

3.8 GREENHOUSE GAS EMISSIONS

Environmental impacts may arise from atmospheric discharges of pollutants known to contribute to climate change. These greenhouse gases (GHG) are produced by sources involved in facility construction and operation. Sources of emissions involved in construction activities include heavy-duty off-road equipment and on-road vehicle trips. Operational emissions would be predominantly attributed to mobile source vehicle trips by employees and patrons, and additional emissions associated with facility maintenance and other energy and utility resources. A significant GHG emissions impact would occur if a project would generate GHG emissions of sufficient magnitude to conflict with reduction targets promulgated by state, regional, and local authorities. Implementation of the Project, along with applicable mitigation, would result in consistency with many of the state, regional, and local regulations adopted to reduce GHG emissions.

This section analyzes the potential for implementation (i.e., construction and operation) of the Los Angeles Zoo and Botanical Gardens (Zoo) Vision Plan (Vision Plan; Project) to generate GHG emissions of sufficient nature and magnitude to cause significant impacts to the environment pertaining to climate change and achieving applicable GHG emissions reductions targets.

3.8.1 Topical Background

Greenhouse Gases

The term GHG emissions refers to a class of air pollutant emissions that are generally acknowledged to affect global climate conditions. The “greenhouse effect” is an analogy that compares the Earth and its atmosphere to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes; the atmosphere works through similar mechanisms to trap heat energy close to the Earth’s surface. The greenhouse effect maintains a habitable climate on the planet, although large magnitudes of GHG emissions from anthropogenic sources since the industrial revolution have created an excess of these gases in the atmosphere.

GHG pollutants most prevalently generated by human activities that have the greatest quantifiable influence on climate include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). In addition to CO₂, CH₄, and N₂O, GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), black carbon (black carbon is the most strongly light-absorbing component of particulate matter emitted from burning fuels such as coal, diesel, and biomass), and water vapor. CO₂ is the most abundant pollutant that contributes to climate change through fossil fuel combustion. The other GHGs are less abundant but have higher global warming potential than CO₂. To account for this higher

potential, emissions of other GHGs are frequently expressed in the equivalent of CO₂, denoted as CO₂e. CO₂e is 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 (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Table 3.8-1 shows the GWP for some of the most environmentally prevalent GHGs.

Table 3.8-1. Global Warming Potential for Various Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide (CO ₂)	--	1	1
Methane (CH ₄)	12	21	25
Nitrous Oxide (N ₂ O)	114	310	298
Nitrogen Trifluoride	740	Unknown	17,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900	22,800
Perfluorocarbons (PFCs)	2,600-50,000	6,500-9,200	7,390-12,200
Hydrofluorocarbons (HFCs)	1-270	140-11,700	124-14,800

Source: California Air Resources Board (CARB) 2019a.

GHGs are the result of both natural and human-influenced activities. Volcanic activity, forest fires, decomposition, industrial processes, landfills, consumption of fossil fuels for power generation, transportation, heating, and cooling are the primary sources of GHG emissions. Without human activity, the Earth would maintain an approximate, but varied, balance between the emission of GHGs into the atmosphere and the storage of GHG in oceans and terrestrial ecosystems. Increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.) has contributed to a rapid increase in atmospheric levels of GHGs over the last 150 years.

Effects of Global Climate Change

The primary effect of rising global concentrations of atmospheric GHG levels is a rise in the average global temperature of approximately 0.2 degrees Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide (including from economically developed and developing countries and deforestation), which would induce further changes in the global climate system during the current century (U.S. Environmental Protection Agency [EPA] 2013).

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and

distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model it, the uncertainty surrounding climate change may never be eliminated. Nonetheless, the Intergovernmental Panel on Climate Change (IPCC), in its Fifth Assessment Report, Summary for Policy Makers, stated that, "it is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings [sic] together" (IPCC 2013). A report from the U.S. National Academy of Sciences (USNAS) concluded that 97 to 98 percent of the climate researchers most actively publishing in the field support the tenets of the IPCC in that climate change is very likely caused by human (i.e., anthropogenic) activity (USNAS 2010).

According to the California Air Resources Board (CARB), adverse effects from global climate change worldwide and in California could include:

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in atmospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;
- Rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;
- Changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;
- Declining Sierra Mountains snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;
- Increasing the number of days conducive to ozone formation (e.g., clear days with intense sun light) by 25 percent to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21st Century; and
- Increasing the potential for erosion of California's coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level.

Below is a summary of some of the potential effects that could be experienced in California as a result of global warming and climate change.

Air Quality

Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect and, therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would exacerbate air quality. Additionally, severe heat accompanied

by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State (CARB 2013). However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires.

In 2009, the California Natural Resources Agency (CNRA) published the California Climate Adaptation Strategy as a response to the Governor's Executive Order (EO) S-13-2008. The CNRA report lists specific recommendations for State and local agencies to best adapt to the anticipated risks posed by a changing climate. In accordance with the California Climate Adaptation Strategy, the California Energy Commission (CEC) was directed to develop a website on climate change scenarios and impacts that would be beneficial for local decision makers. The website, known as Cal-Adapt, became operational in 2011. The information provided on the Cal-Adapt website represents a projection of potential future climate scenarios. The data are comprised of the average values (i.e., temperature, sea-level rise, snowpack) from a variety of scenarios and models and are meant to illustrate how the climate may change based on a variety of different potential social and economic factors. According to the Cal-Adapt website, the portion of the City of Los Angeles (City) in which the Project Site is located could result in an average increase in temperature of approximately 4.7 degrees Fahrenheit (°F) to 7.4 °F by 2070–2099, compared to the baseline 1961–1990 period (73.3 °F), which is a potential increase of approximately 6 to 10 percent. Data suggest that the predicted future increase in temperatures as a result of climate change could potentially interfere with efforts to control and reduce ground-level ozone in the region.

Water Supply

Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, “Considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change.” For example, some studies identify little change in total annual precipitation in projections for California while others show significantly more precipitation. Warmer, wetter winters would increase the amount of runoff available for groundwater recharge; however, this additional runoff would occur at a time when some basins are either being recharged at their maximum capacity or are already full. Conversely, a reduced snowpack coupled with increased rainfall during winters could lead to reductions in spring runoff and higher evapotranspiration because of higher temperatures could reduce the amount of water available for recharge.

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal

flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a \$30-billion agricultural industry that produces half the country's fruits and vegetables. Higher CO₂ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.

Ecosystems and Wildlife

Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise by 2-11.5 °F (1.1-6.4 °C) by 2100, with significant regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as 2 feet along most of the United States coastline. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage.

Other types of environmental impacts related to air pollutant emissions and energy efficiency are assessed in other sections of this EIR as follows: air pollutant emissions from construction and operation of the Project are addressed in Section 3.2, *Air Quality*, and energy resources and efficiency are addressed in Section 3.5, *Energy*.

3.8.2 Environmental Setting

Regulatory Setting

Global climate change is addressed through the efforts of various federal, state, regional, and local government agencies, as well as national and international scientific and governmental conventions and programs. These agencies work jointly and individually to understand and regulate the effects of GHG emissions and resulting climate change through legislation, regulations, planning, policymaking, education, and a variety of additional programs. Federal, state, and local laws and regulations have been enacted that address GHG emissions

and the consequences of climate change. The EPA is responsible for implementing federal policy to address GHG emissions, and the CARB has jurisdictional authority at the state level.

International and Federal Regulations

The federal government administers a wide array of public-private partnerships to reduce GHG intensity generated in the United States. Those programs focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The EPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the Energy Star labeling system for energy-efficient products) encourage voluntary endeavors by large corporations, consumers, industrial and commercial buildings, and many major industrial sectors to enhance energy efficiency and lessen GHG emissions.

International Protocols.

In 1988, the United Nations established the IPCC to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In June 1992, the U.S. joined other countries in the United Nations Framework Convention on Climate Change (UNFCCC) agreement with the goal of stabilizing GHG emissions. The treaty itself set no binding limits on GHG emissions for individual countries and contains no enforcement mechanisms. In that sense, the treaty is considered legally non-binding. Instead, the treaty provides a framework for negotiating specific international treaties (i.e., “protocols”) that may set binding limits on GHGs.

The Kyoto Protocol was the first treaty made under the UNFCCC on December 1, 1997 and was the first international agreement that commits signatories to reduce GHG emissions. The Protocol sets emissions targets for developed countries which are binding under international law. The Kyoto Protocol has had two commitment periods, the first of which lasted from 2005 to 2012, and the second from 2012 to 2020. The U.S. did not ratify the Kyoto Protocol. It has been estimated that if the commitments outlined in the Kyoto Protocol were met, global GHG emissions could have been reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 to 2012.

In December 2009, international leaders from 192 nations met in Copenhagen to address the future of international climate change commitments post-Kyoto, but no binding agreements were reached. However, countries did ratify the Copenhagen Accord, a non-binding agreement. The Copenhagen Accord, a voluntary agreement between the U.S., China, India, and Brazil, recognizes the need to keep global temperature rise to below 2 degrees Celsius (°C) or 3.6 degrees Fahrenheit (°F) and obligates signatories to establish measures to reduce GHG emissions and to prepare to provide help to poorer countries in adapting to global climate change.

Representatives from 194 United Nations member nations, including business leaders and nongovernment organizations, met in Cancun, Mexico in December 2010 to participate in the

United Nations Climate Change Conference (COP-16). In all, approximately 12,000 participants met to work out the language and reduction targets of a new agreement. The result was the Cancun Agreements, a voluntary non-binding agreement similar to the Copenhagen Accord, but with broader United Nation member nation support. The Cancun Agreements set the stage for the climate conference in Durban, South Africa, where the unresolved issues – including the future of the Kyoto Protocol and a binding agreement – would be addressed. The key elements of the Cancun Agreements are as follows:

- Countries agree to keep temperature rise below 2 °C above pre-industrial levels and developed countries are urged to make more aggressive pledges on cutting emissions.
- A \$30 billion package (“fast-start financing”) for 2012 to aid nations taking immediate action to adapt to global warming.
- Creation of a “Global Climate Fund” that will provide financing of \$100 million annually for longer-term adaptation and mitigation measures in developing countries. The World Bank was designated as its interim trustee.
- Creation of the forestry program, Reducing Emissions from Deforestation and Forest Degradation, which provides compensation for the preservation of tropical forests in developing countries.
- Specific language and a formal system for monitoring and reporting emissions. This includes a process of “international consultations and analysis” for developing countries that is “nonintrusive, nonpunitive, and respectful of national sovereignty,” incorporating analysis by technical experts and resulting in a summary report.

The UNFCCC met again in December 2011 in Durban, South Africa to continue deliberating on a treaty to replace the Kyoto Protocol, which ended in 2012. The conference resulted in progress regarding the creation of a Green Climate Fund (GCF) for which a management framework was adopted.

During the second commitment period, known as the Doha Amendment to the Kyoto Protocol, participants committed to reduce GHG emissions by at least 18 percent below 1990 levels in the 8-year period from 2013 to 2020; however, the composition of participants in the second commitment period is different from the first commitment period. Of the 37 countries with binding commitments during the second commitment period, 7 have ratified. As discussed further below, rather than further amend the Kyoto Protocol, the next climate summit resulted in the Paris Agreement, which became the successor to the Kyoto Protocol.

The 2015 United Nations Climate Change Conference (COP-21) was held in Paris, from November 30 to December 11, 2015. It was the 21st annual session of the Conference of the Parties to the 1992 UNFCCC and the 11th session of the Meeting of the Parties to the 1997 Kyoto Protocol. The conference agreed to a legally binding deal to limit temperature rise well below 2 °C. The deal also includes a long-term emissions goal, which aims to peak global GHG emissions “as soon as possible” and to achieve “balance” between emissions and sinks in the second half of the century. Countries which have submitted targets for 2025 are then urged

to come back in 2020 with a new target, while those with 2030 targets are invited to “communicate or update” them. This process will essentially be repeated every 5 years, with the first post-2020 stock-take occurring in 2023. The agreement also places a legal obligation on developed countries to continue to provide climate finance to developing countries. It also encourages other countries to provide support voluntarily – a compromise between the highly-polarized positions that have taken center stage at the negotiations. The U.S. – along with all 195 United Nations member countries present at the COP-21, committed to the Paris Agreement – and accepted it by Executive Order in September 2016. However, in June 2017, the U.S. gave notice of withdrawal from the Paris Agreement.¹

Federal Clean Air Act.

The EPA is responsible for implementing federal policy to address global climate change. The federal government administers a wide array of public-private partnerships to reduce U.S. GHG emissions. These programs focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions.

The U.S. Supreme Court ruled on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* that CO₂ is an air pollutant, as defined under the Clean Air Act Amendments, and that the EPA has the authority to regulate emissions of GHGs. The EPA announced that GHGs – including CO₂, CH₄, N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and Sulfur hexafluoride (SF₆) – threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the EPA’s GHG emissions standards for light-duty vehicles, which were jointly proposed by the EPA and the U.S. Department of Transportation’s National Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010 for 2012 through 2016 model year vehicles and on October 15, 2012 for 2017 through 2025 model year vehicles.

NHTSA and the EPA issued a final action entitled the “One National Program Rule” in September 2019 to enable the federal government to provide nationwide uniform fuel economy and GHG emission standards for automobile and light duty trucks. This action finalizes critical parts of the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule that was first proposed in August 2018. This action makes clear that federal law preempts State and local tailpipe GHG emissions standards as well as zero emission vehicle (ZEV) mandates (EPA 2019b). California and 22 other states filed a lawsuit in the U.S. Court of Appeals for the District of Columbia Circuit in November 2019 to block the One National Program Rule.

¹ Article 28 of the Paris Agreement states a country may give notice of withdrawal from the agreement after 3 years of its start date in the country, which was on November 4, 2016 for the U.S. On November 4, 2019, the U.S. administration gave a formal notice of intention to withdraw. As the formal notice takes 12 months to take effect, the earliest possible effective withdrawal date by the U.S. is November 4, 2020, 4 years after the Paris Agreement came into effect in the U.S.

There will not be a resolution on the merits for now, as the administration's motion is purely procedural.

On May 13, 2010, the EPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 MT CO₂e per year for GHG emissions from major industrial facilities. The EPA has not yet adopted thresholds for other GHG sources, although carbon pollution standards have been proposed to cut carbon pollution from existing and new power plants, the largest source of GHG emissions in the U.S.

Pavley Standards.

In 2009, a national policy was adopted for fuel efficiency and emissions standards in the U.S. auto industry, which applies to passenger cars and light-duty trucks for model years 2012 to 2016 (referred to as the Pavley standards). The standards surpass the prior Corporate Average Fuel Economy standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO₂ per mile by model year 2016, based on EPA calculation methods. In 2012, standards were adopted for model year 2017 to 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO₂ per mile. According to the EPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (EPA 2012).

Executive Order 13432

In response to the *Massachusetts v. Environmental Protection Agency* ruling, President Bush signed EO 13432 on May 14, 2007, directing the EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. EO 13432 was codified into law by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxic reductions, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation.

Energy Independence and Security Act

The Energy Independence and Security Act (EISA) of 2007 includes several key provisions that will increase energy efficiency and the availability of renewable energy, which will reduce GHG emissions as a result. The Act facilitates the reduction of GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy

efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;

- Achieving approximately 25 percent greater efficiency for light bulbs by phasing out old incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and,
- While superseded by the 2019 EPA and National Highway Traffic Safety Administration (NHTSA) actions described in Section 3.3, *Air Quality*, the EISA included, a) establishing a minimum average fuel economy of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by 2020, and b) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.

Light-Duty Vehicle Greenhouse Gas and Corporate Average Fuel Economy Standards

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard applied to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpassed the prior Corporate Average Fuel Economy (CAFE) standards and required an average fuel economy standard of 35.5 mpg and 250 grams of CO₂ per mile by model year 2016, based on EPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 passenger cars and light-duty trucks. By 2020, new vehicles are projected to achieve 41.7 mpg—if GHG reductions are achieved exclusively through fuel economy improvements—and 213 grams of CO₂ per mile (Phase 2 standards). By 2025, new vehicles are projected to achieve 54.5 mpg and 163 grams of CO₂ per mile, a reduction of approximately 50 percent relative to 2010.

On September 27, 2019, the EPA and the NHTSA published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (84 Fed. Reg. 51,310 [September 27, 2019]). The Part One Rule revokes California’s authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. Both the GHG emission standards and the ZEV sales standards reduce GHG emissions and fossil fuel energy consumption; as a result of the loss of ZEV sales requirements, there may be fewer ZEVs sold and thus additional gasoline-fueled vehicles sold in future years. California expects Part Two of these regulations to be adopted in 2020, and it is anticipated that the federal government may adopt revised GHG emission standards and fuel efficiency standards. In November 2019, California and 23 other states, environmental groups, and the cities of Los Angeles and New York, filed a petition with the U.S. Court of Appeals for the District of Columbia Circuit, for the EPA to reconsider the published rule. The Court has not yet ruled on the lawsuit.

Heavy-Duty Vehicle Program

The Heavy-Duty Vehicle Program was adopted on August 9, 2011 to establish the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with the model year 2014.

State Regulations

California has adopted statewide legislation to address issues related to various aspects of climate change and GHG emissions. The governor of California has also issued several EOs related to the State's evolving climate change policy.

California Greenhouse Gas Reduction Targets**Executive Order S-3-05**

EO S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. To combat those concerns, the EO established total GHG emissions targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

In addition, achieving these long-term GHG reduction policies will require systemic changes in how energy is produced and used. There are a number of studies that discuss potential mechanisms for limiting statewide GHG emissions to meet the aggressive goals identified by EO S-3-05, including a report by the California Center for Science and Technology, the California Department of Transportation's California Transportation Plan 2040, CARB's First Update to the Assembly Bill (AB) 32 Scoping Plan, and a study published in *Science* that analyzes the changes that will be required to reduce GHG emissions to 80 percent below 1990 levels by 2050. In general, these studies reach similar conclusions—deep reductions in GHG emissions can only be achieved with significant changes in electricity production, transportation fuels, and industrial processes (e.g., decarbonizing electricity production, electrifying transportation, utilizing alternative fuels for aviation).

Assembly Bill 32 and Senate Bill 32

In 2006, the California State Legislature adopted AB 32—codified in the California Health and Safety Code [HSC], Division 25.5 – California Global Warming Solutions Act of 2006—which focuses on reducing GHG emissions in California to 1990 levels by 2020. AB 32 defines regulated GHGs as CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ and represents the first enforceable Statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under AB 32, the CARB has the primary responsibility for reducing GHG emissions. AB 32 required CARB to adopt rules and regulations directing State actions that would achieve GHG emissions reductions equivalent to 1990 Statewide levels by 2020.

A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020

(Health and Safety Code Section 38561 (h)). CARB developed an AB 32 Climate Change Scoping Plan (2008 Scoping Plan) that contained strategies to achieve the 2020 emissions cap. The 2008 Scoping Plan was approved in 2008, and contains a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 Statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives.

As required by AB 32, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was originally set at 427 million metric tons of CO₂e (MMTCO₂e) using the GWP values from the IPCC Second Assessment Report (SAR). CARB also projected the State's 2020 GHG emissions under No-Action-Taken (NAT) conditions – that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB originally used an average of the State's GHG emissions from 2002 through 2004 and projected the 2020 levels at approximately 596 MMTCO₂e (using GWP values from the IPCC SAR). Therefore, under the original projections, the State must reduce its 2020 NAT emissions by 28.4 percent in order to meet the 1990 target of 427 MMTCO₂e.

The First Update to the Climate Change Scoping Plan (2014 Scoping Plan) was approved by CARB in May 2014 and built upon the 2008 Scoping Plan with new strategies and recommendations. In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined that the 1990 GHG emissions inventory and 2020 GHG emissions limit is 431 MMTCO₂e. CARB also updated the State's 2020 NAT emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were adopted for motor vehicles and renewable energy. CARB's projected Statewide 2020 emissions estimate using the GWP values from the IPCC AR4 is 509.4 MMTCO₂e. Therefore, under the 2014 Scoping Plan, the emission reductions necessary to achieve the 2020 emissions target of 431 MMTCO₂e would be 78.4 MMTCO₂e, or a reduction of GHG emissions by approximately 15.4 percent.

In 2016, the California State Legislature adopted Senate Bill (SB) 32—which adds Section 38566 to the HSC and requires a commitment to reducing statewide GHG emissions by 2020 to 1990 levels and by 2030 to 40 percent less than 1990 levels—and its companion bill AB 197, which provides additional direction for developing the Scoping Plan. Both were signed by Governor Brown to update AB 32 and include an emissions reductions goal for the year 2030. SB 32 and AB 197 amend AB 32 and establish a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure the benefits of State climate policies reach into disadvantaged communities.

In response to the 2030 GHG reduction target, CARB adopted the 2017 Climate Change Scoping Plan (2017 Scoping Plan) at a public meeting held in December 2017. The 2017 Scoping Plan outlines the strategies the State will implement to achieve the 2030 GHG

reduction target, which build on the Cap-and-Trade Regulation, the Low Carbon Fuel Standard (LCFS), improved vehicle, truck and freight movement emissions standards, increasing renewable energy, and strategies to reduce methane emissions from agricultural and other wastes by using it to meet California’s energy needs. CARB’s projected Statewide 2030 emissions consider 2020 GHG reduction policies and programs. The 2017 Scoping Plan also comprehensively addresses GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. The adopted 2017 Scoping Plan includes ongoing and statutorily required programs and continuing the Cap-and-Trade Program. This Scoping Plan Scenario was modified from the January 2017 Proposed Scoping Plan to reflect AB 398, including removal of the 20 percent refinery measure.

CARB states that the Scoping Plan Scenario “is the best choice to achieve the State’s climate and clean air goals. Under the Scoping Plan Scenario, the majority of the reductions would result from the continuation of the Cap-and-Trade regulation. Additional reductions are achieved from electricity sector standards (i.e., utility providers to supply at least 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. The alternatives were designed to consider various combinations of these programs, as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued. However, in July 2017, the California Legislature voted to extend the Cap-and-Trade regulation to 2030.

The 2017 Scoping Plan discusses the role of local governments in meeting the State’s GHG reductions goals because local governments have jurisdiction and land use authority related to: community-scale planning and permitting processes, local codes and actions, outreach and education programs, and municipal operations. Furthermore, local governments may have the ability to incentivize renewable energy, energy efficiency, and water efficiency measures.

Executive Order B-16-2012

EO B-16-2012 establishes benchmarks for reducing transportation-related GHG emissions. It requires agencies to implement the Plug-in Electric Vehicle Collaborative and California Fuel Cell Partnership by 2015 and sets forth targets specific to the transportation section, including the goal of reducing transportation related GHG emissions to 80 percent less than 1990 levels.

Executive Order B-30-15

EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40 percent below 1990 levels and requires CARB to update its current AB 32 Scoping Plan to identify measures to meet the 2030 target. The executive order supports EO S-03-05, described above, but is currently only binding on state agencies. However, there are current

(2015/2016) proposals (i.e., SB 32) at the state legislature to adopt a legislative target for 2030.

Executive Order B-55-18

EO B-55-18 (September 2018) establishes a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The executive order demonstrates the State's continued commitment to address climate change.

Renewable Energy Standard/Renewable Portfolios Standard

Senate Bill 1078 and Senate Bill 107

SB 1078 (2002) and SB 107 (2006) created the Renewable Energy Standard, which required electric utility companies to increase procurements from eligible renewable energy resources by at least 1 percent of their retail sales annually until reaching 20 percent by 2010. SB 2X 1 (2011) requires a Renewables Portfolio Standard, functionally the same thing as the Renewable Energy Standard, of 33 percent by 2020. In 2013, the statewide average for the three largest electrical suppliers (Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric) was 22.7 percent. As noted below, SB 350 increased the renewable requirement to 50 percent for 2030.

Senate Bill 350

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was approved in 2015 and includes key provisions to require the following by 2030: (1) a renewables portfolio standard of 50 percent and (2) a doubling of efficiency for existing buildings.

Pavley Rules/Advanced Clean Cars

AB 1493 required CARB to develop and implement regulations to reduce automobile and light-truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year. In June 2009, the U.S. Environmental Protection Agency administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. CARB approved joint rulemaking efforts to reduce GHG emissions from passenger cars (model years 2017 to 2025) on December 31, 2012.

State CEQA Guidelines

SB 97 (Chapter 185, Statutes of 2007), enacted in 2007, directed the State Office of Planning and Research (OPR) to develop California Environmental Quality Act (CEQA) Guidelines (CEQA Guidelines) "for the mitigation of GHG emissions or the effects of GHG emissions." In December 2009, OPR adopted amendments to the CEQA Guidelines, (Guidelines Amendments), Appendix G, Environmental Checklist, which created a new resource section

for GHG emissions and indicated criteria that may be used to establish significance of GHG emissions. The amendments became effective on March 8, 2010.

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. Section 15064.4 calls for a good-faith effort when describing, calculating, or estimating GHG emissions. Section 15064.4 also states that a determination of the significance of GHG impacts should consider whether the project would increase or reduce GHG emissions, exceed a locally applicable threshold of significance, or comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. However, the revised guidelines do not require or recommend a specific analysis methodology or provide quantitative criteria for determining the significance of GHG emissions and the guidelines confirm that lead agencies have the discretion to determine appropriate significance thresholds.

Land Use and Transportation Planning

SB 375 (Chapter 728, Statutes of 2008), which establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG, was adopted by the State on September 30, 2008. Under SB 375, CARB is required, in consultation with the State's Metropolitan Planning Organizations, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. In February 2011, CARB adopted the GHG emissions reduction targets of 8 percent by 2020 and 13 percent by 2035 relative to 2005 GHG emissions for the Southern California Association of Governments (SCAG), which is the Metropolitan Planning Organization for the region in which the City is located. Of note, the proposed reduction targets explicitly exclude emission reductions expected from the AB 1493 and the LCFS regulations.

Under SB 375, the reduction target must be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

In addition, on April 7, 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS), which is an update to the previous 2012-2035 RTP/SCS. Using growth forecasts and economic trends, the 2016-2040 RTP/SCS provides a vision for transportation throughout the region for the next 25 years. The 2016-2040 RTP/SCS successfully achieves and exceeds the GHG emission-reduction targets set by CARB. In March 2018, the CARB updated the SB 375 targets to require 8 percent reduction by 2020 and a 19 percent reduction by 2035 in per capita passenger vehicle GHG emissions. As this reduction target was updated after adoption of the 2016-2040 RTP/SCS, the proposed final 2020-2045 RTP/SCS will address this target.

Energy Efficiency

Title 24 Standards

The California Energy Commission (CEC) first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically (typically every three years) to allow for the consideration and inclusion of new energy efficiency technologies and methods. The Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several key areas to improve the energy efficiency of renovations and addition to existing buildings as well as newly constructed buildings and renovations and additions to existing buildings. The major efficiency improvements to the residential Standards involve improvements for attics, walls, water heating, and lighting, whereas the major efficiency improvements to the nonresidential Standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers 90.1-2013 national standards. Furthermore, the standards require that enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building permits for any construction.

California Green Building Standards

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality.” The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality.

Renewable Energy

The State has adopted regulations to increase the proportion of electricity from renewable sources. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Portfolio Standard to 33 percent renewable power by 2020. On April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's

Renewables Portfolio Standard to 33 percent by 2020. SB 350 (Chapter 547, Statutes of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased California's Renewables Portfolio Standard to achieve 50 percent renewable resources by December 31, 2026, and a 60 percent target by December 31, 2030, while requiring retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

California Supreme Court

The California Supreme Court considered the CEQA issue of determining the significance of GHG emissions in its decision, *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming* (2015) 62 Cal.4th 204. The Court questioned a then-common CEQA approach to GHG analyses for development projects that compared project emissions to the reductions from NAT that will be needed Statewide to reduce emissions to 1990 levels by 2020, as required by AB 32. The Court upheld the NAT method as a valid approach, but concluded that the NAT method was improperly applied in the case of the Newhall project because the target for the project was incorrectly deemed consistent with the Statewide emission target of a percent below NAT for the year 2020 as specified in the AB 32 Scoping Plan. In other words, the Court said that the percent below NAT target specified in the AB 32 Scoping Plan is intended as a measure of the GHG reduction effort required by the State as a whole. The record did not support that approach for the Newhall project. The Court provided some guidance to evaluating the cumulative significance of a proposed land use project's GHG emissions. This Draft EIR considers the potential GHG emissions associated with the Project within the context of the Court's guidance, which supported evaluation of a project's GHG impacts in light of efficiency metrics, which describe emissions on a per capita basis, per service population basis, or some other rate-oriented descriptor.

The Court also addressed project-level GHG emission inventories in the context of Statewide GHG emission inventories and reduction goals. If a project-level inventory were to include additional upstream embedded emissions associated with consumption of goods and services, or downstream transportation emissions, outside of the State, it would no longer be comparable to the State inventory and a threshold based on State reduction targets could not be used to evaluate the project's GHG emissions. Given the California Supreme Court's determination that it is appropriate under CEQA to compare project GHG emissions to a threshold related to the State reduction goals, there is no logical rationale to include GHG emissions in a CEQA project inventory if they are not included in the State's GHG inventory, nor to use methodologies to account for emissions different from those employed in the State's GHG inventory. Thus, consistent with the Court's ruling, a project-level GHG

emissions inventory under CEQA need not include additional upstream embedded emissions or downstream emissions to maintain consistency with the Statewide GHG emission inventory methodology.

Regional and Local Regulations

Southern California Association of Governments (SCAG)

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG addresses regional issues related to transportation, the economy, community development, and the environment. SCAG develops plans pertaining to transportation, growth management, hazardous waste management, housing, and air quality. SCAG prepares the RTP/SCS that supports the land use and transportation components of the Air Quality Management Plans, which provide some GHG-reduction co-benefits.

The 2016–2040 RTP/SCS integrates land use and transportation strategies to achieve required emission reductions per SB 375 of 8 percent by 2020 and 13 percent by 2035 relative to the base year of 2005 (SCAG 2016). The RTP/SCS was adopted on April 7, 2016. The SCS set forth a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, aims to reduce GHG emissions from automobiles and light trucks consistent with CARB targets for SCAG. SCAG is currently developing the 2020-2045 RTP/SCS.

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) has primary responsibility for the development and implementation of rules and regulations for attainment of the national and California ambient air quality standards as well as permitting new or modified sources, developing Air Quality Management Plans, and adopting and enforcing air pollution regulations within the South Coast Air Basin. The AB 32 Scoping Plan states that CARB will work actively with air districts in coordinating emissions reporting, encouraging, and coordinating GHG reductions, and providing technical assistance in quantifying reductions.

CEQA requires lead agencies to inform decision-makers and the public about the potentially significant environmental impacts of a proposed Project. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting but also through their role as a CEQA lead or commenting agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents.

Scientists are unable to identify the direct climate effects of projected GHG emissions from a specific project. It can be safely concluded, however, that the individual contributions of most projects to climate change would be negligible to extremely minor, and thus would not be significant. Regional or global climate change related to man-made GHG emissions is, by its nature, a cumulative impact. According to the Association of Environmental Professionals, in

its paper titled *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (Hendrix and Wilson 2007), “an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change.”

City of Los Angeles GreenLA Climate Action Plan

The City has issued guidance promoting sustainable development to reduce GHG emissions Citywide in the form of a Climate Action Plan (CAP). The objective of GreenLA is to reduce GHG emissions 35 percent below 1990 levels by 2030 (City 2007). GreenLA identifies goals and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations and create a framework to address citywide GHG emissions. GreenLA lists various focus areas in which to implement GHG reduction strategies. Focus areas include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions.

The City published an implementation document titled ClimateLA (City 2008). ClimateLA presents the existing GHG inventory for the City, describes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow the plan to be revised in order to meet targets. By 2030, the plan aims to reduce GHG emissions by 35 percent from 1990 levels, which were estimated to be approximately 54.1 million metric tons.

Therefore, the City will need to lower annual GHG emissions to approximately 35.1 million metric tons per year by 2030. To achieve these reductions the City has developed strategies that focus on energy, water use, transportation, land use, waste, open space and greening, and economic factors. To reduce emissions from energy usage, ClimateLA proposes the following goals: increase the amount of renewable energy provided by the Los Angeles Department of Water and Power; present a comprehensive set of green building policies to guide and support private sector development; reduce energy consumed by City facilities and utilize solar heating where applicable; and help citizens to use less energy. With regard to waste, ClimateLA sets the goal of reducing or recycling 70 percent of trash by 2015. With regard to open space and greening, ClimateLA includes the following goals: create 35 new parks; revitalize the Los Angeles River to create open space opportunities; plant one million trees throughout the City; identify opportunities to “daylight” streams; identify promising locations for stormwater infiltration to recharge groundwater aquifers; and collaborate with schools to create more parks in neighborhoods.

City of Los Angeles Sustainable City pLAN (pLAN)

In addition to GreenLA, Mayor Eric Garcetti released Los Angeles’s first-ever pLAN on April 8, 2015 (City 2015). The pLAN is a roadmap to achieving short-term results and sets a path to strengthen and transform the City in future decades. Recognizing the risks posed by climate

change, Mayor Garcetti set time-bound outcomes on climate action, most notably to reduce GHG emissions by 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050, all against a 1990 baseline. Los Angeles' emissions are 20 percent below the 1990 baseline as of 2013, putting Los Angeles nearly halfway to the 2025 pLAN reduction target of 45 percent. In addition, the 20 percent reduction exceeds the 15 percent statewide goal listed in the First Update to the AB 32 Scoping Plan.

City of Los Angeles Green Building Program

The purpose of the City's Green Building Program is to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program consists of a Standard of Sustainability and Standard of Sustainable Excellence. The Standard of Sustainability establishes a requirement for non-residential projects at or above 50,000 square feet of floor area to meet the intent of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Certified level. The Standard also applies to existing buildings that meet the minimum thresholds described above when redevelopment construction costs exceed a valuation of 50 percent of the existing building's replacement cost.

The voluntary Standard of Sustainable Excellence establishes an incentive program for projects that register with the LEED program, contract with a certified LEED professional, and can demonstrate how the project will achieve LEED certification at a Silver or higher level. These projects are eligible for priority processing services within the Department of City Planning and expedited services within the Bureau of Engineering. The Department of Building and Safety provides priority plan check processing and Priority Service Planning is offered by the Los Angeles Department of Water and Power.

Los Angeles Green Building Code

The City adopted the Green Building Code to reduce the City's carbon footprint. The Green Building Code is applicable to new buildings and alterations with building valuations over \$200,000 (residential and non-residential). The Green Building Code is based on the 2010 California Green Building Standards Code Title 24, Part 11, commonly known as CALGreen, that was developed and mandated by the state to attain consistency among the various jurisdictions within the state; reduce the building's energy and water use; and reduce waste (see discussion of CALGreen, above).

Existing Buildings Energy and Water Efficiency (EBEWE) Program (Los Angeles Municipal Code §91.9701 et seq, Ordinance Nos. 184674, 185198, and 185586)

Effective in 2017, the EBEWE Program added Division 97 to Article I, Chapter IX and amended Division 4 of Article 8, Chapter IX, and makes public the annual energy and water consumption of all buildings over 20,000 square feet in the City. Beginning in 2017, privately owned buildings that are 20,000 square feet or more and buildings owned by the City that are 7,500 or more are required to be benchmarked, and owners must disclose annual energy

and water consumption. Privately owned buildings that are 100,000 square feet or more must begin benchmarking reporting by December 1, 2017, and smaller buildings must begin reporting over the following two years. This Ordinance is designed to facilitate the comparison of buildings' energy and water consumption, and reduce building operating costs, leading to reduced GHG emissions.

LA's Green New Deal (Sustainable City pLAN 2019)

In April 2019, Mayor Eric Garcetti released L.A.'s Green New Deal (Sustainable City pLAN 2019). Rather than an adopted plan, the Green New Deal is a mayoral initiative that consists of a program of actions designed to create sustainability-based performance targets through 2050 that advance economic, environmental, and equity objectives. L.A.'s Green New Deal (Sustainable City pLAN 2019) is the first four-year update to the City's first Sustainable City pLAN that was released in 2015. It augments, expands, and elaborates in even more detail L.A.'s vision for a sustainable future and it addresses climate change with accelerated targets and new aggressive goals.

While not a plan adopted solely to reduce GHG emissions, within L.A.'s Green New Deal (Sustainable City pLAN 2019), climate mitigation is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through near-term outcomes:

- Reduce potable water use per capita by 22.5 percent by 2025; 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68 million British Thermal Units/square foot (sf) in 2015).
- All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.
- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025; and 75 percent by 2035.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35 percent by 2025, 50 percent by 2035, and maintain at least 50 percent by 2050.
- Reduce vehicle miles traveled (VMT) per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.
- Increase the percentage of electric and zero emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.
- Increase landfill diversion rate to 90 percent by 2025; 95 percent by 2035 and 100 percent by 2050.

- Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 lbs. of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.
- Reduce urban/rural temperature differential by at least 1.7 °F by 2025; and 3 °F by 2035.
- Ensure proportion of Angelenos living within 0.5 miles of a park or open space is at least 65 percent by 2025; 75 percent by 2035; and 100 percent by 2050.

Transportation Assessment Guidelines

The City of Los Angeles Department of Transportation (LADOT) has developed the City Transportation Assessment Guidelines (TAG) (July 2019) to provide the public, private consultants, and City staff with standards, guidelines, objectives, and criteria to be used in the preparation of a transportation assessment. The TAG establishes the reduction of vehicle trips and VMT as the threshold for determining transportation impacts and thus is an implementing mechanism of the City's strategy to reduce land use transportation-related GHG emissions consistent with AB 32, SB 32, and SB 375. See Section 3.15, *Transportation*.

Existing Conditions

The City is in Los Angeles County within the South Coast Air Basin (SCAB). The SCAB includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties. As described in Section 3.2, *Air Quality*, the SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The regional climate within the SCAB is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. Climate change within the SCAB is influenced by a wide range of emission sources, such as utility usage, heavy vehicular traffic, industry, and meteorology.

Land uses in the City are vastly urban comprising residential, commercial, and industrial uses with areas of open space, such as Griffith Park. Passenger vehicles, motorcycles, and trucks are the primary source of GHG emissions in the City. Additional sources of GHG emissions include the construction and maintenance of buildings, streets, and infrastructure, industrial processes, and building heating, cooling, and power.

Global GHG Emissions

The IPCC was formed by the World Meteorological Organization in 1988 to provide governments at all levels with scientific information that they can use to develop climate policies. The IPCC is the United Nation's body for assessing the science related to climate change and is responsible for tracking and reporting global emissions of GHGs. The IPCC is in the process of preparing the Sixth Assessment Report, tentatively scheduled for publication in June 2022. IPCC's Fifth Assessment Report, which was published in 2014 reported that

global GHG emissions were estimated at 49 Gt CO₂e per year, with CO₂ making up 76 percent of the total anthropogenic GHG emissions. This is an overall increase in GHG emissions of 71 percent from the 28.7 Gt CO₂e of emissions in 1970 (IPCC 2014a). Annual anthropogenic GHG emissions have increased by 10 Gt CO₂e between 2000 and 2010, with this increase directly coming from energy supply (47 percent), industry (30 percent), transport (11 percent), and buildings (30 percent) sectors. About half of cumulative anthropogenic CO₂ emissions between 1750 and 2010 have occurred in the last 40 years. In 1970, cumulative CO₂ emissions from fossil fuel combustion, cement production, and flaring since 1750 were 420 Gt CO₂e, since 1970 to 2010, that cumulative total tripled to 1300 Gt CO₂e (IPCC 2014b).

U.S. GHG Emissions

The U.S. emitted 6.46 billion tons of CO₂e in 2017. Total U.S. emissions have increased by 1.3 percent from 1990 to 2017 but decreased by nearly 7 percent from 2010 to 2017. Fossil fuel combustion accounted for 93 percent of CO₂ emissions and approximately 75 percent of total U.S. GHG emissions in 2017. Of the six major sectors generating emissions through direct fossil fuel combustion – electricity generation, transportation, industrial, agricultural, residential, and commercial – electricity generation accounts for approximately 28 percent and transportation accounts for 29 percent of these emissions. Of the energy consumed in the U.S. in 2018, approximately 80 percent was produced through combustion of fossil fuels, while the remaining 20 percent came from other energy sources such as hydropower, biomass, nuclear, wind, and solar energy. In 2017, total GHG emissions by sector were 28 percent for the electric power industry, 29 percent for transportation, 22 percent for industry, 9 percent for agriculture, 6 percent for commercial, and 5 percent for residential (EPA 2020).

California GHG Emissions

California's GHG emissions have followed a declining trend since 2008, which is shown in Table 3.8-2. In 2017, emissions from routine emitting activities statewide were 63 MMTCO₂e lower than 2008 levels. Of note, between October 23, 2015 and February 18, 2016, an exceptional natural gas leak event occurred at the Aliso Canyon natural gas storage facility that resulted in unexpected GHG emissions of considerable magnitude. The exceptional incident released approximately 109,000 metric tons of CH₄, which equated to approximately 1.96 MMTCO₂e of unanticipated emissions in 2015 and an additional 0.52 MMTCO₂e in 2016. According to the CARB, these emissions will be mitigated in the future through projects funded by the Southern California Gas Company based on legal settlement and are presented alongside but tracked separately from routine inventory emissions.

Table 3.8-2. California Greenhouse Gas Emissions Inventory

Source/Sector	CO ₂ e Emissions (Million Metric Tons)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Electricity Generation (In-State)	55	54	47	41	51	50	52	50	42	39
Electricity Generation (Imports)	66	48	44	47	45	40	37	34	26	24
Transportation	182	175	170	167	166	166	167	171	173	174
Industrial	100	98	102	101	102	104	105	103	101	101
Commercial	18	19	20	21	21	22	21	22	23	23
Residential	31	31	32	33	31	32	27	28	29	30
Agriculture and Forestry	35	33	34	34	35	34	35	34	34	32
Emissions Total	487	457	449	444	451	448	445	441	429	424

Source: CARB 2019b.

Transportation is the source of approximately 40 percent of the state's GHG emissions, followed by industrial sources at 21 percent, and electricity generation – both in-state and out-of-state – at 15 percent. Residential and commercial sources account for 10 percent, respectively, while agriculture accounts for 8 percent (California ARB 2018).

Regional Emissions

SCAG has prepared regional GHG emissions inventories. Similar to California GHG emission profiles, transportation, industrial, and electricity are the three largest contributors to GHG emissions (SCAG 2012). Total SCAG emissions in 2020 were estimated to be 216 MMTCO₂e. Transportation emissions are most prevalent relative to all other sectors in California and specifically in the SCAG region. Transportation emissions accounted for approximately 38 percent of total emissions in the SCAG region, compared to 26 percent of total emissions in the United States in 2008.

City of Los Angeles Emissions

The City has been tracking local GHG emissions over the years through an emissions inventory for the pLAN (City 2015). The 2015 GHG emissions inventory for the City accounted for electricity, natural gas, gasoline, and diesel consumption, as well as solid waste generation within the City. Total emissions in 2015 were estimated to approximately 31 MMTCO₂e. Building energy use accounted for approximately 15 MMTCO₂e, industry accounted for 8 MMTCO₂e, transportation accounted for 7 MMTCO₂e, and waste accounted for 1 MMTCO₂e.

Project Site Emissions

The Zoo is developed with approximately 1,259,930 square feet (sf) of animal care facilities, visitor-serving facilities, food and beverage facilities, retail, administration buildings, service buildings (refer to Table 2-2). These facilities are managed by 570 full- and part-time employees, and the Zoo is visited by approximately 1,743,800 people annually, or an approximate average of 4,791 persons per day, resulting in an existing Zoo service population

(employees plus daily visitors) of approximately 5,361 persons. Operation of the Zoo, as well as vehicle trips generated by employees and visitors, generates GHG emissions. As discussed in Section 3.15, *Transportation*, operation of the Zoo generates an estimated 69,638,350 annual VMT. The estimated annual operational GHG emissions associated with existing Zoo operations have been calculated utilizing the California Emissions Estimator Model (CalEEMod Version 2016.3.2) as recommended by the SCAQMD and are shown in Table 3.8-3. Based on the Zoo's existing estimated GHG emissions and service population, the Zoo generates approximately 3.0 MTCO_{2e}/person/year

Table 3.8-3. Estimated Operational Emissions for the Existing Project Site

Source	Direct/Indirect	Location	Annual Emissions (MTCO _{2e} /year)
Maintenance Sources	Direct	On-Site	50.3
Natural Gas Combustion	Direct	On-Site	2,485.8
Electricity Generation	Indirect	Off-Site	4,464.8
Water Conveyance	Indirect	Off-Site	811.0
Solid Waste Disposal	Direct	Off-Site	658.8
Mobile Vehicle Trips	Direct	Off-Site	7,485.3
Total			15,956.0
Zoo Service Population (Employees + Visitors)			5,361
Existing Per Capita Emissions			3.0

¹ Refer to Appendix D for CalEEMod output sheets; overall = emissions based on rounded totals.

3.8.3 Impact Assessment Methodology

Significance Thresholds

According to Appendix G of the CEQA Guidelines, the Project would have a potentially significant effect related to GHG emissions if it would:

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

According to the California Air Pollution Control Officers Association (CAPCOA), "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective" (CAPCOA 2008). Section 15064.4(b) of the CEQA Guidelines states that "*in determining the significance of a project's greenhouse gas*

emissions, the lead agency should focus its analysis on the reasonable foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions." Due to the global context of climate change, GHG analysis is based on the cumulative impact of emissions.

Generally, the evaluation of an impact under CEQA involves comparing the project's effects against a threshold of significance. The CEQA Guidelines clarify that *"when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."* For GHG emissions and global warming, there is not, at this time, one established, universally agreed-upon quantified threshold of significance for GHG impacts. The CEQA Guidelines do not establish a quantified threshold of significance for GHG impacts. Instead, lead agencies have the discretion to establish significance thresholds for their respective jurisdictions. A lead agency may look to thresholds developed by other public agencies or other expert entities, so long as the threshold chosen is supported by substantial evidence. SCAG, SCAQMD, and the City have not adopted a GHG significance threshold. Therefore, this analysis considers guidance documents from other agencies and CEQA to determine the appropriate approach to GHG impacts analysis.

The CEQA Guidelines Section 15064.4(b) also provides that, when assessing the significance of impacts from GHG emissions, a lead agency should consider (1) the extent to which the project may increase or reduce GHG emissions compared with existing conditions, (2) whether the project's GHG emissions exceed a threshold of significance that the lead agency determines applies to the project, and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Even in the absence of clearly defined thresholds for GHG emissions, the CEQA Guidelines Section 15064.4 provides guidance to lead agencies for determining the significance of impacts from GHG emissions. Section 15064.4(a) provides that a lead agency should make a good-faith effort based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Section 15064.4(a) further provides that a lead agency shall have the discretion to determine, in the context of a particular project, whether: (1) to use a model or methodology to quantify GHG emissions resulting from a project and which model methodology to use and/or (2) to rely on qualitative analysis or performance-based standards.

Pursuant to the State CEQA Guidelines Section 15064.4(a), the analysis presented herein uses a model or methodology to quantify GHG emissions resulting from the Project. The analysis contained herein provides a good-faith effort to describe, calculate, and estimate GHG emissions resulting from the Project.

Although the Project's GHG emissions have been quantified, neither CARB, SCAQMD, SCAG, nor the City has adopted quantitative significance thresholds for assessing impacts related to GHG emissions applicable to the proposed Project. Further, while the City completed a CAP in 2007, this CAP does not qualify for tiering under CEQA (specifically, State CEQA Guidelines Section 15183.5) because the CAP has not undergone CEQA review per the tiering requirements from Section 15183.5. Therefore, the Project-specific analysis herein cannot rely on a qualitative tiering analysis with the City's CAP. Thus, there is no City guidance or existing adopted threshold applicable to the proposed Project.

While no thresholds have been adopted, the SCAQMD has been evaluating GHG significance thresholds since April 2008. Most recently, in September 2010, SCAQMD proposed a tiered efficiency target approach to evaluate potential GHG impacts from various uses. This tiered approach allowed for flexibility when analyzing GHG emissions based on project size, land use type, or other characteristics. The various tiers include: (1) potential CEQA exemptions for certain projects; (2) compliance with a qualified GHG reduction strategy; (3) comparison with separate screening level thresholds for industrial (10,000 MTCO₂e/year), commercial (1,400 MTCO₂e/year), residential (3,500 MTCO₂e/year), and mixed-use (3,000 MTCO₂e/year) projects or comparison against a single numerical screening threshold of 3,000 MTCO₂e/year for all non-industrial projects; (4) consistency with compliance options, including a performance-based reduction analysis (i.e., compare with a Business-As-Usual level), compliance with AB 32, and/or comparison with efficiency-based thresholds (i.e., quantitative thresholds that are based on a per capita efficiency metric; 4.8 MTCO₂e/service population/year for project level analysis and 6.6 MTCO₂e/service population/year for plan level analysis); and/or (5) implement offsite mitigation to reduce GHG emission impacts to a less-than-significant level. The draft GHG guidance is included as part of the periodic updates to SCAQMD's Air Quality Handbook; however, the SCAQMD draft interim guidance was never officially adopted, and the proposed thresholds were not designed for versatile application to unique project types such as the proposed Project. These proposed targets have also not been adopted by the SCAQMD or distributed for widespread public review and comment, and the working group tasked with developing the targets has not met since September 2010.

Additionally, the efficiency targets proposed under SCAQMD's Tier 4 threshold are no longer applicable as they were specific to outdated AB 32 goals and do not consider the recently adopted 2030 GHG reduction targets contained in SB 32 and EO B-30-15. Instead, the 2017 Climate Change Scoping Plan was recently approved by California ARB on December 14, 2017, and sets the state on a course to reduce GHG emissions an additional 40 percent below 1990 levels by 2030 under SB 32 (California ARB 2017). Under the 2017 Climate Scoping Plan, the California ARB recommends statewide efficiency targets of no more than 6.0 MTCO₂e/service population/year by 2030 and no more than 2.0 MTCO₂e/service population/year by 2050; however, it is important to note that these efficiency targets are

intended to apply to sum of all sectors and are not appropriate for evaluating GHG emissions specific to the land use sector, such as the proposed Project.

To date, the California ARB, SCAQMD, and the City have not adopted new efficiency targets established consistent with SB 32 for each sector for the 2030 and 2050 target years; however, various other organizations have published technical guidance evaluating potential 2030 efficiency metrics. For instance, in October 2016, the Association of Environmental Professionals (AEP) published *The Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California* (2016). AEP's technical guidance presents data and calculations for a potential adjusted statewide 1990 land use sector emissions inventory and new metric for 2030 of 2.7 MTCO₂e/service population/year for the land use sector.

In addition to evaluation of a projects impacts against a quantifiable significant threshold, per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can also be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "*water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions.*" Thus, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of non-significance for GHG emissions if a project complies with programs and/or other regulatory schemes to reduce GHG emissions.

In light of this shifting regulatory environment and available threshold concepts recommended by expert agencies, for the purposes of this CEQA analysis, a project's contribution to cumulative impacts to global climate change would be considered significant if the proposed project would:

- Generate net new GHG emissions exceeding 3,000 MTCO₂e/year OR generate GHG emissions from land use sources exceeding 2.7 MTCO₂e/service population/year; or
- Conflict with (and thereby be inconsistent with) the applicable regulatory plans and policies to reduce GHG emissions, which include the emissions reduction measures included within the City's GreenLA CAP, Sustainable City pLAN, Green Building Code, and the General Plan; SCAG's 2016-2040 RTP/SCS; AB/SB 32 and SB 375; the OPR and Climate Action Team recommendations; and CARB's Climate Change Scoping Plan.

Given the nature of the Project being a regional attraction intended to serve a large number of visitors and resulting visitor-oriented emissions, a numerical bright-line threshold is not

considered the most appropriate threshold for evaluating Project impacts. Significance of the Project's GHG emissions are therefore evaluated in the context of an applicable GHG efficiency metric (2.7 MTCO₂e/service population/year).

Methodology

The methodology used in this assessment focuses on characterizing annual GHG emissions that would be generated by Project-related activities during phased construction and future operations. Project phases have been separated into near-term improvements occurring within the first 10 years of the Vision Plan (2020–2030) and long-term improvements that would occur during the latter 10 years of the Vision Plan (2030–2040). The near-term improvements are separated into three phases and summarized in Table 2-22, and the long-term improvements are separated into four phases and summarized in Table 2-23. The assessment for construction activities characterized the GHG emissions that would be generated during the three near-term phases, and conservatively doubled the emissions to account for the long-term improvements. The operational assessment characterized annual GHG emissions that would be generated by improvements completed by the interim near-term development year of 2030, as well as the ultimate completion year of 2040. Emissions are presented for an “Existing Plus Project” analysis in the CEQA baseline year of 2019, in which future conditions are modeled with an operational year of 2019, as opposed to the anticipated operational year (2025, 2027, 2030, 2040). This approach presents a highly conservative estimate of potential Project emissions, as the emissions estimates do not reflect future efficiencies (e.g., vehicle fuel efficiencies, energy efficiencies) as further discussed below. The determination of potentially significant environmental impacts does, however, consider both the magnitude of emissions and the extent to which they are reduced in the context of other applicable federal, statewide, and regional regulations.

GHG emissions associated with the construction and operation of the proposed Project were estimated using the CalEEMod Version 2016.3.2 software. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects (CAPCOA 2017). CalEEMod was developed in collaboration with the air districts of California and is recommended by SCAQMD. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts and SCAG to account for local requirements and conditions. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. CalEEMod output sheets and detailed calculations are provided in Appendix D. The methodology of analyzing the Project's GHG emissions, that may result from the construction and operations of the Project, is detailed below.

Construction GHG Emissions

For the purposes of this EIR, construction work is assumed to begin late 2020 and would take place over the 20-year Vision Plan implementation time frame. Construction equipment generates GHGs such as CO₂, CH₄, and N₂O through the combustion of fossil fuels. Methane may also be emitted during the fueling of heavy equipment. Methane may also be emitted during the fueling of heavy equipment. The raw materials used to construct the new building and the waste material from demolished buildings can sequester and release carbon, respectively. However, since the exact nature of the origin or make-up of the construction materials is unknown, only operation of construction vehicles and equipment is considered in the analysis of construction GHG emissions.

The construction GHG analysis considers the anticipated Project construction schedule and construction equipment mix. CalEEMod input values are adjusted to reflect these Project-specific construction characteristics to estimate construction GHG emissions. These values were applied to the same construction phasing assumptions used in the air quality criteria pollutant analysis (refer to Section 3.2, *Air Quality*, of this EIR) to generate annual GHG emissions for each construction year. Construction-related GHG emissions are then amortized over 30 years per current SCAQMD methodology (SCAQMD 2008). This means that the total construction emissions are divided by the lifetime of the project, which is generally assumed to be 30 years (SCAQMD 2008).

Operational GHG Emissions

Operation of the Project would generate GHG emissions from on-site operations such as natural gas combustion for heating/cooking, electricity use, demand for potable and recycled water supplies, operation of landscaping equipment, disposal of solid wastes, and the use of consumer products. GHG emissions would also be generated by Project-generated vehicle trips.

The assessment of potential environmental impacts operation of the Project analyzed annual GHG emissions that would be generated in the near-term improvements' completion year of 2030 and the long-term improvements completion year of 2040. GHG emissions are analyzed on an annual basis due to the cumulative nature of emissions and the complexity of the atmospheric processes contributing to the greenhouse effect. GHG emissions that would be generated by implementation of the Project were estimated for sources involved in temporary construction activities and long-term future operations.

The 2030 analysis evaluated total construction GHG emissions during the 2020–2030 near-term improvements (Phases 1 through 3) amortized over 30 years in combination with operational conditions that would occur under the Vision Plan in 2030. The 2040 analysis evaluated total construction GHG emissions that would occur during the 2020–2040 full buildout (Phases 1 through 7) amortized over 30 years in combination with the operational conditions that would occur under the Vision Plan in 2040. GHG emissions that would be

generated by construction of the Project were quantified in CalEEMod for the near-term activities described in Table 2-22. Sources producing GHG emissions during construction activities include off-road equipment exhaust and on-road vehicle exhaust. Over the course of Project implementation, construction vehicle/equipment efficiency will progressively improve with mandatory increased vehicle fuel efficiency standards and Title 24 energy efficiency improvements; however, it was conservatively assumed that total GHG emissions during the long-term improvements between 2030–2040 would be equal to the GHG emissions generated by construction of the near-term improvements between 2020–2030, thus the near-term construction GHG emissions were doubled to characterize total emissions. Refer to Appendix D for detailed emissions modeling input parameters and CalEEMod output files.

Long-term operational sources of GHG emissions include on-road vehicle trips by Zoo employees and visitors, on-site facility support equipment and vehicles, and electricity and natural gas consumption. Operational mobile source emissions from on-road vehicle travel were estimated using the results of trip generation and VMT data produced by the *Los Angeles Zoo Vision Plan Transportation Assessment* (Fehr & Peers 2020), included as Appendix N of this Draft EIR. Daily VMT under Existing Conditions and in 2030 and 2040 were multiplied by corresponding GHG emission factors produced by the CARB mobile source emissions model named EMISSIONS FACTOR (EMFAC2017; refer to Appendix D).

In addition to mobile on-road vehicle trips, operational GHG emissions would be generated by facility maintenance equipment and vehicles and energy consumption. Estimates of facility maintenance equipment and vehicles and energy consumption were obtained through coordination with Zoo facility administrators. Annual GHG emissions associated with these sources were estimated using the equations contained in the *CalEEMod User's Guide – Appendix A Calculation Details for CalEEMod*. Refer to Appendix D for detailed GHG emissions modeling input parameters and calculation sheets for the near-term improvements. Annual operational GHG emissions that would be generated in 2030 and 2040 were added to the amortized near-term and total construction GHG emissions, respectively, to evaluate potential significance. The 2030 and 2040 analysis years are consistent with the statewide GHG emissions reduction target date outlined by SB 32 and the horizon planning year of the SCAG *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*, respectively.

Total annual GHG emissions that would be generated by the Project in 2030 and 2040 were quantified without taking into account proposed Project design features that will reduce GHG emissions; however, the Project will incorporate numerous features that will contribute to energy efficiency and GHG emissions reductions, including, but not limited to, LEED Silver design standards for new structures, infrastructure, utilities, and landscaping, installation of photovoltaic solar panels providing up to 50 percent of Zoo electricity demand, and provision of electric vehicle charging stations. Additionally, several mitigation measures outlined in other sections of this EIR would further contribute to GHG emissions reductions achieved by

the Project. As an element of the GHG emissions analysis and determination of potentially significant impacts, Project design features and mitigation measures described elsewhere which would contribute to GHG emissions reductions were evaluated in the context of the California Air Pollution Control Officer's Association (CAPCOA) guidance document *Quantifying Greenhouse Gas Mitigation Measures – A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA, 2010).

Project Design Features

The Vision Plan improvements would enhance and revitalize Zoo facilities over a 20-year timespan. The proposed Vision Plan improvements would include numerous best management practices (BMPs), design features, and other elements that would reduce GHG emissions relative to the unmitigated operational emissions presented in Table 3.8-5 and 3.8-6. Limited details are available related to the schedule of incorporating proposed Project features that will either directly or indirectly reduce GHG emissions, therefore the potential effectiveness of these measures is evaluated qualitatively in the context of full Vision Plan buildout using the methodologies described in the 2010 CAPCOA guidance document. The 2010 CAPCOA quantification measures guidance was prepared when 2008 Title 24 Energy Efficiency standards were applicable. Therefore, the percent improvements analyzed in the guidance document relative to the outdated standards do not accurately reflect the achievable reduction based on the 2019 Title 24 standards and LEED Silver criteria to which the proposed Project improvements will be subject, at a minimum.

Staged utility and infrastructure improvements would be implemented over the 20-year project horizon to replace and upgrade aging systems, serve anticipated growth in visitation through approximately 2040, substantially improve water and energy conservation, and reduce maintenance costs and resource demands. Such improvements are anticipated to include major upgrades to stormwater conveyance, onsite storage, and recycling through onsite treatment and retention, which would allow onsite reuse onsite or permit release of treated water to the Los Angeles River. Major electrical energy initiatives would include generation of substantial electrical energy onsite, installation of photovoltaic solar panels, increased efficiency through use of LEED construction, and visitor space environmental climate controls. The Vision Plan also proposes improvements to water delivery systems, wastewater collection, and new restrooms. The proposed Project is characterized by the following features that would reduce GHG emissions:

- **Construction** – Construction activities will comply with the provisions of the CARB Airborne Toxic Control Measure to limit idling of diesel-fueled commercial motor vehicles to not more than five minutes at any location, including when queuing within 100 feet of sensitive receptors. Reducing idling and ensuring that equipment and vehicles are regularly inspected and maintained to manufacturer specifications will reduce GHG emissions from those sources. Additionally, construction of the proposed Project will use LEED Silver construction techniques outlined in the Sustainable City

pLAN to meet the 80 percent construction and demolition waste recycling requirements. Additionally, the installation of electronic communications lines to automatically control utilities and environmental conditions would further reduce potential future demand.

- **Transportation** – The Vision Plan would include the following transportation improvements which would achieve some reductions in vehicle trips and VMT.
 - Site Enhancement and Traffic Calming: The proposed Project would consolidate service and functional areas of the Zoo to one location, and the Zoo would have the space to include enlarged service and food storage areas for more efficient bulk purchasing, thereby reducing annual vendor deliveries and internal circulation congestion.
 - Transit Access Improvements: The proposed realignment of Western Heritage Way/Crystal Springs Drive would also allow the Zoo’s southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to these attractions.
- **Parking Policy** – The expansion of the EV and ZEV infrastructure is a critical component to incentivizing alternative fuel vehicle use. The Zoo administration and facilities buildings would have electric vehicle charging stations. A minimum of two stations shall be provided for each designated parking area of Zoo vehicles.
- **Energy** – The Vision Plan would include the following energy improvements which reduce operational energy demands and associated GHG emissions.
 - Building Energy: Throughout all phases of the Project, new structures, infrastructures, utilities, and landscaping would meet the LEED Silver standards of design or better, including all Visitor Centers, to ensure energy- and resource-efficient structures. All renovated and new structures will be outfitted with reduced-flow plumbing fixtures and energy efficient appliances (i.e., restaurant facilities) and comply with all provisions of the Los Angeles Green Building Code.
 - Lighting: Intersection improvements at I-5/Zoo Drive would install a signalized intersection with LED traffic lights. Parking lot improvements would install high-efficiency outdoor lighting throughout Zoo parking facilities. All new lighting within building structures will be ensured to meet LEED Silver or equivalent standards.
- **Water** – The Vision Plan would include the following improvements which would reduce demands for potable water supplies, reducing associated GHG emissions:
 - Water Supply: The proposed Project would implement a stormwater treatment system with capacity up to 35 million gallons annually, that would reduce potable water demand and associated indirect GHG emissions from energy to supply water

by approximately 24 percent. The stormwater capture cisterns would be installed with an end goal of capturing 80 percent of onsite stormwater for treatment and reuse onsite. The stormwater treatment and recirculation system would reduce operational GHG emissions associated with electricity used for potable water supply in 2040 by at least 24 percent relative to the 2019 baseline.

- **Water Use:** The Zoo currently uses approximately 11.5 million gallons of recycled water annually for parking lot irrigation. The recycled water consumption with implementation of the Vision Plan would increase to approximately 25.9 million gallons in 2040. Expanding recycled water use minimizes potable water supply GHG emissions.
- **Solid Waste** – The Vision Plan includes provisions for new enclosures for trash, recycling, and food waste materials to serve visitor and employee uses. The Zoo would manage trash and recycling generated by animal care, dining facilities, restrooms, and other visitor-serving facilities within the campus. The Zoo presently engages in composting for green waste and herbivore animal waste in Griffith Park, reducing the mass of waste delivered for landfill disposal and reducing the number and length of waste disposal vehicle trips. The Zoo would continue to explore options for diverting additional waste from landfills.

Cumulative Reductions

Although the features described above are voluntarily being incorporated into the Vision Plan improvements and are not specifically designed to mitigate significant GHG emissions impacts, the elements and components would substantially improve facility energy efficiency, expand alternative energy generation capacity, reduce wastewater to sewers and solid waste disposal to landfills, and provide augmented accessibility through public transit. The degree to which GHG emissions would be reduced through these mechanisms cannot be reasonably quantified due to the complexity of the implementation schedule and the potential GHG emissions reductions associated with other cumulative projects, such as the LADWP solar project that would reduce the Zoo facilities' baseline electricity consumption in future years.

Additionally, the GHG emissions increases presented in Table 3.8-5 and Table 3.8-6 do not account for external factors that will reduce GHG emissions in future years relative to existing conditions such as mandated regulatory programs for enhancing energy and fuel efficiency standards. As more stringent energy and fuel efficiency standards are implemented, GHG emissions from those sources would be gradually reduced over time. Proposed Project GHG emissions are conservative based on the following mandated programs that would result in reductions:

- The EMFAC mobile source emissions model accounts for implementation of statewide programs to expand the electric and zero emission vehicle fleet over time. The aggregate average GHG emission factor for passenger, light, and medium duty vehicles

will decrease by approximately 27 percent between 2019 and 2030, and 35 percent by 2040. Assuming that the planned programs are implemented on schedule, proposed Project mobile source GHG emissions would be 27 percent lower in 2030 and 35 percent lower in 2040 than those presented in the analyses.

- The emissions modeling relies on 2013 Title 24 energy efficiency standards built into CalEEMod. All new construction and renovations for the Vision Plan will meet or exceed 2019 Title 24 energy efficiency standards, which would reduce proposed Project GHG emissions from Title 24 building energy sources by approximately 37 percent.

3.8.4 Environmental Impacts Analysis

GHG-1: Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? Would the proposed Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Project Construction and Operational GHG Emissions

Near-Term Project GHG Emissions (2030)

As discussed in detail in Section 2.0, *Project Description*, construction of the proposed Project facilities will be separated into near-term improvements to be completed by 2030 (Phase 1 through Phase 3) and long-term improvements (Phase 4 through Phase 7) to be developed between 2030 and 2040. A greater degree of detail regarding the schedule of improvements and required construction inventories is available for Phase 1 through Phase 3. Given the improvements to be completed in each phase—and acknowledging that construction equipment and vehicle emissions will decrease on average in future years as more stringent emissions standards and newer fleets are introduced—it is anticipated that GHG emissions would be higher during the near-term improvements than during the latter 10 years of the Project.

Sources of GHG emissions that would be involved in construction activities include off-road equipment exhaust and on-road trips by the crew and hauling vehicle fleet. Therefore, GHG emissions were estimated using CalEEMod for activities comprising Phase 1, Phase 2, and Phase 3 construction described in Table 3.8-4. Over the course of Project implementation, construction vehicle/equipment efficiency will progressively improve with mandatory increased vehicle fuel efficiency standards and Title 24 energy efficiency improvements. As a conservative approach, even though efficiency is anticipated to improve in the future, it was assumed that GHG emissions during long-term improvements would be equal to those during the near-term improvements. Table 3.8-4 presents the GHG emissions that would be generated by construction of Phase 1 through Phase 3 during near-term improvements. As

indicated therein, construction activities for the proposed near-term improvements would result in temporary generation of GHG emissions totaling 10,597 MT CO₂e.

Table 3.8-4. Near-Term Improvements GHG Emissions – Construction

Phase	Start Year	End Year	Total MTCO ₂ e
Phase 1	2020	2025	4,812
Phase 2	2025	2027	2,652
Phase 3	2027	2030	3,133
Total Near-Term Construction			10,597
Average 30-Year Annual Amortized Rate			354

Source: Appendix D, CalEEMod Estimate Worksheets.

Implementation of the Vision Plan would expand Zoo capacity and accommodate more attendance over the next 20 years. Sources of GHG emissions involved in Zoo operations include VMT by patrons and employees, energy consumption, solid waste disposal, water use, and facility maintenance activities. The GHG emissions analysis also includes GHG emissions from direct and indirect sources associated with facility operations on the Project site. Direct GHG emissions are associated with natural gas use and facility maintenance equipment and vehicles, and indirect emissions are associated with electricity generation and solid waste disposal. GHG emissions generated by existing natural gas, maintenance activities, electricity use, and solid waste disposal were estimated using CalEEMod calculation methodologies and data obtained from Zoo planning staff. GHG emissions associated with proposed Project operations in 2030 were estimated using extrapolation methods based the redevelopment areas and features. See Appendix D for CalEEMod assumptions and inputs.

The CEQA Guidelines and recent case law recommend the use of existing conditions as the baseline against which Project emissions should be compared. Table 3.8-5 presents the annual operational GHG emissions associated with implementation of the Vision Plan near-term improvements, as well as an estimate of GHG emissions under existing conditions, and the net change in annual GHG emissions for in the analysis year of 2019.

Table 3.8-5. Near-Term Improvements GHG Emissions: Existing plus Project (2019)

Emissions Sources	Direct/Indirect	Location	Annual Emissions (MTCO_{2e}/year)
Vision Plan 2030			
Maintenance Sources	Direct	On-Site	56.3
Natural Gas Combustion	Direct	On-Site	3,318.1
Electricity Generation	Indirect	Off-Site	5,631.0
Water Conveyance	Indirect	Off-Site	1,070.3
Solid Waste Disposal	Direct	Off-Site	1,071.7
Mobile Vehicle Trips	Direct	Off-Site	12,238.1
<i>Amortized Construction Sources</i>	<i>Direct</i>	<i>On-Site</i>	<i>354.0</i>
Total			23,739.5
Existing Conditions			
Maintenance Sources	Direct	On-Site	50.3
Natural Gas Combustion	Direct	On-Site	2,485.8
Electricity Generation	Indirect	Off-Site	4,464.8
Water Conveyance	Indirect	Off-Site	811.0
Solid Waste Disposal	Direct	Off-Site	658.8
Mobile Vehicle Trips	Direct	Off-Site	7,485.3
Total			15,956.0
Regional Analysis			
Net New GHG Emissions – Unmitigated			7,783.5
<i>Net New GHG Emissions Threshold</i>			<i>3,000</i>
Exceeds Threshold?			Yes

Source: Appendix D, CalEEMod Estimate Worksheets.

Implementation of the near-term improvements would generate an unmitigated net increase of 7,783.5 MTCO_{2e} annually relative to existing conditions in the CEQA baseline year of 2019. Between 2019 and 2030 newer, more fuel-efficient vehicles will be introduced to the regional vehicle fleet meeting more stringent future emissions standards mandated by CARB that will reduce average fleetwide GHG emissions rates. The incremental increase in GHG emissions attributed to mobile vehicle trips and VMT in Table 3.8-5 represents a conservative estimate that does not account for future GHG emissions reduction programs. Furthermore, implementation of the Vision Plan will install substantial solar capacity throughout the Zoo property, reducing future electricity demand by up to 50 percent. Therefore, the proposed Project emissions in Table 3.8-5 represent a conservative estimate of electricity consumption and GHG associated with near-term improvements under the existing plus proposed Project analysis, accounting for no GHG emissions reduction measures. The 7,783.5 MTCO_{2e} increase represents the maximum possible annual change in emissions resulting from implementation of the near-term Vision Plan improvements. Conservative estimates of net

new GHG emissions generated by Project near-term improvements would exceed 3,000 MTCO₂e/year.

By 2030 it is estimated that improvements to the Zoo under the Project would support approximately 2,808,150 visitors annually (approximately 7,715 persons per day on average) and 990 full- and part-time employees, resulting in a service population (employees plus daily visitors) of approximately 8,705 persons. This represents a net increase of 1,064,350 visitors annually (2,924 persons per day on average) and 420 full- and part-time employees, resulting in a net increase in service population of approximately 3,344 persons. Based on the Zoo's estimated annual GHG emissions and future service population, the Project would generate approximately 2.7 MTCO₂e/person/year and a net 2.3 MTCO₂e/person/year (see Table 3.8-6).

Table 3.8-6. Near-Term Improvements GHG Efficiency

Category	Total Annual Emissions (MTCO ₂ e/year)	Net Annual Emissions (MTCO ₂ e/year) ¹
Vision Plan 2030		
Total Annual Emissions	23,739.5	7,783.5 (Net Emissions)
Zoo 2030 Service Population (Employees + Visitors)	8,705	3,344 (Net Service Population)
Zoo 2030 Per Capita Emissions	2.7	2.3
<i>2030 GHG Emissions Efficiency Metric Threshold</i>	2.7	2.7
Exceed Threshold?	No	No

¹ Net increase above existing conditions.

The Project's total and net estimated GHG emissions following implementation of proposed near-term improvements would fall within the established GHG efficiency metric thresholds. Though the Project's estimated efficiency metric (based on total Project emissions and service population) would equal the established efficiency target, the Project's GHG emissions are based on conservative estimates that do not account for proposed Project design features as well as likely GHG efficiency improvements that would be implemented in the future and would contribute to GHG emissions reductions. As such, it is reasonable to assume the Project's GHG emissions would in actuality be further below the GHG efficiency metric threshold than what has been conservatively estimated for the Project. The Project's contributions to cumulative impacts to global climate change as a result of implementation of near-term improvements, when compared against numerical thresholds, are therefore considered *less than significant*.

Long-Term Project GHG Emissions (2040)

In 2040, implementation of long-term Project improvements would increase maximum daily VMT by 74 percent relative to existing conditions (see Section 3.15, *Transportation*). In the absence of the proposed Project, it is anticipated that Zoo operations would continue at their existing capacity and no additional trips or VMT would occur given current constraints. Construction of the long-term improvements is conservatively assumed to generate GHG emissions of equal magnitude to near-term improvements, doubling the annual amortized construction emissions to approximately 708 MTCO_{2e}. Between 2019 and 2040 newer, more fuel-efficient vehicles will be introduced to the regional vehicle fleet meeting more stringent future emissions standards that will reduce average fleetwide GHG emissions rates, as well as implementation of more energy-efficient technologies. Therefore, using 2019 GHG emissions rates to characterize emissions that would be occurring in 2040 represents a conservative approach to satisfy CEQA requirements. Table 3.8-7 presents the existing plus Project GHG emissions analysis during operation of the long-term improvements.

Table 3.8-7. Long-Term Improvements GHG Emissions: Existing plus Project (2019)

Emissions Sources	Direct/Indirect	Location	Annual Emissions (MTCO_{2e}/year)
Vision Plan 2040			
Maintenance Sources	Direct	On-Site	58.3
Natural Gas Combustion	Direct	On-Site	3,392.3
Electricity Generation	Indirect	Off-Site	6,020.8
Water Conveyance	Indirect	Off-Site	1,156.8
Solid Waste Disposal	Direct	Off-Site	1,151.3
Mobile Vehicle Trips	Direct	Off-Site	13,184.9
<i>Amortized Construction Sources</i>	<i>Direct</i>	<i>On-Site</i>	<i>708.0</i>
Total			25,672.4
Existing Conditions			
Maintenance Sources	Direct	On-Site	50.3
Natural Gas Combustion	Direct	On-Site	2,485.8
Electricity Generation	Indirect	Off-Site	4,464.8
Water Conveyance	Indirect	Off-Site	811.0
Solid Waste Disposal	Direct	Off-Site	658.8
Mobile Vehicle Trips	Direct	Off-Site	7,485.3
Total			15,956.0
Regional Analysis			
Net New GHG Emissions – Unmitigated			9,716.4
<i>Net New GHG Emissions Threshold</i>			<i>3,000</i>
Exceeds Threshold?			Yes

Source: Appendix D, CalEEMod Estimate Worksheets.

Analyzing the existing plus Project scenario, implementation of the complete Vision Plan would increase annual GHG emissions by approximately 9,716.4 MTCO₂e in 2019 without accounting for any improvements to building and lighting energy efficiency, water conservation, waste management, or circulation and accessibility enhancements. As described below, the proposed Project would implement numerous design features and conservation strategies to reduce its environmental impact related to GHG emissions. Furthermore, cumulative regulatory mandates will potentially reduce average GHG emissions factors from utility sources in future years due to plans, policies, and regulations implemented at the state, regional, and local levels. Conservative estimates of net new GHG emissions generated by Project long-term improvements would exceed 3,000 MTCO₂e/year.

By 2040 it is estimated that improvements to the Zoo under the Project would support approximately 3,000,000 visitors annually (approximately 8,242 persons per day on average) and 1,101 full- and part-time employees, resulting in a service population (employees plus daily visitors) of approximately 9,343 persons. This represents a net increase of 1,256,200 visitors annually (3,451 persons per day on average) and 531 full- and part-time employees, resulting in a net increase in service population of approximately 3,982 persons. Based on the Zoo's estimated annual GHG emissions and future service population, the Project would generate a total of approximately 2.7 MTCO₂e/person/year and a net increase of 2.4 MTCO₂e/person/year (see Table 3.8-8).

Table 3.8-8. Long-Term Improvements GHG Efficiency

Category	Total Annual Emissions (MTCO ₂ e/year)	Net Annual Emissions (MTCO ₂ e/year) ¹
Vision Plan 2030		
Total Annual Emissions	25,672.4	9,716.4 (Net Emissions)
Zoo 2030 Service Population (Employees + Visitors)	9,343	3,982 (Net Service Population)
Zoo 2030 Per Capita Emissions	2.7	2.4
<i>2030 GHG Emissions Efficiency Metric Threshold</i>	2.7	2.7
Exceed Threshold?	No	No

¹ Net increase above existing conditions.

The Project's total and net estimated GHG emissions following implementation of proposed long-term improvements would fall within the established GHG efficiency metric thresholds for the project. Though the Project's estimated efficiency metric (based on total Project emissions and service population) would equal the established efficiency target, the Project's GHG emissions are based on conservative estimates that do not account for proposed Project design features and future mandatory equipment efficiency improvements that would be implemented in the future and would contribute to GHG emissions reductions. Further, these estimates do not account for transportation demand management mitigation to reduce Project VMT by 2040 (see Section 3.15, *Transportation*) As such, it is reasonable to assume

the Project's GHG emissions would in actuality be further below the GHG efficiency metric threshold than what has been conservatively estimated for this EIR. The Project's contributions to cumulative impacts to global climate change as a result of implementation of long-term improvements, when compared against numerical thresholds, are therefore considered *less than significant*.

Project Consistency with Plans and Policies

Implementation of the proposed Project may cause a significant environmental impact if it would conflict with applicable statewide or regional plans, policies, or regulations adopted to reduce GHG emissions by delaying or interfering with achievement of the relevant reduction targets by their corresponding dates. As described in the regulatory framework, a robust set of regulations are in place pertaining to GHG emissions reductions. For the proposed Project—which is a 20-year planning framework for a regional attraction—this analysis considers the proposed Project's consistency GHG emissions reduction initiatives, including, but not limited to:

- Executive Order S-3-05, which established the goal of reducing the state's GHG emissions to 80 percent below the 1990 levels by 2050, as mandated by AB 32;
- California's 2017 Climate Change Scoping Plan, promulgated by CARB to achieve a 40 percent reduction on GHG emissions from 1990 levels by 2030 as mandated by SB 32;
- California Renewables Portfolio Standard and SB 350 and SB 100, which address renewable energy use and availability to reduce reliance on fossil fuel combustion;
- SCAG's 2016–2040 RTP/SCS, the regional plan for achieving sustainable land use patterns that reduce passenger vehicle GHG emissions, as mandated by SB 375;
- The City's Sustainable City pLAN 2019, which GHG emissions reduction targets established by the 2019 Green New Deal Pathway: 50 percent below 1990 levels by 2025, 73 percent below 1990 levels by 2035, and citywide carbon neutrality by 2050; and,
- City of Los Angeles General Plan, which establish policies for reducing vehicle trips and VMT to improve the citywide transportation network and increase resource efficiency to reduce GHG emissions.

Project Consistency with State Mandates, Plans, Policies, and Regulations

The primary focus of many of the statewide and regional mandates, plans, policies, and regulations is to address worldwide climate change. Global GHG emissions, in their aggregate, contribute to climate change, not any single source of GHG emissions alone.

The significance of the Project's GHG emissions is evaluated based on whether the Project is consistent with the relevant statewide mandates, plans, policies, and regulations to reduce GHG emissions, including AB 32 and SB 32 (Health and Safety Code Division 25.5), the Climate Change Scoping Plan, and other regulations and programs. Because the Project incorporates physical and operational sustainability features that would promote a reduction in GHG emissions, the Project would not cumulatively contribute to significant climate change effects

and would not conflict with the GHG reduction goals of Health and Safety Code Division 25.5 and associated GHG reduction plans. Table 3.8-9 provides a topical overview of the statewide consistency analysis, organized by the applicable plan source category or strategy.

Table 3.8-9. Vision Plan Consistency with Statewide Emissions Reductions

Objective or Strategy	Consistency Analysis
AB 32, SB 32, and the Climate Change Scoping Plan	
SB 350 increases the Renewable Portfolio Standard for California’s renewable electricity procurement requirement from 33 percent in 2020 to 50 percent by 2030.	<u>Consistent.</u> The proposed Project would not interfere with statewide initiatives to increase renewable energy production from public utilities and would implement up to 70,000 square feet of solar panels for on-site renewable energy generation to reduce LADWP demand.
SB 350 mandates that State achieve cumulative doubling in energy efficiency savings in electricity and natural gas end uses by 2030.	<u>Consistent.</u> The proposed Project would remove outdated building structures and facilities that would be replaced by buildings meeting LEED Silver or equivalent energy efficiency. All end uses within Zoo facilities will at a minimum comply with the most recent applicable Title 24 energy efficiency standards, currently 2019. The Vision Plan would not interfere with SB 350 goals to double energy efficiency savings by 2030.
Implement Mobile Source Strategy requiring at least 4.2 million zero-emission and plug-in hybrid vehicles by 2030.	<u>Consistent.</u> The proposed Project would not interfere with zero-emission and plug-in hybrid vehicle production or sales. The Vision Plan would include electric vehicle charging stations at all new facility buildings to encourage the use of electric vehicles, which would expand the electric vehicle infrastructure.
Implement California Sustainable Freight Action Plan to improve freight system efficiency; increase near-zero emission fleet.	<u>Consistent.</u> Implementation of the proposed Project would not conflict with the California Sustainable Freight Action Plan; Vision plan improvements would enhance the circulation network and consolidate commercial deliveries to one central location, increasing operational efficiency.

The Project would also support the state’s strategies in the 2017 Climate Change Scoping Plan to reduce GHG emissions (Table 3.8-9). The 2017 Climate Change Scoping Plan relies on a broad array of GHG reduction strategies, which include direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based mechanisms, such as the Cap-and-Trade Program. These potential strategies include increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting high speed rail and other alternative transportation options, and use of high efficiency appliances, water heaters, and HVAC systems. The Project would benefit from statewide and City efforts towards increasing the portion of electricity provided from renewable resources. The Project would also benefit from statewide efforts towards increasing the fuel economy standards of vehicles. The Project would utilize energy efficiency appliances and equipment, as well as electric-powered vehicles by providing EV vehicle spaces. The Project would be designed with up to 70,000 sf of solar photovoltaic panels to reduce energy demand and increase use of renewably sourced energy. In addition, consistent with the City’s Green Building Code, new development under the Project would be designed to include green building measures and be equipped with energy and water efficient systems

or appliances. While CARB is in the process of developing a framework for the 2030 reduction target in the Scoping Plan, the Project would support or not impede implementation of these potential reduction strategies identified by CARB.

Based on the analysis presented in Table 3.8-10 below, the proposed Project would be consistent with the California Renewables Portfolio Standard, SB 350, SB 100, CCR Title 24, California Green Building Standards Code Requirements, SB 375, and recommendations of the State Attorney General, OPR and Climate Action Team with implementation of mitigation requiring preparation of a Storm Water Pollution Prevention Plan (SWPPP) (**MM HYD-2**) and replacement of trees contributing to the urban forest (**MM UF-1** and **MM UF-2**). Therefore, the Project would be consistent with applicable state plans, policies, and regulations and impacts would be *less than significant with mitigation*.

Project Consistency with Regional Mandates, Plans, Policies, and Regulations

The RTP/SCS aims to reduce or limit new trip generation and associated regional growth in traffic congestion and VMT by focusing growth, density, and land use intensity within existing urbanized areas. Additionally, the RTP/SCS strives towards enhancing the existing transportation system and integrating land use into transportation planning. The RTP/SCS recommends local jurisdictions accommodate future growth within existing urbanized areas to reduce VMT, congestion, and GHG emissions. The RTP/SCS specifically encourages future growth to occur within existing High-Quality Transit Areas, which are described as generally walkable transit districts or corridors that are within 0.5 miles of a major transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours.

Table 3.8-11 presents the consistency analysis for the proposed Project in the context of regional plans and policies to reduce GHG emissions. The evaluation focuses on consistency with elements of the SCAG RTP/SCS, which was derived to comply with SB 375 and determined to contain sufficient targets to meet statewide emissions reduction goals associated with regional transportation planning. As discussed therein, though the Project is not located within a High-Quality Transit Area, the Project would not introduce a new land use development outside of a High-Quality Transit Area, and implementation of the Project would improve access to the site via alternative modes of travel by improving access to the site by transit and promoting pedestrian and bicycle access. In addition, implementation of **MM T-2** would require the Zoo to prepare and implement a Transportation Demand Management (TDM) Program and a Paid Parking Program, respectively, to expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, and improve safe and reliable transportation alternatives to the Zoo. With implementation of these measures, the Project would be consistent with all applicable goals of the 2016-2040 RTP/SCS intended to improve mobility and access to diverse destinations, promote smart growth, provide more transportation choices, and reduce vehicular demand and associated emissions. As such, the Project would be consistent with regional plans to reduce VMT and associated GHG emissions, and impacts would be *less than significant with mitigation*.

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies

Objective or Strategy	Relationship to Project
California Renewables Portfolio Standard and SB 350 and SB 100	
Increases the proportion of electricity from renewable sources to 33 percent renewable power by 2020. SB 350 requires 50 percent by 2030. It also requires the State Energy Resources Conservation and Development Commission to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation. SB 100 accelerates the Renewables Portfolio Standard Program goals as follows: (1) 50 percent renewable resources target by December 31, 2026; and (2) 60 percent renewable resources target by December 31, 2030. SB 100 also establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.	<u>Consistent.</u> While this measure does not directly apply to the Project, the Project would be consistent with and would not conflict with this strategy because Southern California Edison is required to meet the State's Renewable Portfolio Standard, including SB 100. Southern California Edison would also be required to meet the 60 percent renewable target in 2030. Furthermore, the Vision Plan proposes up to 70,000 sf of solar photovoltaic panels to increase the Zoo's reliance on renewable energy.
CCR Title 24	
Energy Efficiency Standards for Residential and Nonresidential Buildings	<u>Consistent.</u> The Project would comply with the City's most recent Green Building Code by incorporating photovoltaic panels, high-performance building envelopes, and energy-efficient HVAC and lighting systems, thereby reducing energy use, air pollutant emissions, and GHG emissions. The City's Energy Code makes local amendments to Title 24 Building Energy Efficiency Standards.
Title 24 includes water efficiency requirements for new residential and non-residential uses.	<u>Consistent.</u> The Project would meet this requirement as part of its compliance with the City's requirements and the CALGreen Code. The Project would include water efficient equipment and plumbing infrastructure. With regard to operational landscaping irrigation, the proposed Project would reuse onsite water collected from stormwater runoff and would utilize recycled water from LADWP. These options would be explored as final design plans are further developed.
California Green Building Standards Code Requirements	
All bathroom exhaust fans shall be ENERGY STAR compliant.	<u>Consistent.</u> The Project would utilize energy efficiency appliances and equipment and would meet or exceed the energy standards in the City's Energy Code.
HVAC Systems will be designed to meet ASHRAE standards.	
Energy commissioning shall be performed for buildings larger than 10,000 square feet.	<u>Consistent.</u> The Project would meet this requirement as part of its compliance with Division 12, A5.410.3 of the City's Green Building Code.

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies (Continued)

Objective or Strategy	Relationship to Project
Air filtration systems are required to meet a minimum of MERV 8 or higher.	<p><u>Consistent.</u> The Project would meet or exceed this requirement as part of its compliance with the City’s requirements and the CALGreen Code.</p>
Refrigerants used in newly installed HVAC systems shall not contain any chlorofluorocarbons.	
Parking spaces shall be designed for carpool or alternative fueled vehicles. Up to eight percent of total parking spaces will be designed for such vehicles.	
Long-term and short-term bike parking shall be provided for up to five percent of vehicle trips.	
Stormwater Pollution Prevention Plan (SWPPP) required.	<p><u>Consistent with Mitigation.</u> The State Water Resources Control Board regulates stormwater runoff from construction activities under Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ. Construction activities subject to the National Pollutant Discharge Elimination System Construction General Permit include sites that disturb at least one acre, and small construction sites less than one acre but part of a larger common plan of at least one acre. The proposed Project would result in construction and redevelopment of the Zoo across the entire 142-acre Project site over the 20-year implementation timeline. Individual improvements and development activities are anticipated to result in disturbance of at least 1 acre. Consistent with the State Water Resources Control Board Order No. 2009-009-DWQ and MM HYD-2, the City would prepare a SWPPP as part of acquisition of a National Pollutant Discharge Elimination System Construction General Permit to reduce or prevent the discharge of pollutants during construction activities.</p>
Indoor water usage must be reduced by 20% compared to current California Building Code Standards for maximum flow.	<p><u>Consistent.</u> Refer to discussion under CCR Title 24 requirements above.</p>
All irrigation controllers must be installed with weather sensing or soil moisture sensors.	<p><u>Consistent.</u> The Project would meet this requirement as part of its compliance with the City’s requirements and the CALGreen Code.</p>
Wastewater usage shall be reduced by 20 percent compared to current California Building Standards.	

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies (Continued)

Objective or Strategy	Relationship to Project
Requires a minimum of 50 percent recycle or reuse of nonhazardous construction and demolition debris.	<u>Consistent.</u> The Project would exceed this requirement as part of its compliance with City Code. The Project would comply with the Construction Waste Reduction, Disposal, and Recycling requirements outlined in Section 99.12.508 of the City's Green Building Code, requiring a minimum diversion of 85 percent of nonhazardous construction and demolition waste from landfills.
Requires documentation of types of waste recycled, diverted, or reused.	<u>Consistent.</u> The Project would meet this requirement as part of its compliance with the City's requirements and the CALGreen Code.
Requires use of low VOC coatings consistent with AQMD Rule 1168.	<u>Consistent.</u> The Project would be consistent with this regulation and would meet or exceed the low VOC coating requirements (refer to Section 3.2, <i>Air Quality</i>).
100 percent of vegetation, rocks, soils from land clearing associated with new non-residential developments shall be reused or recycled. Phased projects can stockpile on-site.	<u>Consistent.</u> Project construction would meet this requirement as part of its compliance with the City's requirements and the CALGreen Code. Usable fill material would be taken to local storage yards for later use during construction activities within the City.
<i>Mobile Source Strategy (Cleaner Technology and Fuels)</i>	
Reduce GHGs and other pollutants from the transportation sector through transition to zero emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled.	<u>Consistent.</u> While this action does not apply to individual projects, the Project would be consistent and would not conflict with this strategy by supporting the use of zero-emission and low-emission vehicles through the onsite provision of EV parking spaces.
<i>AB 1493 (Pavley Regulations)</i>	
Reduces greenhouse gas emissions in new passenger vehicles from model year 2012 through 2016 (Phase I) and model year 2017-2025 (Phase II). Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020.	<u>Consistent.</u> The Project would be consistent with this regulation and would not conflict with implementation of the vehicle emissions standards.
<i>Low Carbon Fuel Standard (Executive Order S-01-07)</i>	
Establishes protocols for measuring life-cycle carbon intensity of transportation fuels and helps to establish use of alternative fuels.	<u>Consistent.</u> The Project would be consistent with this regulation and would not conflict with implementation of the transportation fuel standards.

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies (Continued)

Objective or Strategy	Relationship to Project
<i>Advanced Clean Cars Program</i>	
<p>In 2012, California ARB adopted the Advanced Clean Cars (ACC) program to reduce criteria pollutants and GHG emissions for model year vehicles 2015 through 2025. ACC includes the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.</p>	<p><u>Consistent.</u> While this action does not apply to individual projects, all vehicles used by Project residents, employees, and visitors would not impact or conflict with implementation of the Advanced Clean Cars Program.</p>
<i>SB 375</i>	
<p>SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. Under SB 375, California ARB is required, in consultation with the state’s MPOs, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035.</p>	<p><u>Consistent.</u> While this measure does not directly apply to the Project, the Project would be consistent with and would not conflict with this strategy because the Project would be consistent with SCAG RTP/SCS goals and objectives outlined below in Table 3.8-11.</p>
<i>SB X7-7</i>	
<p>The Water Conservation Act of 2009 sets an overall goal of reducing per capita urban water use by 20 percent by December 31, 2020. Each urban retail water supplier shall develop water use targets to meet this goal.</p>	<p><u>Consistent.</u> Refer to discussion under CCR Title 24 requirements above.</p>
<i>California Integrated Waste Management Act of 1989 and AB 341</i>	
<p>The IWMA mandated that state agencies develop and implement an integrated waste management plan which outlines the steps to be taken to divert at least 50 percent of their solid waste from disposal facilities. AB 341 directs CalRecycle to develop and adopt regulations for mandatory commercial recycling and sets a statewide goal for 75 percent disposal reduction by the year 2020.</p>	<p><u>Consistent.</u> While this action does not apply to individual projects, the Project would be served by a solid waste collection and recycling service, approved or licensed to collect solid waste in the City, that may include mixed waste processing, and that yields waste diversion results comparable to source separation and consistent with and would not conflict with Citywide recycling targets. The City currently recycles and would continue to recycle applicable waste under operation of the Vision Plan. The Zoo would also continue “Zoo Doo” operations associated with the Griffith Park Composting Facility to recycle animal bedding (i.e., hay) and waste. The Zoo would continue to be a source for food waste diversion, working with World Harvest to use appropriate and quality food waste for animal feed, thereby preventing landfill disposal.</p>

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies (Continued)

Objective or Strategy	Relationship to Project
<i>Climate Action Team</i>	
Reduce diesel-fueled commercial motor vehicle idling.	<u>Consistent.</u> The Project would comply with the CARB Air Toxics Control Measure to limit heavy duty diesel motor vehicle idling to no more than 5 minutes at any given time.
Achieve California’s 50 percent waste diversion mandate (Integrated Waste Management Act of 1989) to reduce GHG emissions associated with virgin material extraction.	<u>Consistent.</u> While this action does not apply to individual projects, the Project would be served by a solid waste collection and recycling service, approved or licensed to collect solid waste in the City, that may include mixed waste processing, and that yields waste diversion results comparable to source separation and consistent with and would not conflict with Citywide recycling targets. As of February 2020, all the Mixed Construction and Demolition processors currently certified by the City have achieved at least 70 percent mixed construction and demolition waste recycled rates.
Plant five million trees in urban areas by 2020 to effect climate change emission reductions.	<u>Consistent with Mitigation.</u> The Project would require substantial tree removal as part of all proposed improvements; however, important streets (i.e., important trees, mature trees) would be protected in place. Trees that are removed through the Project would be replanted and expanded by the proposed landscaping of trees and vegetation representative of the theme of the proposed improvement area. Impacts to resulting from the removal of protected trees would be mitigated through implementation of MM UF-1 and MM UF-2 requiring substantial native tree replacement on- or offsite, as well as substantial replanting of disturbed areas to maintain an urban tree canopy at the Zoo. Though hundreds of trees could be removed as part of the Project, even more trees are expected to be planted as a result of required mitigation or proposed landscaping. Refer also to Section 3.3, <i>Biological Resources</i> and Section 3.6, <i>Urban Forestry Resources</i> .
Implement efficient water management practices and incentives, as saving water saves energy and GHG emissions.	<u>Consistent.</u> The Project would meet this requirement as part of its compliance with the City’s requirements and the CALGreen Code. Refer to discussion under CCR Title 24 requirements above.
Reduce GHG emissions from electricity by reducing energy demand. The California Energy Commission updates appliance energy efficiency standards that apply to electrical devices or equipment sold in California. Recent policies have established specific goals for updating the standards; new standards are currently in development.	<u>Consistent.</u> The Project would utilize energy efficiency appliances and equipment and would meet or exceed the Title 24 Building Energy Efficiency Standards.

Table 3.8-10. Project Consistency Summary with State GHG Emissions Reduction Strategies (Continued)

Objective or Strategy	Relationship to Project
<p>Apply strategies that integrate transportation and land-use decisions, including but not limited to promoting jobs/housing proximity, high-density residential/ commercial development along transit corridors, and implementing intelligent transportation systems.</p>	<p><u>Consistent with Mitigation.</u> The proposed Project would not introduce a new land use development outside of a high-quality transit area, nor would it impede the development of livable corridors throughout the local communities. Vision Plan improvements would be limited to Griffith Park and the immediate surrounding roadway circulation network which is served by existing transit stops and bicycle facilities. Implementation of the Vision Plan would provide additional bicycle parking to encourage local trips and would enhance pedestrian access and safety. In addition, the Vision Plan proposes substantial redesign of the Zoo Entry and internal circulation system to provide more ADA-accessible and pedestrian friendly navigation for visitors. The proposed Phase 1 road realignment would also allow the Zoo's southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the North Hollywood High School Zoo Magnet Center, Autry Museum, and the proposed park north of the proposed parking structure (Phase 7). Further, MM T-2 would be required to reduce Project-related employee and visitor VMT, secondarily reducing mobile-source GHG emissions. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, and improve safe and reliable transportation alternatives to the Zoo. Refer also to Section 3.15, <i>Transportation</i>.</p>

Table 3.8-11. Vision Plan Consistency with Regional Emissions Reductions

Objective or Strategy	Relationship to Project
SCAG RTP/SCS	
Land Use Strategies. Focus new growth around transit, develop livable corridors, and provide more options for short trips.	<u>Consistent</u> . The proposed Project would not introduce a new land use development outside of a high-quality transit area, nor would it impede the development of livable corridors throughout the local communities. Vision Plan improvements would be limited to Griffith Park and the immediate surrounding roadway circulation network. Implementation of the Vision Plan would provide additional bicycle parking to encourage local trips and would enhance pedestrian access and safety.
Transportation Strategies. Preserve and improve our current system, manage congestion, and promote safety and security and active transportation.	<u>Consistent</u> . Implementation of the Vision Plan would not cause any deterioration to the existing roadway system. Reconfiguration of the parking lot and Western Heritage Way would improve internal circulation and site accessibility, as well as pedestrian safety and active transportation accommodations through bicycle parking.
Transportation Strategies. Implement Transportation Demand Management	<u>Consistent with Mitigation</u> . The Project does not include a TDM strategy to ensure accessibility to the Zoo while reducing VMTs. MM T-2 would require TDM planning and a Paid Parking Program to reduce VMT, secondarily reducing mobile-source GHG emissions. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, and improve safe and reliable transportation alternatives to the Zoo. Refer also to Section 3.15, <i>Transportation</i> . With mitigation, the proposed Project would ensure the Zoo would administer the TDM program to reduce employee vehicle trips.
Pricing Strategies. Implement variable parking pricing to discourage single-occupancy vehicle trips.	<u>Consistent with Mitigation</u> . The Project does not include a paid parking program. The Zoo would be required to consider a Paid Parking Program under MM T-2 to support efforts to increase multi-modal accessibility to the Zoo, secondarily reducing mobile-source GHG emissions. Refer also to Section 3.15, <i>Transportation</i> . With mitigation, the proposed Project, over time, could create a Paid Parking Program for 85 percent the Zoo lot, and also provide discounts and incentives to visitors and employees who use non-vehicle modes of transportation.
Vehicle Technology/Enhanced Mobility. Expand electric vehicle infrastructure to reduce reliance on fossil fuels.	<u>Consistent</u> . The proposed Project would provide electric vehicle charging infrastructure and parking accommodations at all facility buildings.
Metropolitan Planning Organization Regional Reduction Target. Achieve 19 percent reduction in per-capita GHG emissions from passenger vehicles throughout the SCAG region by 2035.	<u>Consistent</u> . The Project would not change land use patterns or introduce a new source of vehicle trips to the SCAG region. The Project would increase visitation and employment at the Zoo, increasing visitor and employee vehicle trips, annual VMT, and associated GHG emissions; however, anticipated increases in vehicle trips and annual VMT would not increase per-capita GHG emissions above existing conditions. Though not officially adopted, SCAG staff determined that the 2020-2045 RTP/SCS would be consistent with the SB 375 reduction goals. The proposed Project would not conflict with regional objectives to reduce per-capita GHG emissions from passenger vehicles and would be consistent.

Table 3.8-11. Vision Plan Consistency with Regional Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
Goal 2. Maximize mobility and accessibility for all people and goods in the region.	<p><u>Consistent with Mitigation.</u> The Vision Plan proposes substantial redesign of the Zoo Entry and internal circulation system to provide more ADA-accessible and pedestrian friendly navigation for visitors. The proposed Phase 1 road realignment would also allow the Zoo’s southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the Zoo Magnet Center, Autry Museum, and the proposed park north of the proposed parking structure (Phase 7). However, increased visitation would drive impacts related to increased VMT and associated GHG emissions. Further, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. MM T-2 would be required to reduce Project-related employee and visitor VMT, secondarily reducing mobile-source GHG emissions. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, and improve safe and reliable transportation alternatives to the Zoo. Refer also to Section 3.15, <i>Transportation</i>.</p>
Goal 3. Ensure travel safety and reliability for all people and goods in the region.	
Goal 5. Maximize the productivity of our transportation system.	
Goal 6. Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).	<p><u>Consistent with Mitigation.</u> The Zoo currently provides and would continue to provide bicycle parking at the Zoo Entry to encourage active transportation to the Zoo. However, increased visitation and employment would drive GHG impacts related to increased VMT. Further, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. MM T-2 would be required to implement or expand non-vehicular transportation modes to the Zoo to reduce trips, VMT, and congestion, and improve air quality. Refer also to Section 3.15, <i>Transportation</i>.</p>
Goal 7. Actively encourage and create incentives for energy efficiency, where possible.	<p><u>Consistent.</u> As discussed above and in Section 3.5, <i>Energy</i>, the Vision Plan proposes use of LEED Silver construction techniques, up to 70,000 square feet of solar photovoltaic panels, and electronic communications lines to automatically control utilities and environmental conditions to reduce power demand. The Project would also guide redevelopment of outdated Zoo facilities that do not currently meeting existing energy and building codes (e.g., California’s Green Building Standard Code).</p>

Project Consistency with Local Mandates, Plans, Policies, and Regulations

The Project would support the City’s GHG reduction goals and policies established in the City’s General Plan, Hollywood Community Plan, Sustainable City pLAN, and the City’s Green New Deal (see Table 3.8-12). The proposed Project includes several sustainable design features and characteristics, capture and reuse of stormwater runoff for irrigation, utilization of LADWP recycled water supplies to reduce demand for potable water supplies, efficient landscape irrigation systems, installation of up to 70,000 sf of rooftop solar electric photovoltaic panels, use of LEED Silver construction techniques, and redevelopment, and various measures to reduce Project VMT. All these measures are either directly intended to or would indirectly reduce overall GHG impacts.

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions

Objective or Strategy	Relationship to Project
City of Los Angeles General Plan	
Air Quality Element	
<p>Policy 2.1.1. Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling related facilities in order to reduce Vehicle Trips and/or Vehicle Miles Traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.</p>	<p><u>Consistent with Mitigation.</u> The Zoo currently provides and would continue to utilize compressed work weeks and flexible work schedules. This is due to the unique hours of operation, schedules, and employee shifts that align with non-peak hours, thereby reducing traffic congestion. In addition, the Zoo currently provides and would continue to provide bicycle parking at the Zoo Entry. The proposed Phase 1 road realignment would also allow the Zoo's southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the North Hollywood High School Zoo Magnet Center, Autry Museum, and the proposed park north of the proposed parking structure (Phase 7). However, increased visitation would drive transportation and GHG impacts related to increased VMT. Further, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo for employees and visitors. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, secondarily reducing GHG emissions. Refer also to Section 3.15, <i>Transportation</i>.</p>
<p>Policy 2.2.1. Discourage single-occupant vehicle use through a variety of measures such as market incentive strategies, mode-shift incentives, trip reduction plans, and ridesharing subsidies.</p>	<p><u>Consistent with Mitigation.</u> Survey data collected for the Project's Transportation Impact Analysis (Appendix N) indicates that most employees drive to the Zoo, most commonly as single-occupant vehicles. Further, most visitors drive passenger vehicles and do not have ready access to transit, bicycle, or pedestrian facilities that allow reasonable transportation to the Zoo. The proposed Phase 1 road realignment would improve the efficiency of public transportation access to several uses near the Zoo (e.g., the North Hollywood High School Zoo Magnet Center, Autry Museum, and the proposed public park north of the proposed parking structure) by allowing the Zoo's southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West. However, increased visitation would drive transportation and GHG impacts related to increased VMT. Further, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion. These measures would ensure ridesharing, transit use, parking management, and trip reduction strategies are implemented, which would be consistent with these City policies. Refer also to Section 3.15, <i>Transportation</i>.</p>
<p>Policy 2.2.2. Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management practices.</p>	
<p>Policy 2.2.3. Minimize the use of single-occupant vehicles associated with special events or in areas and times of high levels of pedestrian activities.</p>	
<p>Policy 4.2.3. Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.</p>	<p><u>Consistent with Mitigation.</u> The proposed Phase 1 road realignment would allow the Zoo's southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the North Hollywood High School Zoo Magnet Center, Autry Museum, and</p>

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
Policy 4.2.5. Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.	the proposed park north of the proposed parking structure (Phase 7). The Zoo currently provides and would continue to provide bicycle parking at the Zoo Entry. However, increased visitation would drive transportation and GHG impacts related to increased VMT. Further, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion. These measures would ensure ridesharing, transit use, parking management, and trip reduction strategies are implemented, which would be consistent with these City policies. Refer also to Section 3.15, <i>Transportation</i> .
Policy 5.1.2. Effect a reduction in energy consumption and shift to non-polluting sources of energy in its buildings and operations.	<u>Consistent.</u> As discussed above and in Section 3.5, <i>Energy</i> , the Vision Plan proposes use of LEED Silver construction techniques, up to 70,000 square feet of solar photovoltaic panels with the goal of providing up to 50 percent of the Zoo's energy demand, and electronic communications lines to automatically control utilities and environmental conditions to reduce power demand. The Project would also guide redevelopment of outdated Zoo facilities that do not currently meeting existing energy and building codes (e.g., California's Green Building Standard Code).
Policy 5.1.4. Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.	<u>Consistent.</u> The City currently recycles and would continue to recycle applicable waste under operation of the Vision Plan. The Zoo would also continue "Zoo Doo" operations associated with the Griffith Park Composting Facility to recycle animal bedding (i.e., hay) and waste. The Zoo would continue to be a source for food waste diversion, working with World Harvest to use appropriate and quality food waste for animal feed, thereby preventing landfill disposal.
Policy 5.3.1. Support the development and use of equipment powered by electric or low-emitting fuels.	<u>Consistent.</u> Consistent with LAMC Section 99.05.106.5.3.3, the Project would provide at least 20 percent of the total number of parking spaces as electric vehicle spaces. In addition, as described in Section 2.3.3, <i>Vision Plan Guiding Principles</i> , a minimum to two stations shall be provided for each designated parking area of Zoo vehicles.
Conservation Element	
Section 13 Policy 1. Continue striving to meet the city's water, power, and other needs while at the same time striving to be a good steward of natural resources and minimizing impacts on the environment.	<u>Consistent.</u> As discussed in Section 3.5, <i>Energy</i> , Section 3.6, <i>Urban Forestry Resources</i> , Section 3.8, <i>Recreation</i> , Section 3.10, <i>Hydrology and Water Quality</i> , Section 3.13, <i>Public Services</i> , Section 3.15, <i>Transportation</i> , and Section 3.16, <i>Utilities</i> , proposed utilities would be resource-efficient, including onsite solar energy collectors and stormwater treatment facilities, to ensure that resources and services provided by the City would be sufficient to address growth in demand while minimizing potential impacts on the environment. For example, the Project would provide up to 70,000 square feet of solar photovoltaic panels to generate solar energy and reduce the Zoo's energy consumption, while required mitigation measures identified in Section 3.15, <i>Transportation</i> would increase opportunities for alternative transportation to reduce VMT and fuel energy demands.
Section 19 Policy 1. Continue to encourage energy	<u>Consistent.</u> As discussed in Section 3.5, <i>Energy</i> , the Vision Plan would guide redevelopment of outdated Zoo facilities that do not currently meeting existing energy and building codes. Project implementation

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
conservation and petroleum product reuse.	would ensure all new development at the Zoo complies with all applicable state and local building codes. Additional improvements across all phases include the installation of electronic communications lines to automatically control utilities and environmental conditions, further reducing future utility demand.
Mobility Element	
Policy 3.4. Provide all residents, workers, and visitors with affordable, efficient, convenient, and attractive transit services.	<p><u>Consistent with Mitigation.</u> The Zoo is a major regional destination drawing visitors and employees from throughout the Los Angeles region and greater Southern California area. Currently, most trips are made by personal vehicle and nearly all employee trips are made via single-occupant vehicles. Survey data collected for this analysis indicates that most employees (85 percent) drive to the Zoo, most commonly as single-occupant vehicles. Further, most visitors (95 percent) drive passenger vehicles and do not have ready access to transit, bicycle, or pedestrian facilities that allow reasonable transportation to the Zoo. The proposed Phase 1 road realignment would allow the Zoo’s southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the North Hollywood High School Zoo Magnet Center, Autry Museum, and the proposed park north of the proposed parking structure (Phase 7).</p>
Policy 3.5. Support “first-mile, last-mile solutions” such as multi-modal transportation services, organizations, and activities in the areas around transit stations and major bus stops (transit stops) to maximize multi-modal connectivity and access for transit riders.	
Policy 3.7. Improve transit access and service to major regional destinations, job centers, and inter-modal facilities.	
Policy 3.8. Provide bicyclists with convenient, secure, and well-maintained bicycle parking facilities.	<p>However, the Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. Increased visitation would drive transportation impacts related to increased VMT and existing transit services would not adequately serve increased demand from employees and visitors due to lack of regional connections, diversity of transit services, and efficiency of transit. While the Zoo is not a transit provider and does not have responsibility provision of transit services, the Zoo is served by Metro Bus Line 96 and the Park Line and works collaboratively with these agencies to ensure affordable, efficient, convenient, and attractive transit services. The Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo for employees and visitors. Under the Project, visitors and employees would continue to mainly use passenger vehicles to travel to and from the Zoo, which presents a barrier to mobility and accessibility in the region. Lack of regional transit access and pedestrian/bicycle facilities at the Zoo reduces the productivity of the transportation system to serve Zoo visitors and employees using non-vehicular modes. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, including transit options to increase non-vehicular access to the Zoo. These measures would increase ridesharing, transit use, parking management, and trip reduction strategies, which would be consistent with these City policies. Refer also to Section 3.15, <i>Transportation</i>.</p> <p><u>Consistent.</u> The Zoo currently provides and would continue to provide bicycle parking at the Zoo Entry under the Vision Plan. Connections to the Los Angeles River bicycle path would remain under the Project to provide regional connectivity.</p>

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
<p>Policy 4.8. Encourage greater utilization of Transportation Demand Management (TDM) strategies to reduce dependence on single-occupancy vehicles.</p>	<p><u>Consistent.</u> The Zoo currently provides and would continue to utilize compressed work weeks and flexible work schedules. This is due to the unique hours of operation, schedules, and employee shifts that align with non-peak hours, thereby reducing traffic congestion. However, the ability to allow City employees to telecommute is at discretion of the Zoo General Manager. In general, there are very few jobs where telecommuting makes sense, since the Zoo requires onsite tasks, but for some (e.g., administrative positions, marketing staff) alternative work schedules, such as the 9/80 or 4/10 schedule, would be available. In addition, the Zoo currently provides and would continue to provide bicycle parking at the Zoo Entry. The proposed Phase 1 road realignment would also allow the Zoo's southbound bus stop to be moved to Western Heritage Way between the Zoo and Autry Museum of the American West, improving the efficiency of public transportation access to the Zoo, the North Hollywood High School Zoo Magnet Center, and Autry Museum. However, increased visitation and employment would drive transportation impacts related to increased VMT. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, including transit options to increase non-vehicular access to the Zoo. These measures would increase ridesharing, transit use, parking management, and trip reduction strategies, which would be consistent with these City policies. Refer also to Section 3.15, <i>Transportation</i>.</p>
<p>Policy 5.2. Support ways to reduce vehicle miles traveled (VMT) per capita.</p>	<p><u>Consistent.</u> The Project would result in a net increase in daily VMT that would range from roughly 80,000 during the mid-week to 158,000 new daily weekend VMTs by 2040. Total VMT associated with development of Vision Plan Phases 1-3 would increase 65 percent over the existing baseline by 2030, and 78 percent by 2040. The Project does not include multi-modal improvements or expansion of active transportation facilities to ensure accessibility to the Zoo. Under the Project, visitors and employees would continue to mainly use passenger vehicles to travel to and from the Zoo, which presents a barrier to mobility and accessibility in the region. Lack of regional transit access and pedestrian/bicycle facilities at the Zoo reduces the productivity of the transportation system to serve Zoo visitors and employees using non-vehicular modes. MM T-2 would be required to reduce Project-related employee and visitor VMT. These measures would require the Zoo to implement or expand alternative transportation modes to the Zoo to reduce trips, VMT, and congestion, including transit options to increase non-vehicular access to the Zoo. These measures would increase ridesharing, transit use, parking management, and trip reduction strategies, which would be consistent with these City policies. Refer also to Section 3.15, <i>Transportation</i>.</p>
<p>Policy 5.4. Continue to encourage the adoption of low and zero emission fuel sources, new mobility technologies, and supporting infrastructure.</p>	<p><u>Consistent.</u> Consistent with LAMC Section 99.05.106.5.3.3, the Project would provide at least 20 percent of the total number of parking spaces as electric vehicle spaces. In addition, as described in Section 2.3.3, <i>Vision Plan Guiding Principles</i>, a minimum to two stations shall be provided for each designated parking area of Zoo vehicles. See Section 3.15, <i>Transportation</i>.</p>
<p>Hollywood Community Plan</p>	

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
Other Public Services	
Policy 2. That new equipment for public facilities be energy efficient.	<u>Consistent.</u> As discussed in Section 3.5, <i>Energy</i> , the Vision Plan proposes use of LEED Silver construction techniques, solar photovoltaic panels, and electronic communications lines to automatically control utilities and environmental conditions to reduce power demand.
Sustainable City pLAN and L.A.'s Green New Deal	
Reduce potable water use per capita by 22.5 percent by 2025; 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.	<u>Consistent.</u> Implementation of the proposed Project would incorporate a stormwater capture and treatment system to reduce the Project's future potable water demand increase by approximately 33 percent. Additional water conservation strategies would include plumbing connections and fixtures and appliances to comply with the provisions of the Los Angeles Green Building Code related to water flow controls. The proposed Project would be consistent with per-capita water potable water reductions.
Increase stormwater capture to 75,000 acre-feet per year.	<u>Consistent.</u> The proposed underground stormwater management system would capture, treat, and store stormwater runoff for infiltration and reuse onsite. The use of these storage tanks would retain and reuse 100 percent of all rainfall generated in a 2-year, 24-hour storm event on the Zoo's site and is projected to provide the Zoo with 107 acre-feet of useable water per year. In addition, MM UT-1 would require the Zoo implement recycled water for additional uses, including washdown of animal holding areas, powerwashing walkways, flushing toilets, in the Zoo's exhibits (e.g., treatment systems, ponds), and for fire suppression where feasible. Refer to Section 3.16, <i>Utilities</i> . The increased use of recycled water as part of the Project and as part of required mitigation would be consistent with City objectives of increasing recycled water use.
Increase non-potable reuse of recycled water by an additional 6,000 acre-feet per year by 2025; and an additional 8,000 acre-feet per year by 2035.	<u>Consistent.</u> The proposed underground stormwater management system would capture, treat, and store stormwater runoff for infiltration and reuse onsite. The use of these storage tanks would retain and reuse 100 percent of all rainfall generated in a 2-year, 24-hour storm event on the Zoo's site and is projected to provide the Zoo with 107 acre-feet of useable water per year. In addition, MM UT-1 would require the Zoo implement recycled water for additional uses, including washdown of animal holding areas, powerwashing walkways, flushing toilets, in the Zoo's exhibits (e.g., treatment systems, ponds), and for fire suppression where feasible. Refer to Section 3.16, <i>Utilities</i> . The increased use of recycled water as part of the Project and as part of required mitigation would be consistent with City objectives of increasing recycled water use.
All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.	<u>Consistent.</u> All new buildings constructed in the long-term improvements of the Vision Plan would achieve LEED Silver standards, or equivalent, and comply with the net-zero carbon standards promulgated by the LA Green New Deal.
Reduce VMT per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.	<u>Consistent.</u> Implementation of the proposed Project would not affect per-capita VMT associated with operation of the Zoo (see Section 3.15, <i>Transportation</i>). Through coordination with LA Metro and RAP, Zoo administrators will explore options to reduce trips and VMT to the greatest extent feasible. Furthermore, CARB projects that between 2019 and 2040 the aggregate regional average per-mile GHG emissions factor for passenger, light, and medium duty vehicles will decrease from 332.3 grams CO _{2e} to 216.5 grams CO _{2e} , a reduction of approximately 35 percent. The proposed Project would not conflict with achieving the VMT per capita targets and would be consistent.
Increase the percentage of electric and zero emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.	<u>Consistent.</u> Implementation of the proposed Project would not interfere with the desired expansion of the electric and zero emission vehicle fleet throughout the City. The Vision Plan would provide electric vehicle charging infrastructure to encourage the use of such vehicles.

Table 3.8-12. Vision Plan Consistency with City Emissions Reductions (Continued)

Objective or Strategy	Relationship to Project
<p>Increase landfill diversion rate to 90 percent by 2025; 95 percent by 2035 and 100 percent by 2050; Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 lbs. of waste generated per capita per day in 2011); Eliminate organic waste going to landfill by 2028.</p>	<p><u>Consistent.</u> The Project would incorporate effective waste management practices to comply with City municipal standards; Zoo staff would continue to collect and transport trash to Sunshine Canyon Landfill. The City’s Bureau of Sanitation would collect all recyclable materials from the Service Center. Animal bedding and waste from hooved stock and other herbivores would continue to be taken to the Griffith Park Composting Facility. Donations to World Harvest Food Bank continually exceed facility food consumption.</p>
<p>Plant and maintain at least 90,000 trees citywide.</p>	<p><u>Consistent.</u> The Project would require substantial tree removal as part of proposed improvements; however, important streets (i.e., important trees, mature trees) would be protected in place. Trees that are removed through the Project would be replanted and expanded by the proposed landscaping of trees and vegetation representative of the theme of the proposed improvement area. Impacts to resulting from the removal of protected trees would be mitigated through implementation of MM UF-1 and MM UF-2 requiring substantial native tree replacement on- or offsite, as well as substantial replanting of disturbed areas to maintain an urban tree canopy at the Zoo. Though hundreds of trees could be removed as part of the Project, even more trees are expected to be planted as a result of required mitigation or proposed landscaping. Refer also to Section 3.3, <i>Biological Resources</i> and Section 3.6, <i>Urban Forestry Resources</i>.</p>

The analysis of consistency for the proposed Project in the context of local City regulations which are most applicable to regulating or reducing GHG emissions and effects on the global climate is presented in Table 3.8-12. The consistency analysis presented therein is focused on objectives and strategies directly applicable to GHG emissions and associated impacts. Additional discussion of consistency of the Project with applicable elements of the City’s General Plan, Hollywood Community Plan, and the Griffith Park Vision Plan is analyzed in Section 3.11, *Land Use and Planning*. Additional discussion of consistency of the Project with applicable regulations as they relate to transportation and VMT is presented in Appendix N. Based on the below, the proposed Project would be consistent with the City’s GHG reduction goals and policies established in the General Plan, Sustainability pLAN, and the Green New Deal with implementation of required mitigation. Therefore, the Project would be consistent with applicable local plans, policies, and regulations and impacts would be *less than significant with mitigation*.

The Project would not interfere with any statewide or regional initiatives to reduce GHG emission associated with the energy production sector, and would contribute to the expansion

of renewable energy infrastructure by installing 70,000 square feet of rooftop solar panels, in addition to the separate LADWP project that would provide up to 163,000 square feet of solar panel coverage. Additionally, implementation of the proposed Project would enhance transportation sustainability by providing a more efficient internal circulation network for patrons, employees, and vendors, providing high efficacy outdoor lighting throughout the Zoo property and in the parking lots and parking structure, and improving pedestrian and bicyclist safety and public transit accessibility along Western Heritage Way by roadway reconfigurations and signaling the intersection of Zoo Drive and Western Heritage Way. As described above, the Zoo will evaluate numerous potential TDM strategies, as well as coordinate with LA Metro and RAP to explore future connections to additional transit nodes. Therefore, the Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and this impact would be *less than significant*.

3.8.5 Mitigation Measures

The following mitigation measures, though not directly required to reduce impacts associated with GHG emissions, would result in reductions in overall GHG emissions generated by the Project and/or consistency with applicable plans, policies, and regulations adopted with the intent of reducing GHG emissions.

MM UF-1 and **MM UF-2** would apply.

MM HYD-2 would apply.

MM T-2 would apply.

MM UT-1 would apply.

3.8.6 Impacts Summary

The Project would not generate GHG emissions in excess of applicable numerical thresholds, and the Project would be consistent with state, regional, and local policies addressing GHG emissions; therefore, impacts to GHG emissions would be *less than significant*. Implementation of the mitigation measures identified above, though not required to reduce the significance of Project GHG emissions, would further reduce GHG emissions generated by the Project. Therefore, significant unavoidable adverse impacts to GHG emissions would not occur.