggressive goalpost, helping the State along its pathway to achieve its longer-term goal of an 80 percent reduction in greenhouse gas emissions by the year 2050.

Senate Bill 743

SB 743, passed into law in 2013, changes the way that public agencies evaluate the transportation impacts of projects under CEQA. The proposed revisions to the State CEQA Guidelines would establish new criteria for determining the significance of a project's transportation impacts that will more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHGs. The 2017 Update to the Scoping Plan identified that slower VMT growth from more efficient land use development patterns would promote achievement of the state's climate goals.

As detailed in SB 743, the Governor's Office of Planning and Research (OPR) was tasked with developing potential metrics to measure transportation impacts and replace the use of delay and level of service (LOS). More detail about SB 743 is provided in the setting Chapter 17, "Traffic and Circulation."

In December 2018, OPR released its final changes to the CEQA Guidelines, including the addition of Section 15064.3 that would implement SB 743. In support of these changes, OPR also published its Technical Advisory on Evaluating Transportation Impacts in CEQA, which recommends that the transportation impact of a project be based on whether it would generate a level of vehicle miles traveled (VMT) per capita (or VMT per employee) that is 15 percent lower than existing development in the region. OPR's technical advisory explains that this criterion is consistent with Section 21099 of the California Public Resources Code, which states that the criteria for determining significance must "promote the reduction in greenhouse gas emissions". It is also consistent with the statewide per capita VMT reduction target developed by Caltrans in its

Strategic Management Plan, which calls for a 15 percent reduction in per capita VMT, compared to 2010 levels, by 2020. Additionally, the California Air Pollution Control Officers Association (CAPCOA) determined that a 15 percent reduction in VMT is typically achievable for projects. CARB's First Update to the Climate Change Scoping Plan also called for local governments to set communitywide GHG reduction targets of 15 percent below then-current levels by 2020. Although not required, a lead agency may elect to be governed by the provisions of Section 15064.3 immediately. However, the provisions of Section 15064.3 do not apply statewide until July 1, 2020.

Executive Order B-48-18: Zero-Emission Vehicles

In January 2018, EO B-48-18 was signed into law and requires all State entities to work with the private sector to have at least 5 million zero-emission vehicles (ZEVs) on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 electric vehicle charging stations by 2025. It specifies that 10,000 of the electric vehicle charging stations should be direct current fast chargers. This Executive Order also requires all State entities to continue to partner with local and regional governments to streamline the installation of ZEV infrastructure. The Governor's Office of Business and Economic Development is required to publish a Plug-in Charging Station Design Guidebook and update the 2015 Hydrogen Station Permitting Guidebook to aid in these efforts. All State entities are required to participate in updating the 2016 Zero-Emissions Vehicle Action Plan (Governor's Interagency Working Group on Zero-Emission Vehicles 2016) to help expand private investment in ZEV infrastructure with a focus on serving low-income and disadvantaged communities. Additionally, all State entities are to support and recommend policies and actions to expand ZEV infrastructure at residential uses through the Low Carbon Fuel Standard Program, and recommend how to ensure affordability and accessibility for all drivers.

Assembly Bill 2076: California Strategy to Reduce Petroleum Dependence

In response to the requirements of Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the CEC and the CARB developed a strategy to reduce petroleum dependence in California. The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce on-road gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Assembly Bill 2188: Solar Permitting Efficiency Act

Assembly Bill (AB) 2188, enacted in California in 2015, required local governments to adopt a solar ordinance by September 30, 2015 that creates a streamlined permitting process that conforms to the bests practices for expeditious and efficient permitting of small residential rooftop solar systems. The act is designed to lower the cost of solar installations in California and further expand the accessibility of solar to more California homeowners. The bulk of the time and cost savings associated with a streamlined permitting process comes from the use of a standardized eligibility checklist and a simplified plan. This bill also shortens the number of days for those seeking Homeowner's Association (HOA) approval for a written denial of a proposed solar installation.

Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard is incorporated into the State Alternative Fuels Plan and is one of the proposed discrete early action GHG reduction measures identified by the CARB pursuant to AB 32.

Senate Bill 97

Senate Bill (SB) 97 (Chapter 185, 2007) required OPR to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. OPR prepared its recommended amendments to the State CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of greenhouse gas emissions and the effects of greenhouse gas emissions in draft CEQA documents. The Amendments became effective on March 18, 2010.

Senate Bill 375

Senate Bill (SB) 375 (Stats. 2008, ch. 728) (SB 375) was built on AB 32 (California's 2006 climate change law). SB 375's core provision is a requirement for regional transportation agencies to develop a Sustainable Communities Strategy (SCS) in order to reduce GHG emissions from passenger vehicles. The SCS is one component of the existing Regional Transportation Plan (RTP).

The SCS outlines the region's plan for combining transportation resources, such as roads and mass transit, with a realistic land use pattern, in order to meet a state target for reducing GHG emissions. The strategy must take into account the region's housing needs, transportation demands, and protection of resource and farmlands.

Additionally, SB 375 modified the state's Housing Element Law to achieve consistency between the land use pattern outlined in the SCS and the Regional Housing Needs Assessment allocation. The legislation also substantially improved cities' and counties' accountability for carrying out their housing element plans.

Finally, SB 375 amended the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) to ease the environmental review of developments that help reduce the growth of GHG emissions.

Executive Order B-30-15

On April 29, 2015, Governor Jerry Brown issued Executive Order (EO) B-30-15, which establishes a State GHG reduction target of 40 percent below 1990 levels by 2030. The new emission reduction target provides for a mid-term goal that would help the State to continue on course from reducing GHG emissions to 1990 levels by 2020 (per AB 32) to the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050 (per EO S-03-05). This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions. EO B-30-15 also addresses the need for climate adaptation and directs State government to:

- Incorporate climate change impacts into the State's Five-Year Infrastructure Plan;
- Update the Safeguarding California Plan, the State climate adaptation strategy, to identify how climate change will affect California infrastructure and industry and what actions the State can take to reduce the risks posed by climate change;
- Factor climate change into State agencies' planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce GHG emissions.

Advanced Clean Cars Program

In January 2012, the CARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The program will have significant energy demand implications as battery, fuel cell, and/or plug-in hybrid electric vehicle sales increase overtime, creating new demand for electricity services both in residential and commercial buildings (e.g. charging stations) as well as demand for new EV and hydrogen fuel cell charging stations. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. According to the CARB, by 2025, when the rules will be fully implemented, the statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the statewide fleet in 2016.

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards (Standards), was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. On January 1, 2010, the California Building Standards Commission adopted CALGreen and became the first state in the United States to adopt a statewide green building standards code.

The 2016 update to the California Building Energy Efficiency Standards (the current version of the Standards) went into effect on January 1, 2017. The Standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards – the energy budgets – that vary by climate zone (of which there are 16 in California) and building type; thus, the Standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach.

Compared with the previous version of the Standards, the 2016 Standards are expected to reduce statewide annual electricity consumption by approximately 281 gigawatt-hours per year, and natural gas consumption by 16 million therms per year, which is equivalent to a reduction in GHG emissions of approximately 160,000 MT CO_2e/year. The forthcoming update to the Standards (the 2019 Standards) will become effective on January 1, 2020, and will further increase energy efficiency requirements for new development beyond the 2016 update.

CEQA Guidelines Appendix F

In order to ensure that energy implications are considered in project decisions, Appendix F of the CEQA Guidelines requires that EIRs include a discussion of the potential energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. The goal of conserving energy implies the wise and efficient use of energy.

LOCAL

Sacramento Area Local Council of Governments

The SACOG Board, which is the local metropolitan planning organization that covers the six-county area in the Sacramento region, including the City of Ranch Cordova, adopted the 2012 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) in April 2012. An update to the 2012 MTP/SCS (the "2016" MTP/SCS), with a focus on implementation of the goals established in the 2012 MTP/SCS, was adopted by the SACOG Board in February 2016. A program-level EIR addressing the environmental impacts of the 2016 MTP/SCS was also prepared and certified. The SCS portion of the MTP/SCS identifies polices and strategies to reduce GHG emissions from passenger vehicles to targets set by the CARB. Pursuant to SB 375, SACOG was tasked by the CARB to achieve a 7 percent per capita reduction in passenger-vehicle generated transportation emissions by 2020 and a 16 percent per capita reduction by 2035 from 2005, which the CARB confirmed the region would achieve by implementing its Sustainable Communities Strategy. SACOG's 2012-2035 MTP/SCS projects (as identified in the 2012 MTP/SCS) are estimated to exceed the CARB's targets with anticipated per capita reductions of 10 percent by 2020 and 16 percent by 2035 from 2005 levels [23.0 pounds (lb) CO_2 per capita per day]. The SACOG 2016 MTP/SCS reaffirmed these targets. The CARB verified SACOG's modeled CO2 emissions reductions and affirmed that the SCS meets the adopted per capita GHG emissions reduction targets for years 2020 and 2035.

Rancho Cordova General Plan

The Rancho Cordova General Plan contains the following goals and policies that are relevant to greenhouse gases, climate change, and energy:

AIR QUALITY ELEMENT

Goal AQ.2: Support land use patterns and densities that lessen air quality impacts.

Policy AQ.2.1: Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.

Policy AQ.2.2: Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools, and civic facilities/services.

Policy AQ.2.3: Encourage infill development as a way to reduce vehicle trips and improve air quality.

Policy AQ.2.4: Maximize air quality benefits through selective use of landscaping vegetation that is low in emission of volatile organic compounds, and through revegetation of appropriate areas.

Goal AQ.3: Support multiple forms of transportation and a circulation system design that reduces vehicle trips and emissions.

Policy AQ.3.1: Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.

Policy AQ.3.2: Promote mass transit as an alternative to single-occupant motor vehicle travel.

Policy AQ.3.3: Involve local businesses in creating, maintaining, or promoting mass transit opportunities and reducing vehicle emissions.

Policy AQ.3.4: Emphasize "demand management" strategies that seek to reduce single-occupant vehicle use in order to achieve state and federal air quality plan objectives.

Goal AQ.4: Support energy conservation, the use of alternative fuels, clean vehicles and industries to reduce air quality impacts.

Policy AQ.4.1: Promote improved air quality benefits through energy conservation measures for new and existing development.

Policy AQ.4.2: Support vehicle improvements and the use of clean vehicles that reduce emissions and improve air quality.

Policy AQ.4.4: Support SMAQMD's program of retrofitting construction equipment.

LAND USE ELEMENT

Goal LU.1: Achieve a balanced and integrated land use pattern throughout the community.

Policy LU.1.4: Promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g. flood, soil instability) on adjacent neighborhoods and infrastructure and preserve existing and future residential neighborhoods from encroachment of incompatible activities and land uses.

City of Rancho Cordova Municipal Code

Chapter 16.07 of the City of Rancho Cordova Municipal Code (Municipal Code) provides for an expedited, streamlined solar permitting process that complies with the Solar Rights Act and AB 2188 (Chapter 521, Statutes 2013, California Government Code Section 65850.5) in order to achieve timely and cost-effective installations of small residential rooftop solar energy systems. The provisions of this chapter encourage the use of solar systems by removing unreasonable barriers, minimizing costs to property owners and the city, and expanding the ability of property owners to install solar energy systems.

Additionally, Chapter 10.64 of the Municipal Code establishes requirements and procedures whereby major employers can develop and implement programs designed to reduce the number of employee vehicle commute trips as part of a broad city of Rancho Cordova program to achieve the following objectives:

A. Reduce peak-hour traffic circulation and congestion by reducing the number of single-occupant motor vehicle trips associated with home-to-work commuting.

B. Reduce or delay the need for major transportation facility improvements by making more efficient use of existing facilities.

C. Reduce future air pollution concentrations and strive towards meeting federal ambient air pollution standards by reducing the number of single-occupant motor vehicle trips associated with home-to-work commuting.

D. Reduce the consumption of energy for transportation uses and thereby contribute to the national policy to increase energy self-sufficiency.

3.6.3 IMPACTS AND MITIGATION MEASURES

GHG THRESHOLDS OF SIGNIFICANCE AND METHODOLOGY

Analysis Approach

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a project's contribution to anticipated adverse future conditions, a lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the Project *and* other projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether "the project's *incremental* effects are cumulatively considerable" and thus significant in and of themselves. The cumulative project list for this issue (climate change) comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe and no project alone would reasonably be expected to contribute to a noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context and process for developing an enforceable statewide cap on GHG emissions. Given the nature of environmental

consequences from GHGs and global climate change, CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and, therefore, significant.

The California Office of Planning and Research (OPR) recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a project, including the emissions associated with construction activities, vehicular traffic, energy consumption, and area sources: to determine whether the impacts have the potential to result in a significant project or cumulative environmental impact; and, where feasible mitigation is available, to mitigate any project or cumulative impact determined to be potentially significant. The guidance contained within Chapter 6 of the SMAQMD *Guide to Air Quality Assessment in Sacramento County* (CEQA Guide) (2018) was used in the following analysis.

GREENHOUSE GASES THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines, climate change-related impacts are considered significant if implementation of the Project under consideration would do any of the following:

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

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

Methodology

Greenhouse gases attributable to the construction phase of the Project would be generated from two primary sources: 1) emissions from off-road construction vehicles used to develop the Project and 2) emissions from worker, vendor, and hauler vehicle trips and vehicle miles travelled generated during construction activities.

Greenhouse gases attributable to the operational phase of the Project would be generated from two primary sources: 1) indirect energy (e.g. electricity and natural gas) usage from the Project and 2) emissions from vehicle trips and vehicle miles travelled generated by the Project.

The Project would include housing units that exceed the operational and construction greenhouse gas screening levels as provided by SMAQMD (2018). Therefore, in order to determine whether or not the Project would generate GHG emissions that may have a significant impact on the environment during the Project's construction and operational phases, this EIR addresses the Project's compliance with the SMAQMD's established and adopted greenhouse gas emission thresholds (SMAQMD, 2018). These thresholds and standards are used by the City to determine a project's GHG emissions impacts during a project's construction and operational phases. The SMAQMD thresholds for both construction and operational emissions are 1,100 metric tons of CO_2e/year. CalEEMod (v.2016.3.2) was utilized to calculate construction and operational GHG

emissions. Only CO_2, CH_4, and N_2O emissions were considered. Other GHGs were considered to be negligible.

It should be noted that the SMAQMD is currently in the process of updating their operational GHG emissions thresholds for land development projects. On November 28, 2018, the SMAQMD released the *Draft Sacramento Metropolitan Air Quality Management District Greenhouse Gas Thresholds of Significance Update for Land Development Operational Emissions*. After review of the current thresholds and available land use and GHG datasets, the SMAQMD staff is recommending an update to the land use operational threshold to include a screening level for smaller projects and an efficiency metric for projects exceeding the screening level to determine significance of operational emissions. For projects exceeding a 3,500 metric tons GHG/year screening threshold, the SMAQMD staff recommends (in their draft report) to compare project GHG emissions to one of the efficiency metrics shown in the following table to determine significance and the need to mitigate GHG emissions. An analysis of the Project's compliance with this draft threshold is provided.

TABLE 3.6-1: RECOMMENDED LAND USE OPERATIONAL THRESHOLDS OF SIGNIFICANCE (METRIC TONS)

YEAR	GHG/CAPITA (METRIC TONS)	GHG/SERVICE POPULATION
2020	5.90	4.16
2036	2.94	2.05

SOURCE: DRAFT SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT GREENHOUSE GAS THRESHOLDS OF SIGNIFICANCE UPDATE FOR LAND DEVELOPMENT OPERATIONAL EMISSIONS, 2018.

An analysis of the Project's consistency with applicable plans, policies, and regulations for the purpose of reducing greenhouse gas emissions is also provided, including consistency with:

- AB 32, SB 32, the CARB Scoping Plan, and Executive Order B-30-15 goals; and
- The SACOG MTP/SCS.

The City of Rancho Cordova does not have a qualified climate action plan or GHG reduction plan. Therefore, an analysis of the Project's consistency with such planning documents is not provided herein.

ENERGY CONSERVATION THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the State CEQA Guidelines, the Project would result in a significant impact on energy use if it would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In order to determine whether or not the Project would result in a significant impact on energy use, this EIR includes an analysis of Project energy use, as provided under *Impacts and Mitigation*

Measures, below. A description of the methodology used to estimate energy emissions is provided within the analysis provided under *Impacts and Mitigation Measures*.

IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: The Project has the potential to generate construction-related GHGs, either directly or indirectly, that may have a significant effect on the environment (Less than Significant with Mitigation)

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Implementation of the Project would contribute to increases of GHG emissions that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO_2 and other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O), from mobile sources and utility usage.

The Project's short-term construction-related and long-term operational GHG emissions were estimated using the California Emission Estimator Model (CalEEMod)™ (v.2016.3.2). CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO_2 equivalent units of measure (i.e., MT CO_2e), based on the global warming potential of the individual pollutants. Section 3.2 (Air Quality) provides further detail on the construction phasing and parameters assumed for the purposes of modeling.

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies, materials, and cut and fill to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Construction of the land uses on the Project site is expected to occur over several years. Annual construction emissions are summarized in Table 3.6-2, in units of metric tons per year (MT/year). Table 3.6-2 represents both unmitigated and mitigated construction-related GHG emissions, since the measures provided within Mitigation Measure 3.6-1 would not affect the Project construction GHG emissions directly.

TABLE 3.6-2: SUMMARY OF CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS (METRIC TONS/YEAR)

CONSTRUCTION YEAR	BIO-CO_2	NON-BIO CO_2	TOTAL CO_2	CH_4	N_2O	CO_2E
PHASE 1						
2020	0	948.8	948.8	0.2	0	953.9
2021	0	1,001.8	1,001.8	0.2	0	1,006.1
2022	0	1,070.7	1,070.7	0.2	0	1,075.1
2023	0	368.9	368.9	0.1	0	370.3
PHASE 2						
2022	0	226.0	226.0	0.1	0	227.4
2023	0	579.1	579.1	0.1	0	580.8
2024	0	800.9	800.9	0.1	0	803.1
2025	0	482.5	482.5	0.1	0	483.8
PHASE 3						
2025	0	557.2	557.2	0.2	0	561.3
2026	0	1,169	1,169	0.1	0	1,171.5
2027	0	1,582.0	1,582.0	0.2	0	1,587.7
2028	0	1,250.3	1,250.3	0.2	0	1,255.0
2029	0	111.5	111.5	<0.1	0	112.4
PHASE 4						
2030	0	304.3	304.3	<0.1	0	304.6
2031	0	388.4	388.4	<0.1	0	388.7
2032	0	514.2	514.2	<0.1	0	514.7
2033	0	21.7	21.7	<0.1	0	21.7
PHASE 5						
2034	0	313.8	313.8	<0.1	0	314.2
2035	0	282.3	282.3	<0.1	0	282.6
Threshold	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**1,100**
Above Threshold?	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**Y**

SOURCE: CALEEMOD (V.2016.3.2)

NOTES: BIO-CO_2 REFERS TO BIOGENIC SOURCES OF CO_2. THE LOSS OF CARBON SEQUESTRATION FROM THE REMOVAL OF EXISTING VEGETATION IS ADDRESSED UNDER THE OPERATIONAL IMPACT DISCUSSION UNDER IMPACT 3.6-2. THE SMAQMD PROVIDES GHG THRESHOLDS ONLY FOR CO_2E, WHICH IS AN AGGREGATE OF ALL GHG EMISSIONS AS EXPRESSED IN TERM OF CO_2.

TABLE 3.6-3: SUMMARY OF CONSTRUCTION GREENHOUSE GAS EMISSIONS (METRIC TONS/YEAR) IN YEARS WITH CONCURRENT PHASES

YEAR	BIO-CO_2	NON-BIO CO_2	TOTAL CO_2	CH_4	N_2O	CO_2E
2022						
Phase 1	0	1,070.70	1,070.70	0.2	0	1,075.10
Phase 2	0	226	226	0.1	0	227.4
Total	**0**	**1,296.7**	**1,296.7**	**0.3**	**0**	**1,302.5**
2023						
Phase 1	0	368.9	368.9	0.1	0	370.3
Phase 2	0	579.1	579.1	0.1	0	580.8
Total	**0**	**948**	**948.0**	**0.2**	**0**	**951.1**
2025						
Phase 2	0	482.5	482.5	0.1	0	483.8
Phase 3	0	557.2	557.2	0.2	0	561.3
Total	**0**	**1,039.7**	**1,039.7**	**0.3**	**0**	**1,045.1**
Maximum	**0**	**1,296.7**	**1,296.7**	**0.3**	**0**	**1,302.5**
Threshold	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**1,100**
Above Threshold?	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**Y**

SOURCE: CALEEMOD (V.2016.3.2); DE NOVO PLANNING GROUP, 2019

It is noted that construction phases would overlap in 2022, 2023, and 2025 and emissions during these years would reflect concurrent development of multiple phases, as shown in Table 3.6-3.

The GHG emissions would be the greatest during year 2027 because that is the year when a large amount of building construction, site preparation, and grading for Phases 3 and 4, as well as grading and paving for the Rancho Cordova Parkway widening, would occur. The GHG emissions threshold would also be exceeded during years 2022 (with Phases 1 and 2 combined), 2025, with Phases 2 and 3 combined, 2028, and 2029. Refer Section 3.2, Air Quality, for additional details on the construction schedule. Refer to Appendix B.1 for a detailed summary of the CalEEMod modeling assumptions, inputs, and outputs.

As presented in the table, short-term construction emissions of GHG associated with the Project are estimated to be a maximum of approximately 1,587.7 MT CO_2e in a single year (year 2027). Construction GHG emissions are a one-time release and are, therefore, not expected to generate a significant contribution to global climate change in the long-term. Emissions from construction are above the SMAQMD construction phase threshold of 1,100 MT CO_2e/year. Therefore, during the construction phase, the Project would be required to implement mitigation to reduce emissions to less than the SMAQMD construction phase threshold of 1,100 MT CO_2e/year. The SMAQMD *Guide to Air Quality Assessment in Sacramento County* allows for construction emissions to be amortized over the expected (long-term) operational life of a project. Therefore, construction emissions are amortized (as provided under Impact 3.6-2, below) and are subject to Mitigation Measure 3.6-1 (as

provided under Impact 3.6-2). With implementation of Mitigation Measure 3.6-1, the Project would have a ***less than significant*** impact relative to this topic.

Impact 3.6-2: The Project has the potential to generate operation-related GHGs, either directly or indirectly, that may have a significant effect on the environment (Less than Significant with Mitigation)

The Project is anticipated to be fully developed (i.e. achieve buildout) by approximately 2035. However, partial buildout (completion of Phase 1) could occur as soon as 2023. The long-term operational GHG emissions estimate for the Project incorporates the Project's potential area source and vehicle emissions, and emissions associated with utility and water usage, and wastewater and solid waste generation. The modeling also reflects a loss of carbon sequestration from the loss of existing trees and vegetation, as well as the benefits of carbon sequestration from the installation of new trees within the Project site.

Project Operational Characteristics

CalEEMod was used to estimate operational emissions for the Project. As described in Section 3.2, Air Quality, the CalEEMod model only allows some Project characteristics to be modeled as "mitigation" for the purposes of the model; therefore, the "mitigated" Project scenario modeled in the unmitigated CalEEMod run represents reductions associated with Project characteristics that reduce emissions.

A summary of the Project characteristics that reduce GHG emissions is provided below (note: the associated CalEEMod measure is provided in brackets). For further detail, see the list of sustainability features and other Project details as provided in Chapter 2.0, Project Description.

- Density to 6.86 dwelling units per acre [Traffic Mitigation, LUT-1];
- Increase diversity through single family residential, multi-family residential, commercial, parks and recreation, and senior uses [Traffic Mitigation, LUT-3];
- Improve walkability design (123.53 intersections per square miles) [Traffic Mitigation, LUT-9];
- Improve destination accessibility (12.3 miles) [Traffic Mitigation LUT-4];
- Increase transit accessibility (Project site would include transit facilities for the City's Signature Transit Route) – average distance to transit for Project residents would be approximately 0.25 miles) [Traffic Mitigation, LUT-5];
- Improve pedestrian network (Project site and connecting off-site) [Traffic Mitigation, SDT-1];
- Provide traffic calming measures (50% of streets and intersections with improvements) [Traffic Mitigation, SDT-2];
- Install electric vehicle (EV) charging stations throughout the Project site, such that at least 50% of single-family residences and 5% of parking spaces within the commercial, park and recreation, and multi-family land uses will have EV charging stations [Traffic Mitigation SDT-3];
- Expand transit network [Traffic Mitigation, TST-3];
- Plant a minimum of 2,240 new trees throughout the Project site [4.11.2-Sequestration];
- No hearths [Area Mitigation];
- Use low-VOC paint (50 EF g/L);

- Install energy efficient (i.e. LED or better lighting) for all outdoor lighting (for outdoor lighting) [Energy Mitigation, LE-1];
- Generate 95% or more of electricity via renewable energy (on-site energy generation and/or contract with SMUD) [Energy Mitigation, AE-1, AE-2, AE-3];
- Install energy efficient *(i.e. Energy Star)* appliances [Energy Mitigation, BE-4];
- Install low-flow appliances (bathroom faucet, kitchen faucet, toilet, and shower) [Water Mitigation, WUW-1];
- Use water-efficient irrigation systems (automatic rain shut-off, maximum gallon per minute restriction, WiFi connectivity) [Water Mitigation, WUW-4]; and
- Minimize turf for residential uses to 70% less than the maximum allowed turf area [Water Mitigation, WUW-5].

Furthermore, as discussed in Section 3.2, Air Quality, the Project would implement all feasible SMAQMD BMPs for particulate matter emissions from land use development projects. The SMAQMD BMPs are required by existing regulations. The following list identifies the BMPs for operational PM emissions for land use development projects that would also contribute to a reduction in GHGs:

- Compliance with the mandatory measures in the California Building Energy Efficiency Standards (Title 24, Part 6) that pertain to efficient use of natural gas for space and water heating and other uses at residential or non-residential land uses.

- Compliance with mandatory measures in the California Green Building Code (Title 24, Part 11). Current mandatory measures related to operational PM include requirements for bicycle parking, parking for fuel-efficient vehicles, electric vehicle charging, and fireplaces for non-residential projects. Residential project measures include requirements for electric vehicle charging and fireplaces.

- Compliance with anti-idling regulations for diesel-powered commercial motor vehicles (greater than 10,000 gross vehicular weight rating). This BMP focuses on non-residential land use projects (retail and industrial) that would attract these vehicles.

Unmitigated Project Emissions

For Table 3.6-4, two mobile source scenarios are provided: the first scenario shows mobile source emissions inclusive of all Project trips, whilst a second scenario for the mobile emissions category ("Mobile Emissions Category Excluding Car and Light-Duty Truck Trips") shows Project mobile category emissions without emissions from car and light-duty truck trips (consistent with the SB 375 CEQA streamlining benefit for "Mixed-Use Residential Projects", for which the Project qualifies).

TABLE 3.6-4: UNMITIGATED OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT (METRIC TONS/YEAR)

CATEGORY	*BIO- CO_2*	*NON-BIO- CO_2*	*TOTAL CO_2*	*CH_4*	*N_2O*	*CO_2E*
Area	0	29.1	29.1	<0.1	0	29.8
Energy	0	1,758.7	1,758.7	<0.1	<0.1	1,768.9
Mobile	0	6,834.0	6,834.0	0.3	0	6,840.5
Waste	252.0	0	252.0	14.9	0	624.5
Water	32.5	199.4	231.9	0.1	0.1	256.6
Total	**284.5**	**8,821.2**	**9,105.7**	**15.3**	**0.1**	**9,520.1**
MOBILE EMISSIONS CATEGORY EXCLUDING CAR AND LIGHT-DUTY TRUCK TRIPS						
Mobile	0	3,063.4	3,063.4	0.2	0	3,068.8
Total	**284.5**	**5,050.60**	**5,335.1**	**15.2**	**0.1**	**5,748.6**

SOURCE: CALEEMOD (V.2016.3.2)

As shown in Table 3.6-4 the Project's operational GHG emissions would equal approximately 5,748.6 MT CO_2e/year, when removing the emissions from car and light-duty truck trips, per the SB 375 CEQA streamlining benefits.

In addition to the emissions shown in Table 3.6-4, the CalEEMod results also identify the sequestration loss from existing vegetation as well as the benefits of of carbon sequestration from the installation of new trees within the Project site. As a conservative estimate, the loss of existing vegetation (annual grasslands) was estimated to generate a one-time loss (from carbon sequestration) of approximately 1,083.3 MT CO_2e.[1] If amortized over a 30-year period, this loss represents an approximate carbon sequestration loss of 36.11 MT CO_2e/year. However, installation of new trees within the Project site is expected to sequester approximately 1,585.9 MT CO_2e. If amortized over a 30-year period, this represents an approximate carbon sequestration gain of 52.86 MT CO_2e/year. Combined with the loss from existing vegetation, the net change to carbon sequestration due to development of the Project at full buildout is expected to be approximately 502.6 MT CO_2e, or 16.8 MT CO_2e/year. This carbon sequestration gain (i.e. net reduction in Project GHG emissions) is in addition to the Project unmitigated operational GHG emissions provided in Table 3.6-3.

Separately, as provided under Impact 3.6-1, construction emissions as modeled by CalEEMod would total approximately 12,014.9 CO_2e/year over the life of the Project. If amortized over a 40-year period (consistent with SMAQMD guidance)[2], total amortized construction emissions would be equivalent to 200.4 CO_2e/year.

When carbon sequestration and amortized construction emissions are included in the calculation, the Project's net annual GHG emissions would equal 5,446.4 MT CO_2e/year, as shown in Table 3.6-5. Therefore, the Project is required to implement all feasible mitigation to reduce Project operational GHG emissions to a below the applicable threshold of significance.

[1] Note: for the purposes of modeling, it was assumed that the Project site currently consists of "Grassland". The proposed project was assumed to remove an amount of "Grassland" representative of the land area to be developed (not including the open space areas that would be preserved upon proposed project buildout).

[2] As provided on page 6-14 of the SMAQMD's Guide to Air Quality Assessment in Sacramento County (2018).

TABLE 3.6-5: UNMITIGATED OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT (METRIC TONS/YEAR)

CATEGORY	*CO_2E*
Total Area, Energy, Mobile, Waste, and Water Emissions (Table 3.4-3)	5,748.6
Net Carbon Sequestration (Reduction)[1]	<502.6>
Net Construction Amortization (Gain)[2]	200.4
Total	**5,446.4**

[1] ONE-TIME LOSS OF APPROXIMATELY 1,083.3 MT CO_2E AMORTIZED OVER A 30-YEAR PERIOD REPRESENTS AN APPROXIMATE CARBON SEQUESTRATION LOSS OF 36.11 MT CO_2E/YEAR ASSOCIATED WITH REMOVAL OF EXISTING VEGETATION DUE TO PROJECT CONSTRUCTION. INSTALLATION OF NEW TREES AS PART OF THE PROJECT WOULD SEQUESTER APPROXIMATELY 1,585.9 MT CO_2E, REPRESENTS AN APPROXIMATE CARBON SEQUESTRATION GAIN OF 52.86 MT CO_2E/YEAR IF AMORTIZED OVER A 30-YEAR PERIOD.
[2] CONSTRUCTION EMISSIONS WOULD TOTAL APPROXIMATELY 12,014.9 CO_2E/YEAR OVER THE LIFE OF THE PROJECT (SEE IMPACT 3.6-1). WHEN AMORTIZED OVER A 40-YEAR PERIOD, TOTAL AMORTIZED CONSTRUCTION EMISSIONS WOULD BE EQUIVALENT TO 200.4 CO_2E/YEAR.
SOURCE: CALEEMOD (V.2016.3.2)

Mitigated Project Emissions

The Project has been designed and planned to incorporate a substantial amount of available mitigation. As shown in the Project's GHG Reduction Plan (see Mitigation Measure 3.6-1), the Project has been designed to incorporate the majority of CalEEMod measures identified by SMAQMD as appropriate for reducing GHG emissions. These measures are described previously under the Project Operational Characteristics heading. In reviewing GHG reduction measures identified by SMAQMD as included in CalEEMod and appropriate for reducing GHG emissions, an additional three measures were identified as applicable to the Project, as described below:

- Implement Trip Reduction Program (100% of employees eligible; voluntary) [Traffic Mitigation, TRT-1 and TRT-2];
- Exceed Title 24 (2% improvement) [Energy Mitigation, BE-1]; and
- Apply Water Conservation Strategy (25% reduction in outdoor water consumption) [Water Mitigation WUW-2].

Table 3.6-6 provides the mitigation operational GHG emissions at project buildout in year 2035.

TABLE 3.6-6: UNMITIGATED OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT (METRIC TONS/YEAR)

CATEGORY	*BIO- CO_2*	*NON-BIO- CO_2*	*TOTAL CO_2*	*CH_4*	*N_2O*	*CO_2E*
Area	0	29.1	29.1	<0.1	0	29.8
Energy	0	1,730.7	1,730.7	<0.1	<0.1	1,740.8
Mobile	0	6,640.6	6,640.6	0.3	0	6,646.9
Waste	252.0	0	252.0	14.9	0	624.3
Water	40.6	214.5	255.1	0.2	0.1	285.9
Total	**292.6**	**8,614.9**	**8,907.5**	**15.4**	**0.1**	**9,327.6**
MOBILE EMISSIONS CATEGORY EXCLUDING CAR AND LIGHT-DUTY TRUCK TRIPS						
Mobile	0	2,982.3	2,982.3	0.2	0	2,987.7
Total	**292.6**	**4,956.6**	**5,249.2**	**15.3**	**0.1**	**5,668.5**

SOURCE: CALEEMOD (V.2016.3.2)

As shown in Table 3.6-6, the Project's operational GHG emissions would equal approximately 5,668.5 MT CO_2e/year, when removing the impact from car and light-duty truck trips, per the SB 375 CEQA streamlining benefits.

In addition to the emissions shown in Table 3.6-6, the CalEEMod results also identify the sequestration loss from existing vegetation as well as the benefits of carbon sequestration from the installation of new trees within the Project site. As a conservative estimate, the loss of existing vegetation (annual grasslands) was estimated to generate a one-time loss (from carbon sequestration) of approximately 1,083.3 MT CO_2e.[3] If amortized over a 30-year period, this loss represents an approximate carbon sequestration loss of 36.11 MT CO_2e/year. However, installation of new trees within the Project site is expected to sequester approximately 1,585.9 MT CO_2e. If amortized over a 30-year period, this represents an approximate carbon sequestration gain of 52.86 MT CO_2e/year. Combined with the loss from existing vegetation, the net change to carbon sequestration due to development of the Project at full buildout is expected to be approximately 502.6 MT CO_2e, or 16.8 MT CO_2e/year. This carbon sequestration gain (i.e. net reduction in Project GHG emissions) is in addition to the Project unmitigated operational GHG emissions provided in Table 3.6-3.

Separately, as provided under Impact 3.6-1, construction emissions as modeled by CalEEMod would total approximately 12,014.9 CO_2e/year over the life of the Project. If amortized over a 40-year period (consistent with SMAQMD guidance)[4], total amortized construction emissions would be equivalent to 200.4 CO_2e/year.

When carbon sequestration and amortized construction emissions are included in the calculation, the Project's net annual GHG emissions would equal 5,336.3 MT CO_2e/year, as shown in Table 3.6-7. Therefore, the Project is required to implement all feasible mitigation to reduce Project operational GHG emissions to a below the applicable threshold of significance.

TABLE 3.6-7: UNMITIGATED OPERATIONAL GHG EMISSIONS AT PROJECT BUILDOUT (METRIC TONS/YEAR)

CATEGORY	*CO_2E*
Total Area, Energy, Mobile, Waste, and Water Emissions (Table 3.4-3)	5,668.5
Net Carbon Sequestration (Reduction)[1]	<502.6>
Net Construction Amortization (Gain)[2]	200.4
Total	**5,336.3**

[1] ONE-TIME LOSS OF APPROXIMATELY 1,083.3 MT CO_2E AMORTIZED OVER A 30-YEAR PERIOD REPRESENTS AN APPROXIMATE CARBON SEQUESTRATION LOSS OF 36.11 MT CO_2E/YEAR ASSOCIATED WITH REMOVAL OF EXISTING VEGETATION DUE TO PROJECT CONSTRUCTION. INSTALLATION OF NEW TREES AS PART OF THE PROJECT WOULD SEQUESTER APPROXIMATELY 1,585.9 MT CO_2E, REPRESENTS AN APPROXIMATE CARBON SEQUESTRATION GAIN OF 52.86 MT CO_2E/YEAR IF AMORTIZED OVER A 30-YEAR PERIOD.

[2] CONSTRUCTION EMISSIONS WOULD TOTAL APPROXIMATELY 12,014.9 CO_2E/YEAR OVER THE LIFE OF THE PROJECT (SEE IMPACT 3.6-1). WHEN AMORTIZED OVER A 40-YEAR PERIOD, TOTAL AMORTIZED CONSTRUCTION EMISSIONS WOULD BE EQUIVALENT TO 200.4 CO_2E/YEAR.

SOURCE: CALEEMOD (V.2016.3.2)

[3] Note: for the purposes of modeling, it was assumed that the Project site currently consists of "Grassland". The proposed project was assumed to remove an amount of "Grassland" representative of the land area to be developed (not including the open space areas that would be preserved upon proposed project buildout).

[4] As provided on page 6-14 of the SMAQMD's Guide to Air Quality Assessment in Sacramento County (2018).

CONSISTENCY WITH THE DRAFT RECOMMENDED LAND USE OPERATIONAL GHG THRESHOLDS

The following discussion provides an analysis of the Project's compliance with the draft recommended land use operational GHG thresholds that are currently under consideration by the SMAQMD.

The Project includes both residential and non-residential components, and is not expected to achieve full buildout until approximately 2035. Therefore, the GHG per service population threshold for year 2036 (as provided in Table 3.6-1) was selected the purposes of comparing Project operational GHG emissions to the new draft recommended land use thresholds of significance for GHG emissions. As provided in Table 3.6-1, the proposed project would need to reach a GHG service population threshold of 2.05 in 2036. Operational emissions for 2035 are used as a proxy for year 2036 (carbon efficiency is expected to improve in California over time, so this serves as a conservative estimate).

The residential population of the Project is expected to be 4,319 persons and the number of employees within the Project at buildout is estimated at 106 employees, as described in Chapter 2.0, Project Description. Therefore, the service population for the Project would be 4,425. With total operational emissions for the Project at approximately 5,336.3 MT CO_2e/year, as shown in Table 3.6-7, the GHG per service population thresholds would equal approximately 1.21 MT CO_2e/year. Therefore, the Project would achieve the year 2036 GHG/capita thresholds of 2.05 MT CO_2e/service population under the mitigated scenario. Nevertheless, since the GHG/service population thresholds are not yet final, the existing 1,100 MT CO_2e thresholds for operational GHG emissions that is currently in place is used as the basis for the analysis of the Project's operation-related GHGs emissions.

CONCLUSION

Even with inclusion of the aforementioned Project characteristics, the Project would not meet the operational level emissions threshold as currently provided by the SMAQMD. Therefore, the Project would be required to implement Mitigation Measure 3.6-1, which requires the Project applicant to implement additional features in the Project that would reduce GHG emissions, including membership of Project components (residential communities, commercial uses, and parks and recreation uses), in a Transportation Management Association, increased efficiency beyond the minimum requirements of Title 24, use of native and drought-tolerant landscaping and trees, and purchasing carbon offsets. With implementation of Mitigation Measure 3.6-1, the Project would have a ***less than significant*** impact relative to this topic.

MITIGATION MEASURE(S)

Mitigation Measure 3.6-1: *The Project shall comply with the GHG Reduction Plan for The Ranch throughout all phases of Project construction and operation.*

The Ranch GHG Reduction Plan

The Project shall implement all measures shown in the table below that are identified as "Incorporated into Project Design" or "Mitigation Measure" in order to reduce the Project's net operational emissions, including amortized construction emissions, to an emissions level that meet

the SMAQMD threshold for GHG emissions. It is noted that incorporation of the three SMAQMD-Recommended CalEEMod Measures to Reduce GHGs that are identified as "Mitigation Measures" in the below table would reduce the Project's net operational emissions, including amortized construction emissions, to 5,336.3 MT CO_2e, as shown in Table 3.6-7 of the Draft EIR. Implementation of the required carbon offset purchase, as described in the below table, will ensure that the Project meets SMAQMD thresholds as it ensures the Project will purchase adequate carbon offsets to reduce all remaining emissions over SMAQMD thresholds to a level that meets the threshold.

GHG REDUCTION MEASURE	*APPLICABILITY*	*IMPLEMENTATION*
SMAQMD-RECOMMENDED CALEEMOD MEASURE TO REDUCE GHGS[1]		
LUT-1 Increase Density: Project more dense than typical developments	Not applicable. Project is under minimum density required (eight units per acre).	Not applicable.
LUT-3 Increase Diversity of Land Uses: Different types of land uses are near each other	Incorporated into Project Description. Project provides single family residential, multifamily residential, commercial, senior community clubhouse, parks and recreation, and open space land uses.	Included in Project design as described in the Project Description. No additional implementation required.
LUT-9 Improve Walkability Design: Walkable street network	Incorporated into Project Description. Project is designed with a walkable street pattern, with 123.53 intersections per square mile, multiple bicycle/pedestrian connections, an off-street trail system, and bicycle lanes to encourage walkability.	Included in Project design as described in the Project Description. No additional implementation required.
LUT-4 Improve Destination Accessibility: Project close to regional employment or destination center	Incorporated into Project Description. Project is located 12.3 miles from a regional employment center in downtown Sacramento.	Included in Project design as described in the Project Description. No additional implementation required.
LUT-5 Increase Transit Accessibility: Project near high-quality transit	Not applicable. While Project would provide a transit stop for the planned regional transit line, transit is currently limited in the area.	Not applicable.
LUT-6 Integrate Below Market Rate Housing: Incorporates affordable housing	Not applicable. The Project includes two multifamily components, but does not include affordable housing.	Not applicable.
SDT-1 Improve Pedestrian Network: On-site pedestrian access network links all of project internally and externally	Incorporated into Project Description. Project is designed with a walkable street pattern, with 123.53 intersections per square mile, multiple bicycle/pedestrian connections, an off-street trail system, and bicycle lanes to encourage walkability.	Included in Project design as described in the Project Description. No additional implementation required.
SDT-2 Provide Traffic Calming Measures: Projects streets and intersections feature traffic calming features	Incorporated into Project Description. Project has been designed to include a range of traffic-calming street design features, such as narrower streets, limited single-loaded streets, parking on both sides of the street, posted speed limit signs, planter	Included in Project design as described in the Project Description. No additional implementation required.

GHG REDUCTION MEASURE	*APPLICABILITY*	*IMPLEMENTATION*
	strips with street trees, bulb-outs, and horizontal shifts (lane centerline that curves or shifts), and intersection traffic calming features, including pedestrian push-buttons at three intersections, marked crosswalks, count-down signal timers where appropriate, curb extensions, channelization islands, median islands, and tight corner radii.	
SDT-3 Implement a Neighborhood Electric Vehicle (NEV) Network: Project provides a viable NEV network	Incorporated into Project Design. While the Project does not include a traditional NEV, the Project would support electric vehicle use through installing EV charging stations throughout the Project site, such that at least 50% of single family residences and 5% of parking spaces within the commercial, park and recreation, and multi-family land uses will have EV charging stations to reduce reliance on gasoline-fueled vehicles.	Included in Project design as described in the Project Description. No additional implementation required.
PDT-1 Limit Parking Supply: Parking supply below Institute of Transportation Engineers (ITE) rates	Not applicable. The suburban context of the Project is not appropriate for this measure.	Not applicable.
PDT-2 Unbundle Parking Costs: Parking cost separate from property costs	Not applicable. Project design incorporates garages into the single family residential units and does not have significant opportunities for unbundled parking costs.	Not applicable.
TST-1 Provide a Bus Rapid Transit (BRT) System: Establish a BRT line with permanent operational funding stream	Not applicable. While the Project will provide for an expanded transit system through providing a transit stop in accordance with the City's transit plan, it will not create an independent funding source for transit.	Not applicable.
TST-3 Expand Transit Network: Establishes or enhances bus line with permanent operational funding stream	Not applicable. While the Project will provide for an expanded transit system through providing a transit stop in accordance with the City's transit plan, it will not create an independent funding source for transit.	Not applicable.
TST-4 Increase Transit Frequency: Reduces headways of existing transit	Not applicable. While the Project will provide for an expanded transit system through providing a transit stop in accordance with the City's transit plan, it will not create an independent funding source for transit that would reduce headways.	Not applicable.

GHG REDUCTION MEASURE	*APPLICABILITY*	*IMPLEMENTATION*
TRT-1&2 Implement Trip Reduction Program: Transportation Management Association (TMA) membership or other comprehensive services	Mitigation Measure. Mitigation Measure 3.6-1 requires the Project to join a Transportation Management Association (all employees located within the Project site to be eligible to participate).	Prior to issuance of occupancy permits for each construction phase of the Project, the Project applicant shall demonstrate that the residential, commercial, and parks and recreation uses associated with each phase have a permanent commitment, demonstrated through CC&Rs or comparable permanent mechanisms, have joined a Transportation Management Association and ensures payment of annual fees for on-going participation. The Transportation Management Association shall grant all employees located within the Project site eligibility to participate).
BE-1 Exceed Title 24 California Code of Regulations, known as the California Building Standards Code (Title 24): Use less energy than allowed by Title 24	Mitigation Measure. Mitigation Measure 3.6-1 requires the Project to exceed the 2016 Title 24 requirements by 2 percent.	Prior to issuance of building permits for each construction phase of the Project, including all residential, commercial, and parks and recreation uses, the Project applicant shall demonstrate that the phase exceeds the 2016 Title 24 requirements for energy use and efficiency by a minimum of 2 percent. The documentation shall identify specific Project components, such as building materials and design, lighting improvements beyond the minimum required by LE-1, etc. and the associated reduction with each component beyond the Title 24 requirements.
LE-1 Install High Efficiency Lighting: Make use of high-efficient outdoor and public lighting	Incorporated into Project Design. The Project proposes to install energy-efficient (i.e., LED or better) lighting for all outdoor lighting.	Included in Project design as described in the Project Description. No additional implementation required.
BE-4 Energy Efficient Appliances: Use appliances more energy efficient than standard models	Incorporated into Project Design. The Project proposes to install energy-efficient appliances.	Included in Project design as described in the Project Description. No additional implementation required.
AE-1 On-site Renewable Energy: Establish on-site renewable energy. (No	Incorporated into Project Design. The Project would generate a minimum of 95% of electricity via renewable	Included in Project design as described in the Project Description. No additional

GHG REDUCTION MEASURE	*APPLICABILITY*	*IMPLEMENTATION*
Ozone Precursor reductions if NO_X intensity is higher than electric utility.)	energy via either on-site energy generation and/or through a contract with SMUD.	implementation required.
WUW-2 Apply Water Conservation Strategy: Reduce indoor and outdoor water use	Incorporated into Project Design. The Project would	Included in Project design as described in the Project Description. No additional implementation required.
WSW-1 Use Reclaimed Water: Project utilizes non-potable water	Not applicable. Nonpotable water is not available to the Project site.	Not applicable.
WSW-2 Use Grey Water: Project reuses onsite water	Not applicable. The Project does not have significant opportunities to reuse onsite water.	Not applicable.
WUW-1 Install Low-Flow Bathroom Faucet, Install Low-Flow Kitchen Faucet, Install Low-flow Toilet, Install Low-flow Shower	Incorporated into Project Design. The Project proposes to install energy-efficient appliances.	Included in Project design as described in the Project Description. No additional implementation required.
WUW-5 Reduce Turf in Landscapes and Lawns: Use less turf than normal projects	Incorporated into Project Design. Minimize turf for residential uses to 70% less than the maximum allowed turf area to reduce water use.	Included in Project design as described in the Project Description. No additional implementation required.
WUW-4 Use Water-Efficient Irrigation Systems: Install a smart irrigation control system	Incorporated into Project Design. Use water-efficient irrigation systems (automatic rain shut-off, maximum gallon per minute restriction, WiFi connectivity) to reduce water waste.	Included in Project design as described in the Project Description. No additional implementation required.
WUW-3 Water Efficient Landscape: Plant native or drought-resistant trees and Vegetation	Mitigation Measure. Mitigation Measure 3.6-1 requires the Project to incorporate a minimum of 50 percent of native or drought-resistant trees and vegetation into the proposed landscaping, including landscaping lots, landscaping associated with parks and recreation facilities, and landscaping associated with residential uses. Project applicant shall demonstrate at least a 25% reduction in outdoor water use from implementation of this measure.	Prior to approval of improvement plans for each phase of construction, the Project applicant shall submit landscaping plans that demonstrate a minimum of 50 percent of of native or drought-resistant trees and vegetation are included in the non-turf component of proposed landscaping, including landscaping lots, parks and recreation lots and facilities, and residential uses.
SW-1 Institute Recycling and Composting Services: Project Recycles, Reduces, and Reuses	Incorporated into Project Design. The Project will comply with the City's recycling requirements. Credit is not taken for this measure.	Not applicable.

GHG REDUCTION MEASURE	*APPLICABILITY*	*IMPLEMENTATION*
ADDITIONAL MEASURES (NOT MODELED IN CALEEMOD)		
Purchase Offsets.	Mitigation Measure. This Mitigation Measure 3.6-1 requires the Project applicant to purchase carbon offsets to reduce net project operational and amortized construction emissions to less than SMAQMD's adopted threshold for GHG emissions.	Prior to issuance of the project's first building permit, the project applicant shall develop a SMAQMD-approved commitment to purchase carbon offsets sufficient to reduce project operational emissions and amortized construction emissions to less than SMAQMD's adopted threshold for GHG emissions that is in place at the time of the offset purchase. The purchase of carbon offsets may be prorated so that the offsets are paid concurrent with the approval of each project phase (small lot subdivision maps, multifamily parcel, etc.).

[1] *SMAQMD LAND USE EMISSIONS REDUCTIONS VERSION 4 (FOR OPERATIONAL EMISSIONS), SMAQMD, 2017.*

Impact 3.6-3: The Project has the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (Less than Significant with Mitigation)

The City of Rancho Cordova has not developed a qualified climate action plan or a GHG reduction plan. Therefore, the Project has been analyzed to determine consistency with State of California GHG reduction targets (as identified by AB 32, SB 32, and the Scoping Plan), the SACOG MTP/SCS, and Executive Order B-30-15 goals are provided below (per SMAQMD guidance contained within the SMAQMD CEQA Guide).

CONSISTENCY WITH THE SACOG MTP/SCS

The Project would be consistent with the planned-for development as provided with the MTP/SCS, and was therefore included within the SCS growth projections. When evaluating consistency with the MTP/SCS, the Project was reviewed as a mixed-use residential project located outside of a transit priority area. The Project meets the Public Resources Code Section 21159.28(a) requirements for a mixed-use residential project, with at least 75% of the total building square footage consisting of residential use, as approximately 98% of the Project's square footage would be residential (approximately 2,875,800 square feet residential uses divided by approximately 2,934,800 total building square feet).

The Project (the "Ranch at Sunridge" in the MTP/SCS) is located within a Developing Community and is consistent with the general uses envisioned for the site in the MTP/SCS. When determining consistency within a Developing Community, SACOG's Determination of MTP/SCS Consistency Worksheet indicates that the Project's average net density must meet or exceed the average net

density described for the specific Developing Community. The proposed average net residential density of 10 units/acre exceeds the average net density of 7 units/acre described for the the Ranch at Sunridge (MTP/SCS Appendix E-3, p. 137); in comparison to earlier development proposals for this site, the area for total residential, commercial, and other development is limited by the Project's significant preservation of open space and wetland resources (approximately 199.5-acre wetland preserve). This preservation of open space is consistent with the environmental principles of the SCS. Employment-generating uses include the proposed senior clubhouse, commercial parcel, and parks and recreation uses, which are consistent with the commercial and public uses envisioned by the MTP/SCS (MTP/SCS Appendix E-3, p. 137). A Special Planning Area (SPA) Handbook has been prepared for the Project, which acts in a similar capacity to a Specific Plan, and is consistent with the MTP/SCS. The Project is consistent with the goals of the City of Rancho Cordova General Plan (see SPA Handbook for further detail). The Project provides for a high level of bicycle and pedestrian connectivity throughout the Project site, including non-auto connections to the parks, open space, and trails features of the Project. An open space and wetland preserve area is provided, preserving wetlands and aquatic resources on the site. A range of housing types (including single family market rate and senior units at a range of densities and lot sizes, senior congregate care units, and multifamily units) will serve a broad spectrum of households. As described in Section 3.2, Air Quality, comprehensive features and measures are provided to reduce GHG emissions, including use of renewable energy for the residential component of the Project, an EV charging network, and use of energy-efficient and water-conserving building and design practices.

As described above, the Project is consistent with the MTP/SCS general use designation, density and intensity, and applicable MTP/SCS policies. The Project is located in the "Developing Community" community type. Development from the Project when added to other entitled projects would not exceed the MTP/SCS buildout assumptions for the area within this Community type, which is 152,027 new housing units and 81,837 new employees.

Therefore, the Project is consistent with the MTP/SCS and qualifies for CEQA Streamlining under the 'Residential or Mixed-Use Residential Project Designation for Projects Located Outside of an MTP/SCS TPA' (see Appendix B.3 for the "Determination of MTP/SCS Consistency Worksheet"). Therefore, the Project would have a ***less than significant*** impact relative to consistency with this plan.

CONSISTENCY WITH STATE OF CALIFORNIA GHG REDUCTION TARGETS & EO B-30-15

The State of California has a target to reach 1990 GHG levels by 2020 (consistent with AB 32), 40 percent below 1990 levels by 2030 (consistent with EO B-30-15 and SB 32), and 80 percent below 1990 levels by 2050 (consistent with EO S-03-05). The SACOG MTP/SCS is required to be consistent with these targets. Since the Project is consistent with and has been planned for in the SACOG MTP/SCS, the Project would also be consistent with the California statewide reduction targets. The Project is also consistent with the CARB Scoping Plan, which is developed in coordination with the SACOG MTP/SCS. Therefore, the Project would have a ***less than significant*** impact relative to this threshold.

CONSISTENCY WITH THE SMAQMD CONSTRUCTION AND OPERATIONAL GHG THRESHOLDS

As previously described, the SMAQMD thresholds for construction-related and operational-related emissions is 1,100 MT CO_2e/year. The Project would not exceed these thresholds with implementation of mitigation, as described under Impact 3.6-1. With implementation of Mitigation Measure 3.6-1, the Project would have a ***less than significant*** impact relative to this threshold.

CONCLUSION

As demonstrated in the analysis provided above, the Project is consistent with these adopted plans, and would assist the City and the State of California in achieving their adopted GHG reduction targets. The Project would also achieve the SMAQMD construction GHG emissions threshold of 1,100 MT CO_2e per year for construction-related emissions. Additionally, with Mitigation Measure 3.6-1, the Project would offset sufficient GHG emissions to achieve the GHG emissions threshold of 1,100 MT CO_2e per year for operational-related emissions (inclusive of amortized construction-related emissions). Therefore, there is a ***less than significant*** impact relative to this topic.

Impact 3.6-4: Project implementation has the potential to result in the inefficient, wasteful, or unnecessary use of energy resources, or conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Less than Significant)

The State CEQA Guidelines require consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the Project would be considered "wasteful, inefficient, and unnecessary" if it were to violate state and federal energy standards and/or result in significant adverse impacts related to project energy requirements, energy inefficiencies, energy intensiveness of materials, cause significant impacts on local and regional energy supplies or generate requirements for additional capacity, fail to comply with existing energy standards, otherwise result in significant adverse impacts on energy resources, or conflict or create an inconsistency with applicable plan, policy, or regulation.

The Project includes primarily residential development, as well as a commercial parcel, an active adult community clubhouse and recreation facility, and parks and recreation land uses, including a comprehensive pedestrian and bicycle network. The amount of energy used at the Project site would directly correlate to the number and size of the residential units, the energy consumption of associated unit appliances, outdoor lighting, and energy use associated with other on-site (e.g. commercial) buildings and activities. Other major sources of Project energy consumption include fuel used by vehicle trips generated during Project construction and operation, and fuel used by off-road and on-road construction vehicles during construction. The following discussion provides calculated levels of energy use expected for the Project, based on commonly used modelling

software (i.e. CalEEMod v.2016.3.2 and the California Air Resource Board's EMFAC2014). It should be noted that many of the assumptions provided by CalEEMod are conservative relative to the Project, based on the long-term improvements in energy efficiency beyond 2050 that are not accounted for within the CalEEMod model. Therefore, this discussion provides a conservative estimate of Project energy use.

ELECTRICITY AND NATURAL GAS

Electricity and natural gas used by the Project would be used primarily to power on-site buildings. Total annual electricity (kWh) and natural gas (kBTU) usage associated with the operation of the Project are shown in Table 3.6-8, below (as provided by CalEEMod). The Project incorporates feasible mitigation to reduce the Project's operational electricity and natural gas consumption. As shown, electricity usage within the Project site would be reduced by more than 95% between the unmitigated and mitigated scenarios (due to Project mitigation, including the measure to ensure that at least 95% of Project building electricity usage is derived from renewable sources).

TABLE 3.6-8: PROJECT OPERATIONAL NATURAL GAS AND ELECTRICITY USAGE (UNMITIGATED SCENARIO)

EMISSIONS	*NATURAL GAS (KBTU/YEAR)*	*ELECTRICITY (KWH/YEAR)*
Apartments Mid Rise	2,095,840	38,917
City Park	0	0
Other Asphalt Surfaces	0	0
Parking Lot	0	326
Regional Shopping Center	173,440	12,167
Retirement Community	459,751	142,243
Retirement Community	8,916,760	7,334
Single Family Housing	18,988,500	261,857
Total	**30,634,291**	**462,844**

SOURCE: CALEEMOD (V.2016.3.2)

According to CalEEMod's *Appendix A: Calculation Details for CalEEMod*, CalEEMod uses the California Commercial End Use Survey (CEUS) database to develop energy intensity value for non-residential buildings. The energy use from residential land uses is calculated based on the Residential Appliance Saturation Survey (RASS). Similar to CEUS, this is a comprehensive energy use assessment that includes the end use for various climate zones in California.

As shown in Table 3.6-8, Project operational energy usage would be reduced with implementation of Project components considered mitigation by CalEEMod (note: given the limited mitigation options available in the current version of CalEEMod, the reduction attributable to mitigation represents a conservative analysis). As described under Mitigation Measure 3.2-1 (see Section 3.2, Air Quality), the Project incorporates feasible mitigation that would reduce the Project's energy consumption, as compared to the unmitigated scenario. These reductions in overall Project energy usage also reflect a reduction in the Project's energy intensity.

ON-ROAD VEHICLES (OPERATION)

The Project would generate vehicle trips during its operational phase. Based on the traffic study prepared for the Project (Kimley Horn, 2019), the Project would generate approximately 11,606

new daily vehicles trips[5]. In order to calculate operational on-road vehicle energy usage and emissions, default trip lengths generated by CalEEMod were used, which are based on the project location and urbanization level parameters De Novo (the EIR consultant) selected within CalEEMod (i.e. "Sacramento County" and "Urban", respectively). These values are provided by the individual districts or use a default average for the state, depending on the location of the Project (CAPCOA, 2017). Based on default factors provided by CalEEMod, the average distance per trip was conservatively calculated to be approximately 7.9 miles. The Project would generate at total of approximately 86,737 average daily vehicle miles travelled (average daily VMT). Using fleet mix data provide by CalEEMod (v2016.3.2), and Year 2026 gasoline and diesel MPG (miles per gallon) factors for individual vehicle classes as provided by EMFAC2014, De Novo derived weighted MPG factors for operational on-road vehicles of approximately 37.1 MPG for gasoline and 9.8 MPG for diesel vehicles. With this information, De Novo calculated as a conservative estimate that the unmitigated Project would generate vehicle trips that would use a total of approximately 2,186 gallons of gasoline and 566 gallons of diesel fuel per day, on average, or 798,060 gallons of gasoline and 206,430 annual gallons of diesel fuel per year.

ON-ROAD VEHICLES (CONSTRUCTION)

The Project would also generate on-road vehicle trips during Project construction (from construction workers and vendors). Estimates of vehicle fuel consumed were derived based on the assumed construction schedule, vehicle trip lengths and number of workers per construction phase as provided by CalEEMod (v 2016.3.2), and Year 2035 gasoline and diesel MPG factors provided by EMFAC2014. Table 3.6-9, below, describes gasoline and diesel fuel used by on-road mobile sources during each phase of the construction schedule. As shown, the vast majority of on-road mobile vehicle fuel used during the construction of the Project would occur during the building construction phase. See Appendix B.2 for a detailed calculation.

TABLE 3.6-9: ON-ROAD MOBILE FUEL GENERATED BY PROJECT CONSTRUCTION ACTIVITIES – BY PHASE

CONSTRUCTION PHASE	*TOTAL DAILY WORKER TRIPS[A]*	*TOTAL DAILY VENDOR TRIPS[A]*	*TOTAL DAILY HAULING TRIPS[A]*	*GALLONS OF GASOLINE FUEL[B]*	*GALLONS OF DIESEL FUEL[B]*
PHASE 1					
Site Preparation	18	0	0	315	0
Grading	20	0	9,544	825	31,797
Paving	15	0	0	263	0
Building Construction	283	61	0	44,708	31,882
Architectural Coating	57	0	0	9,020	0
PHASE 2					
Improvements for Phase 2 & Paving	23	0	0	1,215	0
Building Construction	290	70	0	47,612	38,022
Architectural Coating	58	0	0	9,522	0

[5] For the purposes of air quality and greenhouse gas emissions modeling (i.e. CalEEMod), the average internal capture rate calculated by Kimley Horn (for AM and PM peak hours) was applied to Project trips.

CONSTRUCTION PHASE	*TOTAL DAILY WORKER TRIPS[A]*	*TOTAL DAILY VENDOR TRIPS[A]*	*TOTAL DAILY HAULING TRIPS[A]*	*GALLONS OF GASOLINE FUEL[B]*	*GALLONS OF DIESEL FUEL[B]*
PHASE 3					
Site Preparation	18	0	3,181	315	10,598
Grading	20	0	0	825	0
Paving	15	0	0	2,463	0
Building Construction	535	145	0	87,835	80,766
Architectural Coating	107	0	0	17,567	0
Site Preparation for Rancho Cordova Widening	18	0	0	315	0
Paving for Rancho Cordova Widening	15	0	0	2,463	0
Site Preparation (Park Lot - D)	18	0	0	315	0
PHASE 4					
Site Preparation	18	0	0	199	0
Grading and Improvements	15	0	0	344	0
Paving	15	0	0	263	0
Building Construction	171	25	0	21,160	10,235
Architectural Coating	34	0	0	990	0
PHASE 5					
Site Preparation	18	0	0	204	0
Grading and Improvements	15	0	0	271	0
Paving	15	0	0	97	0
Building Construction	10	5	0	701	1,159
Architectural Coatings	2	0	0	46	0
Total	**N/A**	**N/A**	**N/A**	**249,853**	**204,459**

NOTE: [A] PROVIDED BY CALEEMOD. [B]SEE APPENDIX B.2 FOR FURTHER DETAIL

SOURCE: CALEEMOD (V.2016.3.2); EMFAC2014.

OFF-ROAD VEHICLES (CONSTRUCTION)

Off-road construction vehicles would use diesel fuel during the construction phase of the Project. A non-exhaustive list of off-road constructive vehicles expected to be used during the construction phase of the Project includes: cranes, forklifts, generator sets, tractors, excavators, and dozers. Based on the total amount of CO_2 emissions expected to be generated by the Project (as provided by the CalEEMod output), and a CO_2 to diesel fuel conversion factor (provided by the U.S. Energy Information Administration), the Project would use a total of approximately 134,644 gallons of diesel fuel for off-road construction vehicles (during the site preparation and grading phases of the Project). Detailed calculations are provided in Appendix B.2.

OTHER

Project landscape maintenance activities would generally require the use fossil fuel (i.e. gasoline) energy. For example, lawn mowers require the use of fuel for power. As an approximation, it is estimated that landscape care maintenance would require approximately 44,200 man-hours of mowing per year. Assuming an average of approximately 0.5 gallons of gasoline used per person-

hour, the Project would require the use of approximately 22,100 gallons of gasoline per year to power landscape maintenance equipment. The energy used to power landscape maintenance equipment would not differ substantially from the energy required for landscape maintenance for similar project.

The Project could also use other sources of energy not identified here. Examples of other energy sources include alternative and/or renewable energy (such as solar PV) and/or on-site stationary sources (such as on-site diesel generators) for electricity generation. The Project would introduce solar PV onto residential rooftops, which would greatly reduce the need for fossil fuel-based energy (for Project buildings), including for electricity.

CONCLUSION

The Project would use energy resources for the operation of Project buildings (electricity and natural gas), for on-road vehicle trips (e.g. gasoline and diesel fuel) generated by the Project, and from off-road construction activities associated with the Project (e.g. diesel fuel). Each of these activities would require the use of energy resources. The Project would be responsible for conserving energy, to the extent feasible, and relies heavily on reducing per capita energy consumption to achieve this goal, including through Statewide and local measures.

The Project would be in compliance with all applicable federal, state, and local regulations regulating energy usage. For example, SMUD is responsible for the mix of energy resources used to provide electricity for its customers, and it is in the process of implementing the Statewide Renewable Portfolio Standard (RPS) to increase the proportion of renewable energy (e.g. solar and wind) within its energy portfolio. SMUD is expected to achieve at least a 33% mix of renewable energy resources by 2020, and at least 40% by 2030. Additionally, energy-saving regulations, including the latest State Title 24 building energy efficiency standards ("part 6"), would be applicable to the Project. Other Statewide measures, including those intended to improve the energy efficiency of the statewide passenger and heavy-duty truck vehicle fleet (e.g. the Pavley Bill and the Low Carbon Fuel Standard), would improve vehicle fuel economies, thereby conserving gasoline and diesel fuel. These energy savings would continue to accrue over time. Furthermore, as described previously, the sustainability features of the Project that are incorporated into the project design (as described previously in this section) would further reduce Project energy consumption. The Project would also be in compliance with the planning documents described previously within this section.

As a result, the Project would not result in any significant adverse impacts related to project energy requirements, energy use inefficiencies, and/or the energy intensiveness of materials by amount and fuel type for each stage of the Project including construction, operations, maintenance, and/or removal. SMUD, the electricity provider to the site, and PG&E, the natural gas provider, maintains sufficient capacity to serve the Project. The Project would comply with all existing energy standards, including those established by Rancho Cordova, as described under Impacts 3.6-1 through 3.6-3, previously, and would not result in significant adverse impacts on energy resources. Furthermore, existing connections exist between the Project site and nearby pedestrian and bicycle pathways, and public transit access exists nearby, reducing the need for

local motor vehicle travel. Although improvements to the City's pedestrian, bicycle, and public transit systems would provide further opportunities for alternative transit, the Project would be linked closely with existing networks that, in large part, are sufficient for most residents of the Project and the City of Rancho Cordova as a whole. The Project would also be required to implement Mitigation Measures 3.6-1, which would greatly reduce the Project's net energy emissions further. For these reasons, the Project would not be expected cause an inefficient, wasteful, or unnecessary use of energy resources nor conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This is a ***less than significant*** impact.