3.7 GREENHOUSE GAS EMISSIONS

INTRODUCTION

This section discusses the global, national, statewide, and City of Moorpark conditions related to greenhouse gases (GHG) and global climate change. This section also provides a discussion of the applicable federal, state, regional, and local agencies that regulate, monitor, and control GHG emission, and potential GHG impacts from implementation of the Plan. Calculations made to estimate GHG emissions associated with the Plan and supporting technical data are found in ***Appendix 3.7-A*** *of this environmental impact report (EIR).*

3.7.1 EXISTING CONDITIONS

3.7.1.1 Global Climate Change

Greenhouse Effect, Global Warming, and Climate Change

Most of the energy that affects the Earth's climate comes from the sun. Some solar radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected by the atmosphere back toward space. As the Earth absorbs high frequency solar radiation, its surface gains heat and then re-radiates lower frequency infrared radiation back into the atmosphere.[1]

Most solar radiation passes through gases in the atmosphere classified as GHGs; however, infrared radiation is selectively absorbed by GHGs. GHGs in the atmosphere play a critical role in maintaining the balance between the Earth's absorbed and radiated energy, the Earth's radiation budget[2], by trapping some of the infrared radiation emitted from the Earth's surface that otherwise would have escaped to space (see **Figure 3.7-1, The Greenhouse Gas Effect**). Radiative forcing is the difference between the incoming energy and outgoing energy.[3] Specifically, GHGs affect the radiative forcing of the atmosphere,[4] which in turn affects the Earth's average surface temperature. This phenomenon, *the greenhouse effect*, keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows successful habitation by humans and other forms of life.

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1 Frequencies at which bodies emit radiation are proportional to temperature. The Earth has a much lower temperature than the sun and emits radiation at a lower frequency (longer wavelength) than the high frequency (short-wavelength) solar radiation emitted by the sun.

2 This includes all gains of incoming energy and all losses of outgoing energy; the planet is always striving to be in equilibrium.

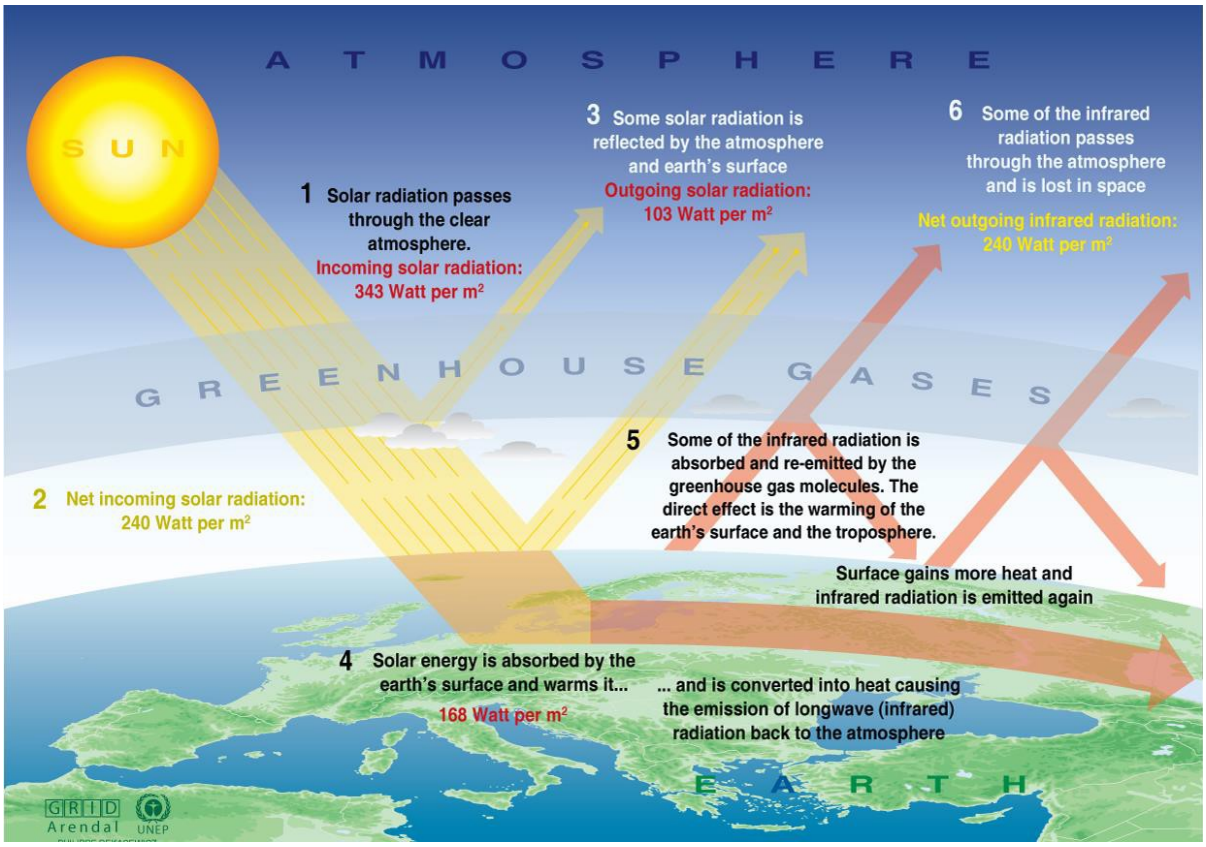
3 Positive forcing tends to warm the surface while negative forcing tends to cool it.

4 This is the change in net irradiance at the tropopause after allowing stratospheric temperatures to readjust to radiative equilibrium, but with surface and tropospheric temperatures and state held fixed at the unperturbed values.

Combustion of fossil fuels and deforestation release carbon into the atmosphere that historically has been stored underground in sediments or in surface vegetation, thereby exchanging carbon from the geosphere and biosphere to the atmosphere in the carbon cycle. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19th century, concentrations of GHGs in the atmosphere have increased exponentially. Such emissions of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect has contributed to *global warming*, an increased rate of warming of the Earth's average surface temperature.[5] Specifically, increases in GHGs lead to increased absorption of infrared radiation by the Earth's atmosphere and warm the lower atmosphere further, thereby increasing temperatures and evaporation rates near the surface.

5 This condition results when the Earth has to work harder to maintain its radiation budget, because when more GHGs are present in the atmosphere, the Earth must force emissions of additional infrared radiation out into the atmosphere.

Figure 3.7-1 The Greenhouse Gas Effect



Source: United Nations Environmental Program/GRID-Arendal. 2005. Greenhouse Effect. Available: https://www.grida.no/resources/6467. Accessed August 12, 2021.

Variations in natural phenomena such as volcanoes and solar activity produced most of the global temperature increase that occurred during preindustrial times. More recently, however, increasing atmospheric GHG concentrations resulting from human activity have been responsible for most of the observed global temperature increase.[6]

Warming affects global atmospheric circulation and temperatures; oceanic circulation and temperatures; wind and weather patterns; average sea level; ocean acidification; chemical reaction rates; precipitation rates, timing, and form; snowmelt timing and runoff flow; water supply; wildfire risks; and other phenomena, in ways collectively referred to as climate change. Climate change is the alteration in the average weather of the Earth that is measured by modifications in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

Temperature Predictions

The United Nations Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios. The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations." Warming of the climate system is now considered to be unequivocal, with the global surface temperature increasing about 1.33 degrees Fahrenheit (°F) over the last 100 years. The IPCC predicts increases in global average temperature of between 2°F and 11°F over the next 100 years.[7]

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6 These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

7 Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: Synthesis Report. Available: https://www.ipcc.ch/report/ar4/syr/. Accessed August 12, 2021.

Greenhouse Gases and Global Emission Sources

Gases that trap heat in the atmosphere are referred to as GHGs. Prominent GHGs that naturally occur in the Earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH4), oxides of nitrogen (NOX), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus release of human-made gases with high global warming potential (GWP) (ozone-depleting substances such as chlorofluorocarbons [CFCs]) and aerosols, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). The GHGs listed by the IPCC (CO_2, methane, nitrous oxide, HFCs, PFCs, and SF6) are discussed below, in order of abundance in the atmosphere. Water vapor, despite being the most abundant GHG, is not discussed below, because natural concentrations and fluctuations far outweigh anthropogenic influences, making it impossible to predict. Ozone is not included, because it does not directly affect radiative forcing. Ozone-depleting substances (chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons) are not included, because they have been replaced by HFCs and PFCs.

The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere and is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO_2. Individual GHG compounds have varying potential for contributing to global warming. For example, methane is 25 times as potent as CO_2, while SF6 is 22,200 times more potent than CO_2 on a molecule-per-molecule basis. To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method for comparing GHG emissions is the GWP methodology defined in the IPCC reference documents.[8] The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO_2e), which compares the gas in question to that of the same mass of CO_2 (by definition, CO_2 has a GWP of 1). The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. Thus, to describe how much global warming a given type and amount of GHG may cause, the CO_2e is used. A CO_2e is the mass emissions of an individual GHG multiplied by its global warming potential. As such, a high GWP represents high absorption of infrared radiation and a long atmospheric lifetime compared to CO_2. One must also select a time horizon to convert GHG emissions to equivalent CO_2 emissions to account for chemical reactivity and lifetime differences among various GHG species. The standard time horizon for climate change analysis is 100 years. Generally, GHG emissions are quantified in terms of metric tons (MT) CO_2e emitted per year.

8 Intergovernmental Panel on Climate Change (IPCC). 2014. Frequently Asked Questions. Available: https://www.ipcc-nggip.iges.or.jp/faq/FAQ.pdf. Accessed August 12, 2021.

The atmospheric residence time of a gas is equal to the total atmospheric abundance of the gas divided by its rate of removal.[9] The atmospheric residence time of a gas is, in effect, a half-life measurement of the length of time a gas is expected to persist in the atmosphere when accounting for removal mechanisms such as chemical transformation and deposition. Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt), referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and SF6 are referred to as high-GWP gases. CO_2 is by far the largest component of worldwide CO_2e emissions, followed by methane, nitrous oxide, and high-GWP gases, in order of decreasing contribution to CO_2e.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high-GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO_2 from the air and altering the Earth's albedo or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO_2 emissions associated with fossil fuel combustion are the primary contributors to human-induced climate change. Carbon dioxide, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change. GHGs of California concern are defined by California Assembly Bill (AB) 32 and include CO_2, CH_4, NOX, HFCs, PFCs, and SF_6. A seventh GHG, nitrogen trifluoride (NF3), was also added under the California Health and Safety Code Section 38505(g)(7) as a GHG of concern. These GHGs are described below in terms of their GWP, atmospheric residence lifetime, and sources.[10]

- **Carbon Dioxide (CO_2)**. Carbon dioxide is generated primarily by fossil fuel combustion from stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources over the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.[11] Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining

9 Seinfeld, J. H. and S.N. Pandis. 2006. Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, 2nd Edition. New York. John Wiley & Sons.

10 All GWPs are given as 100-year GWP. Unless noted otherwise, all GWPs were obtained from the Intergovernmental Panel on Climate Change. *Climate Change 1995: The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*. Cambridge (UK): Cambridge University Press, 1996.

11 US Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2006 (EPA 430-R-08-005)*, (2008) 1-3.

the GWP of other GHGs. Also, the atmospheric residence lifetime of carbon dioxide is 50 to 200 years. In 2004, 83.8 percent of California's GHG emissions were carbon dioxide.[12]

- **Methane (CH_4)**. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation.[13] Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21, and the atmospheric residence lifetime is 12.

- **Nitrous Oxide (N_2O)**. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310, and the atmospheric residence lifetime is 114 years.

- **Chloro-fluoro-carbons (CFCs)**. CFCs are used as refrigerants, aerosol propellants, and cleaning solvents. The GWP of CFCs range from 45 to 640 years, and the atmospheric residence lifetime ranges from 45 to 640 years.

- **Hydrofluorocarbons (HFCs)**. HFCs typically are used as refrigerants in both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, particularly as the continued phase-out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa, and the atmospheric residence lifetime ranges from 1 to 50,000 years.

- **Perfluorocarbons (PFCs)**. Perfluorocarbons are compounds consisting of carbon and fluorine. They primarily are created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[14] The GWPs of PFCs range from 5,700 to 11,900, and the atmospheric residence lifetime ranges from 10,000 to 50,000 years.

- **Sulfur Hexafluoride (SF_6)**. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and

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12 California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

13 US Environmental Protection Agency, "Methane: Sources and Emissions," http://www.epa.gov /methane/sources.html. n.d.

14 US Department of Energy, Energy Information Administration, "Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride," http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html. n.d.

distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 23,900, and an atmospheric residence lifetime of 3,200 years. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio, as compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).[15]

- **Nitrogen trifluoride (NF_3)**. Nitrogen trifluoride is used in electronic manufacture for semiconductors and liquid crystal displays. The GWP of NF_3 is 17,200, and the atmospheric residence lifetime is 740 years.

Global Climate Change Issue

Climate change is a global problem, because GHGs are global pollutants, unlike criteria air pollutants and hazardous air pollutants (i.e., toxic air contaminants) that are pollutants of regional and local concern. Pollutants with localized air quality effects have relatively short atmospheric lifetimes, approximately 1 day; by contrast, GHGs have long atmospheric lifetimes, several years to several thousand years. GHGs persist in the atmosphere for enough time to be dispersed around the globe.

Although the exact lifetime of particular GHG molecules depends on multiple variables and cannot be pinpointed, more CO_2 is currently emitted into the atmosphere than is sequestered. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively. These are two of the most common processes of CO_2 sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions is stored in the atmosphere.[16]

Similarly, effects of GHGs are borne globally, as opposed to the localized air quality effects of criteria air pollutants and hazardous air pollutants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known and cannot be quantified, and no single plan or project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climates or microclimate. However, emissions of GHGs have the potential to adversely affect the environment, because such emissions contribute, on a cumulative basis, to global climate change.

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15 US Environmental Protection Agency, "High GWP Gases and Climate Change," http://www.epa.gov/highgwp/scientific.html#sf6. n.d.

16 Seinfeld, J. H. and S.N. Pandis. 1998. Atmospheric Chemistry and Physics from Air Pollution to Climate Change. New York. John Wiley & Sons.

Existing Greenhouse Gas Emissions

Global GHG Emissions

Worldwide anthropogenic emissions of GHG were approximately 46,000 million metric tons (MMT, or gigatonne) of CO_2e in 2010. Carbon dioxide emissions from fossil fuel combustion and industrial processes contributed about 65 percent of total emissions in 2010. Of anthropogenic GHGs, CO_2 was the most abundant accounting for 76 percent of total 2010 emissions. Methane (CH_4) emissions accounted for 16 percent of the 2010 total, while nitrous oxide (N_2O) and fluorinated gases account for six and two percent, respectively.[17]

United States GHG Inventory

Total U.S. GHG emissions were 6,676.6 MMT CO_2e in 2018. Total U.S. emissions increased by 3.7 percent from 1990 to 2018. Overall, net emission increase by 3.1 percent from 2017 to 2018 and decreased 10.2 percent from 2005 to 2018. The decrease from 2005 to 2018 reflects long-term trends, including energy market trends, technological changes including energy efficiency, and energy fuel choices. Between 2017 and 2018, the increase in emissions was driven by an increase in CO_2 emissions from fossil fuel combustion, which was a result of increased energy use from greater heating and cooling needs due to a colder winter and hotter summer in 2018 compared to 2017. In 2018, the largest source of CO_2 and of overall emissions, was fossil fuel combustion, representing approximately 81.3 percent of U.S. GHG emissions (see **Figure 3.7-2, 2018 U.S. GHG Emissions by Gas**). Methane (CH_4) accounted for nearly 10 percent, nitrous oxide (N_2O) accounted for approximately 6.5 percent, and the remaining 2.7 percent of U.S. GHG emissions were hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).[18]

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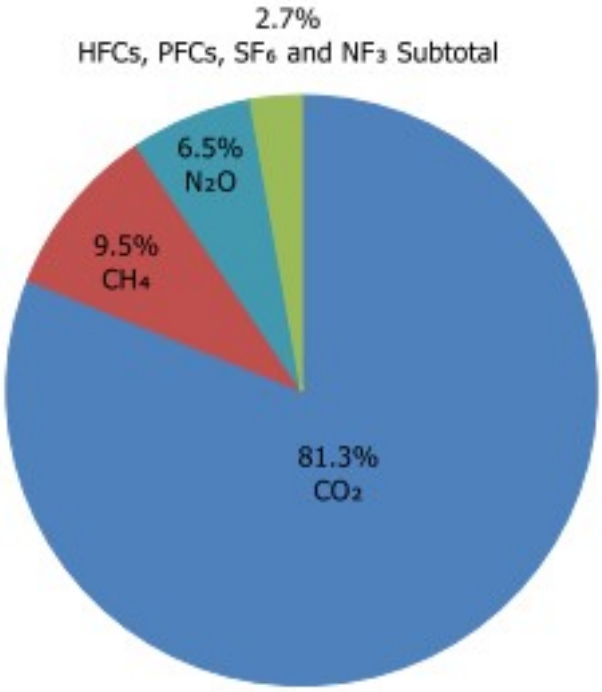
17 Intergovernmental Panel on Climate Change (IPCC). 2014. Summary for Policymakers. In: AR5 Climate Change 2014, Mitigation of Climate Change. Available: https://www.ipcc.ch/report/ar5/wg3/. Accessed August 12, 2021.

18 United States Environmental Protection Agency (US EPA). 2020. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018. Available: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf. August 12, 2021.

Figure 3.7-2 2018 U.S. GHG Emissions by Gas



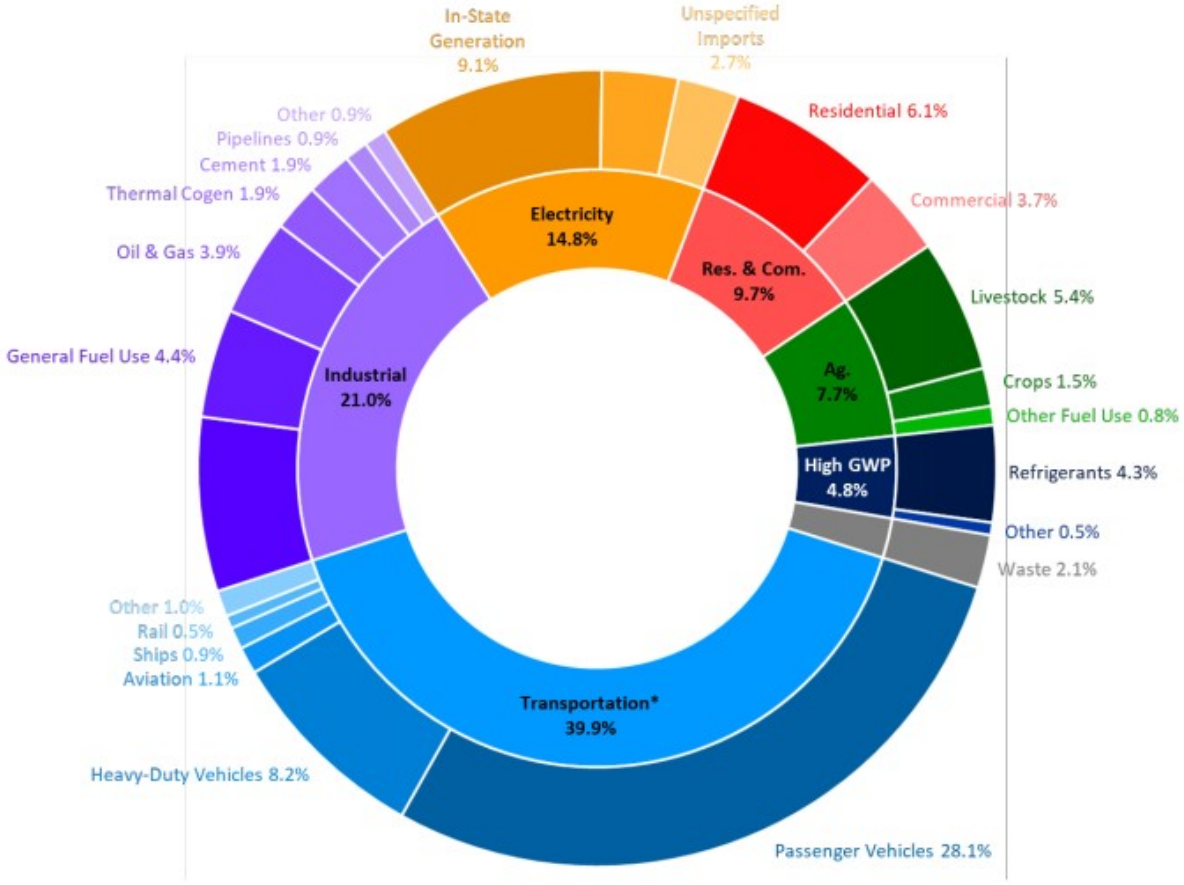
Source: USEPA, 2020. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018.

California GHG Inventory

According to the California Air Resources Board (CARB), total California GHG emissions were 425 MMT CO_2e in 2018 (see **Figure 3.7-3, 2018 California GHG Emissions by Scoping Plan Sectors and Sub-Sectors**). This was 0.8 $MMTCO_2e$ higher than 2017 levels. The major source of GHGs in California is associated with transportation, contributing nearly 40 percent of statewide GHG emissions in 2018. The industrial sector is the second largest source, contributing 21 percent of statewide GHG emissions, and the electricity sector accounted for approximately 15 percent.[19]

19 Source: CARB. 2020. California GHG Emissions for 2000 to 2018: Trends of Emissions and Other Indicators. Available: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2018/ghg_inventory_trends_00-18.pdf. Accessed August 12, 2021.

Figure 3.7-3 2018 California GHG Emissions by Scoping Plan Sectors and Sub-Sectors



Note: This figure breaks out 2018 California emissions by sector into an additional level of sub-sector categories. The inner ring shows the broad CARB Climate Change Scoping Plan sectors. The outer ring breaks out the sectors into sub-sectors or emission categories. The transportation sector represents tailpipe emissions from on-road vehicles and direct emissions from other off-road mobile sources; it does not include emissions from petroleum refineries and oil extraction and production, which are included in the industrial sector.

Source: CARB. 2020. California GHG Emissions for 2000 to 2018: Trends of Emissions and Other Indicators. Available: <https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2018/ghg_inventory_trends_00-18.pdf>. Accessed August 12, 2021.

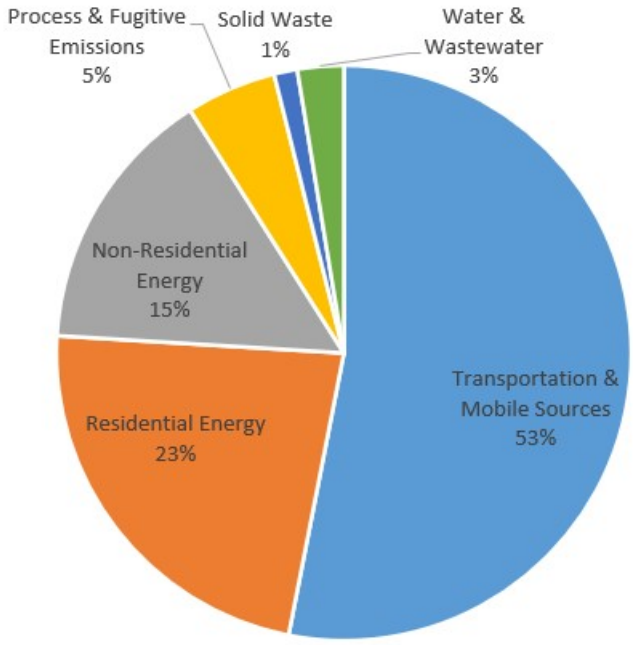
City of Moorpark GHG Inventory

The City of Moorpark 2010 community GHG emissions inventory follows the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol), Version 1.1, which was developed as a guide for local governments to accurately account for GHG emissions associated with the communities that they represent. Moorpark GHG emissions are categorized into the following emissions sectors:

- Transportation and Mobile Sources
- Residential Energy
- Nonresidential Energy
- Process and Fugitive Emissions
- Solid Waste
- Water and Wastewater

The 2010 Moorpark GHG inventory is shown in **Figure 3.7-4, City of Moorpark 2010 GHG Emissions Inventory**, and summarized in **Table 3.7-1, City of Moorpark 2010 GHG Emissions Inventory**.

Figure 3.7-4: City of Moorpark 2010 GHG Emissions Inventory



Source: Ventura County Regional Energy Alliance. 2021. Draft Moorpark Energy and Sustainability Planning Document.

Table 3.7-1
City of Moorpark 2010 GHG Emissions Inventory

Transportation & Mobile Sources	VCTC GAS 2010	83	0.07%
	VCTC DSL 2010	124	0.10%
	HDT DSL 2010	4,668	3.91%
	HDT GAS 2010	2,175	1.82%
	LM GAS 2010	111,544	93.36%
	LM DSL 2010	305	0.26%
	Amtrak Passenger Rail 2010	400	0.35%
	Metrolink Passenger Rail 2010	177	0.15%
	Total	**119,476**	
Residential Energy	Residential Electricity 2010	24,138	46.88%
	Residential Non-Utility Fuels - Wood	0	0.00%
	Multi-Family Natural Gas 2010	4,820	9.36%
	Residential Non-Utility Fuels - Bottled, Tank, or LP gas	276	0.54%
	Single Family Natural Gas 2010	22,251	43.22%
	Total	**51,485**	
Nonresidential Energy	Commercial Electricity 2010	27,666	81.68%
	Commercial Natural Gas 2010	6,205	18.32%
	Total	**33,871**	
Process & Fugitive Emissions	High GWP 2010	11,432	100.00%
	Total	**11,432**	
Solid Waste	Solid Waste with Methane Collection	2,948	100.00%
	Solid Waste No Methane Collection	0	0.00%
	Total	**2,948**	
Water & Wastewater	Electricity used to import water (Calleguas Water District)	5,841	99.88%
	Nitrification/Denitrification Process N_2O Emissions from Wastewater Treatment	7	0.12%
	Total	**5,848**	
	Grand Total	***225,060***	

Source: Ventura County Regional Energy Alliance. 2021. Draft Moorpark Energy and Sustainability Planning Document.

Total GHG emissions in the City were approximately 225,060 $MTCO_2e$ in 2010. Transportation/mobile sources and residential energy constituted the two largest sources of Moorpark 2010 GHG emissions at 53 percent and 23 percent, respectively.

Climate Change Trends and Effects

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than was observed during the 20th century. Long-term trends found that each of the past four decades was warmer than all the previous decades in the instrumental record. The observed global mean surface temperature for the decade from 2006 to 2015 was 0.87°C higher than the global mean surface temperature over the period from 1850 to 1900. Several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations agree that LSAT and sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades.[20,21]

California

According to California's Fourth Climate Change Assessment, statewide temperatures from 1986 to 2016 were approximately 1°F to 2°F higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include loss in water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years. While there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy.[22]

In California, climate change may result in consequences such as the following:

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.

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20 Intergovernmental Panel on Climate Change (IPCC). 2014. Summary for Policymakers. In: AR5 Climate Change 2014, Mitigation of Climate Change. Available: https://www.ipcc.ch/report/ar5/wg3/. Accessed August 12, 2021.

21 Intergovernmental Panel on Climate Change (IPCC). 2018. Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report. Available: https://www.ipcc.ch/sr15/. Accessed August 12, 2021.

22 California, State of. 2018. California's Fourth Climate Change Assessment Statewide Summary Report. Available: http://www.climateassessment.ca.gov/state/. Accessed August 12, 2021.

- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the forests, grasslands and chaparral ecosystems of Southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.

- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.

- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be more days with weather conducive to ozone relative to today's conditions. This increase in air quality problems could result in an increase in asthma and other health-related problems.

- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.

- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced nuisance insect population, and establishment of non-native species.

Greater Los Angeles Region (Including Ventura County)

In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state as well as regionally-specific climate change case studies, including for the greater Los Angeles region that includes

Ventura County where the proposed Plan is located. Below is a summary of some of the potential effects that could be experienced in California and the greater Los Angeles region because of climate change.[23]

In the greater Los Angeles region, climate change may impact the following aspects:

- **Air Quality.** In the Los Angeles region, changes in meteorological conditions under climate change will affect future air quality. Regional stagnation conditions may occur more often in the future, which would increase pollutant concentrations. Hotter future temperatures will act to increase surface ozone concentrations both due to chemistry producing more ozone and higher rates of biogenic emissions, while increases of water vapor also influence chemistry by increasing ozone production in already polluted areas.

- **Water Supply.** Like the rest of the state, the Los Angeles region is expected to face a challenging combination of decreased water supply and increased water demand. Greater interannual variability of rainfall and sharp decreases in snowpack will create surface water limitations for the region. Although the effect of climate change on average precipitation in the region is still unclear, more frequent occurrences of extreme events similar to the 2011-2016 drought could significantly decrease groundwater recharge, which is essential for the sustainability of agriculture in the region since the vast majority of water used in agriculture in the region is groundwater from local wells. Furthermore, higher temperatures mean that dry years will more quickly develop into severe drought conditions.

- **Hydrology and Sea Level Rise.** In the Los Angeles region, despite small changes in average precipitation, dry and wet extremes are both expected to increase. By the late 21st century, the wettest day of the year is expected to increase across most of the region. Increased frequency and severity of atmospheric river events are also projected to occur for this region.

- **Agriculture.** In the Los Angeles region, more frequent droughts could significantly decrease groundwater recharge and therefore impact agricultural operations that use groundwater from local wells. This and other climate effects can contribute to higher food prices and shortages. In addition, pest and disease issues with crops are anticipated to increase.

- **Ecosystems and Wildfire.** Many of the impacts identified above would impact ecosystems and wildlife in the Los Angeles region. Increases in wildfire would further remove sensitive habitat;

23 California, State of. 2018. California's Fourth Climate Change Assessment Los Angeles Region Report. Available: http://www.climateassessment.ca.gov/regions/docs/20180928-LosAngeles.pdf. Accessed August 12, 2021.

increased severity in droughts would potentially starve plants and animals of water; and sea level rise will affect sensitive coastal ecosystems.[24]

3.7.2 REGULATORY FRAMEWORK

3.7.2.1 International Regulations

Paris Climate Change Agreement

The Paris Climate Agreement is an international treaty on climate change adopted on December 12, 2015. The goal of the agreement is to limit global warming to 1.5 degrees Celsius as compared to pre-industrial levels. Countries will aim to reach global peaking of GHG emissions as soon as possible to achieve a climate neutral world by mid-century. In order to achieve these reductions, the Paris Climate Agreement works on a 5-year cycle of increasingly ambitious climate action carried out by countries. Therefore, by 2020, countries were required to submit their plans for climate action, known as nationally determined contributions. Additionally, the Agreement provides a framework for financial, technical and capacity building support to those countries who need it. Developed counties will take a lead in providing financial assistance to other countries since large scale investments are required for GHG mitigation and climate adaptation.[25]

The United States joined 190 other countries in the Paris Climate Agreement under the Obama administration in September 2016.[26] Under the Trump administration, the former President announced his intention to withdraw from the Agreement in June 2017 and formally notified the United Nations in November 2019. However, the Agreement requires a year-long waiting period before a formal withdrawal will be recognized. As a result, the United States officially withdrew the Agreement in November 2020.[27] However, on January 20, 2021, President Biden accepted and rejoined the Paris Climate Agreement.[28]

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24 California, State of. 2018. California's Fourth Climate Change Assessment Los Angeles Region Report. Available: http://www.climateassessment.ca.gov/regions/docs/20180928-LosAngeles.pdf. Accessed August 12, 2021.

25 United Nations. *The Paris Agreement*. Available online at https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement. Accessed July22, 2021.

26 The White House. *President Obama: The United States Formally Entered the Paris Agreement*. Available online at: https://obamawhitehouse.archives.gov/blog/2016/09/03/president-obama-united-states-formally-enters-paris-agreement. Accessed July22, 2021

27 NPR. *U.S. Officially Leaving Paris Climate Agreement*. Available online at: https://www.npr.org/2020/11/03/930312701/u-s-officially-leaving-paris-climate-agreement. Accessed July22, 2021

28 The White House. 2021. *Paris Climate Agreement*. Available online at: https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/. Accessed July22, 2021

3.7.2.2 Federal Regulations

Clean Air Act (Regulation of GHGs)

The United States Environmental Protection Agency (US EPA) issued an Endangerment Finding under Section 202(a) of the Clean Air Act (CAA), opening the door to federal regulation of GHGs. The Endangerment Finding notes that GHGs threaten public health and welfare and are subject to regulation under the CAA. To date, the US EPA has not promulgated regulations on GHG emissions, but it has already begun to develop them.

Federal Fuel Efficiency Standards (CAFE)

Under the CAA, corporate average fuel efficiency (CAFE) standards have been set for passenger cars and light trucks. California has traditionally had a waiver to set its own more stringent fuel efficiency standards. However, on August 2, 2018, the National Highway Traffic Safety Administration (NHTSA) and US EPA, operating under the direction of the Trump Administration, proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule). This rule addresses emissions and fuel economy standards for motor vehicles and is separated in two parts as described below.

- Part One, "One National Program" (84 FR 51310) revokes a waiver granted by US EPA to California under Section 209 of the CAA to enforce more stringent emission standards for motor vehicles than those required by US EPA for the explicit purpose of GHG reduction, and indirectly, criteria air pollutants and ozone precursor emission reduction. This revocation became effective on November 26, 2019, potentially restricting the ability of CARB to enforce more stringent GHG emission standards for new vehicles and set zero emission vehicle mandates in California.
- Part Two addresses CAFE standards for passenger cars and light trucks for model years 2021 to 2026. This rulemaking proposes new CAFE standards for model years 2022 through 2026 and would amend existing CAFE standards for model year 2021. The proposal would retain the model year 2020 standards (specifically, the footprint target curves for passenger cars and light trucks) through model year 2026. The proposal addressing CAFE standards was jointly developed by NHTSA and US EPA, with US EPA simultaneously proposing tailpipe CO_2 standards for the same vehicles covered by the same model years.

US EPA and NTHSA published final rules to amend and establish national CO_2 and fuel economy standards on April 30, 2020 (Part Two of the SAFE Vehicles Rule) (85 FR 24174). California and 22 other states are currently challenging this new rule in the court system, and it is reasonably foreseeable that

California will be successful in its legal challenges, for the reasons outlined in California's lawsuit[29] and on the CARB website. Furthermore, on January 20, 2021, President Biden signed an executive order directing the Government to revise fuel economy standards with the goal of further reducing emissions.[30] In February 2021 the Biden administration Department of Justice also asked courts to put the litigation on hold while the administration "reconsidered the policy decisions of a prior administration." Most Recently, on April 22, 2021 the Biden Administration formally proposed to roll back portions of the SAFE Rule, thereby restoring California's right to enforce more stringent fuel efficiency standards.[31]

It is, however, legally infeasible for individual agencies, in this case the City of Moorpark, to adopt more stringent fuel efficiency standards for commuter vehicles. The CAA (42 United States Code [USC] Section 7543[a]) states that "no state or any political subdivision therefore shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part." Therefore, Moorpark abides by federal and California transportation fuel efficiency standards related to commuter vehicles.

Construction Equipment Fuel Efficiency Standard

US EPA sets emission standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horsepower (hp) and were phased in by 2000. A new standard was adopted in 1998 that introduced Tier 1 for all equipment below 50 hp and established the Tier 2 and Tier 3 standards. The Tier 2 and Tier 3 standards were phased in by 2008 for all equipment. The current iteration of emissions standards for construction equipment are the Tier 4 efficiency requirements are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068 (originally adopted in 69 Federal Register 38958 [June 29, 2004], and most recently updated in 2014 [79 Federal Register 46356]). Emissions requirements for new off-road Tier 4 vehicles were to be completely phased in by the end of 2015.

U.S. Consolidated Appropriations Act (Mandatory GHG Reporting)

The Consolidated Appropriations Act, passed in December 2007, required the establishment of mandatory GHG reporting requirements. On September 22, 2009, the US EPA issued the Final Mandatory

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29 *State of California et al. v. Chao et al.* (Case 1:19-cv-02826) Available at: https://oag.ca.gov/system/files/attachments/press_releases/California%20v.%20Chao%20complaint%20%28000002%29.pdf. Accessed August 12, 2021.

30 The White House Briefing Room. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/. Accessed August 12, 2021.

31 U.S. News & World Report Biden to Restore California's Power to Set Pollution Rules | California News | US News, Accessed August 12, 2021.

Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S., and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the US EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to US EPA in 2011.

3.7.1.3 State Regulations

California Code of Regulations Title 24 (California Building Standards Code)

Updated every three years through a rigorous stakeholder process, Title 24 of the California Code of Regulations requires California homes and businesses to meet strong energy efficiency measures, thereby lowering their energy use. Title 24 contains numerous subparts, including Part 1 (Administrative Code), Part 2 (Building Code), Part 3 (Electrical Code), Part 4 (Mechanical Code), Part 5 (Plumbing Code), Part 6 (Energy Code), Part 8 (Historical Building Code), Part 9 (Fire Code), Part 10 (Existing Building Code), Part 11 (Green Building Standards Code), Part 12 (Referenced Standards Code). The California Building Code is applicable to all development in California. (Health and Safety Code §§ 17950 and 18938(b).)

The regulations receive input from members of industry, as well as the public, with the goal of "[r]educing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy." (Pub. Res. Code § 25402.) These regulations are carefully scrutinized and analyzed for technological and economic feasibility (Pub. Res. Code § 25402(d)) and cost effectiveness (Pub. Res. Code § 25402(b)(2) and (b)(3)).

PART 6 – BUILDING ENERGY EFFICIENCY STANDARDS

CCR Title 24 Part 6 is the Building Energy Efficiency Standards. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. The Building Energy Efficiency Standards is updated periodically to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New construction and major renovations must demonstrate their compliance with the current Building Energy Efficiency Standards through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission. Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards, and residential buildings will be seven percent more energy efficient. When accounting for the electricity generated by the solar photovoltaic (PV) system, residential buildings would use 53 percent less energy compared to buildings built to the 2016 standards.

The 2019 Building Energy Efficiency Standards, adopted on May 9, 2018, became effective on January 1, 2020. The 2019 Standards move toward cutting energy use in new residential units by more than 50 percent and will require installation of solar PV systems for single-family homes and multi-family buildings of three stories and less. The 2019 Standards focus on four key areas: 1) smart residential PV systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements. Under the 2019 Standards, non-residential buildings will be 30 percent more energy-efficient compared to the 2016 Standards, and single-family homes will be seven percent more energy efficient.

PART 11 – CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards Code, referred to as CALGreen, was added to CCR Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2019 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. It also includes voluntary tiers (I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

Mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;
- 50 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards; and
- Installation of EV charging stations at least three percent of the parking spaces for all new multi-family developments with 17 or more units.

Similar to the compliance reporting procedure for demonstrating Building Energy Efficiency Standards compliance in new buildings and major renovations, compliance with the CALGreen water-reduction requirements must be demonstrated through completion of water use reporting forms for new low-rise residential and non-residential buildings. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

Assembly Bill 1493 (Pavley Regulations and Fuel Efficiency Standards)

In response to the transportation sector's contribution of more than half of California's CO_2 emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 requires the California Air Resources Board (CARB) to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is noncommercial personal transportation. However, before these regulations go into effect, the US EPA must grant California a waiver under the federal CAA, which ordinarily preempts state regulation of motor vehicle emission standards. On June 30, 2009, the US EPA formally approved California's waiver request. However, in light of the September 15, 2009 announcement by the US EPA and NHTSA regarding the national program to reduce vehicle GHG emissions, California—and states adopting California emissions standards—have agreed to generally defer to the proposed national standard through model year 2016 if granted a waiver by the US EPA. The 2016 endpoint of the two standards is similar, although the national standard ramps up slightly more slowly than required under the California standard. The Pavley standards require additional reductions in CO_2 emissions beyond 2016 (referred to as Phase II standards). The Phase II standards are currently in development for the 2017-2025 model years.

Assembly Bill 32 (Global Warming Solutions Act and Scoping Plan)

California's major initiative for reducing GHG emissions is outlined in Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 million MTCO2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan Update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The 2013 Scoping Plan Update highlighted California's progress toward meeting the 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer-term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use.

Senate Bill 32 (Global Warming Solutions Act and Scoping Plan Extension)

Senate Bill (SB) 32 signed into law on September 8, 2016, tightens the requirements of AB 32 by requiring California to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies, such as SB 350 and SB 1383. The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with statewide per capita goals of 6 $MTCO_2e$ by 2030 and 2 $MTCO_2e$ by 2050. As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for individual projects because they include all emissions sectors in the state.

Executive Order B-55-18

On September 10, 2018, Governor Brown issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative GHG emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 32, SB 100, SB 375, and SB 1383.

Senate Bill 375 (Sustainable Communities and Climate Protection Act)

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. Southern California Association of Governments (SCAG) was assigned targets of an eight percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

Senate Bill 97 and CEQA Guidelines Update

SB 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Natural Resources Agency adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 100 (100 Percent Clean Energy Act)

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating California's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Senate Bill 1383 (Short Lived Climate Pollutants)

Adopted in September 2016, SB 1383 requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

Assembly Bill 341/Assembly Bill 1826 (Mandatory Recycling/Composting)

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows diversion away from landfills of 75 percent of all solid waste by 2020 and annually thereafter. AB 1826 requires recycling of organic waste (i.e., composting). All businesses and public entities that generate four or more cubic yards of solid waste per week and multi-family residential dwellings that have five or more units are required to recycle and compost.

Model Water Efficient Landscape Ordinance

The revised California Model Water Efficient Landscape Ordinance became effective on December 15, 2015. New development that includes landscaped areas of 500 square feet or more are subject to the following revised Ordinance requirements:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

3.7.1.4 Regional Regulations

Southern California Association of Governments (SCAG) RTP/SCS

The SCAG Regional Council formally adopted the Connect SoCal 2020–2045 RTP/SCS (Connect SoCal) on September 3, 2020. Rooted in the 2012 and 2016 RTP/SCS plans, Connect SoCal's "Core Vision" focuses on maintaining and enhancing management of the transportation network while also expanding mobility choices by creating hubs that connect housing, jobs, and transit accessibility. The "Core Vision" of Connect SoCal is organized into six key focus areas that expand upon progress made in the 2016-2040 RTP/SCS: Sustainable Development, System Preservation and Resilience, Demand & System Management, Transit Backbone, Complete Streets, and Goods Movement. Connect SoCal incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, further improving air quality and reducing GHG emissions, and encouraging growth in walkable, mixed-use communities with convenient access to transit infrastructure and employment. A new component of the Connect SoCal plan is the Regional Growth Forecast, which was developed to project expected population, households, and jobs at the jurisdictional level throughout the 191 cities and unincorporated SCAG areas through 2045. Strategies to guide integrated land use development decisions and transportation investments to achieve regional goals are provided in the Connect SoCal Growth Vision, which informed SCAG's Forecasted Development Pattern.

Each of the six key focus areas in Connect SoCal contains strategies to achieve the intended holistic objectives of the Connect SoCal Growth Vision. The Sustainable Development focus area is the portion of the planning document dedicated to the SCS, which is the most directly applicable element to GHG emissions. The SCS evaluated the following Priority Growth Areas (PGAs) that were selected and developed based on their ability to support potential mode shift and shortened trip distances:

- Transit Priority Areas (TPAs) are defined as an area within one-half mile of a major transit stop that is existing or planned. This includes an existing rail or bus rapid transit station, a ferry terminal served by bus or rail transit service, or the intersection of two or more major bus routes

with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.[32]

- High Quality Transit Areas (HQTAs) are generally walkable transit villages or corridors, consistent with the adopted RTP/SCS that are within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. Freeway transit corridors with no bus stops on the freeway alignment do not have a directly associated HQTA. A high-quality transit corridor (HQTC) is defined as a corridor with fixed route bus service containing intervals no longer than 15 minutes during peak commute hours.[33]

- Livable Corridors refer to an arterial network that is a subset of the HQTAs based on level of transit service and land use planning efforts.

- Neighborhood Mobility Areas (NMAs) are areas with high intersection density (generally 50 intersections per square mile or more), low to moderate traffic speeds and robust residential retail connections which can support the use of Neighborhood Electric Vehicles or active transportation for short trips.

- Job Centers are areas with significantly higher employment density than surrounding areas.

Connect SoCal devised a growth priority hierarchy in order to optimize opportunities for shorter trip distances and drivers to switch to electric vehicles, which directs growth towards the areas described above in the following order: TPAs, Livable Corridors, Job Centers, HQTAs, and NMAs. Development in these areas will be guided by the following Connect SoCal strategies to reduce GHG emissions: focusing growth near destinations and mobility options; promoting diverse housing choice; leveraging technology innovations; supporting implementation of sustainability policies; and promoting a green region. SCAG, in conjunction with CARB, determined that implementation of Connect SoCal would achieve regional GHG reductions relative to 2005 SCAG areawide levels of approximately eight percent in 2020 and approximately 19 percent by 2045.[34] The regional GHG emissions reductions achieved through the Connect SoCal Growth Vision are consistent with the regional targets set forth by CARB through SB 375.

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32 PRC Section 21099 (a)(7) and Section 21064.3.

33 PRC Section 21155(b).

34 SCAG, *Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy*, https://scag.ca.gov/connect-socal#:~:text=Connect%20SoCal%20%E2%80%93%20The%202020%2D2045,environmental%20and%20public%20health%20goals. July 21, 2021.

3.7.3 THRESHOLDS OF SIGNIFICANCE

3.7.3.1 CEQA Significance Criteria

In accordance with *CEQA Guidelines* (Appendix G), the following significance threshold criteria should be used to evaluate the potential GHG impacts of proposed projects. The project would have a significant GHG emissions impact if it would:

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

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

3.7.3.2 Methodology

GHG emissions result from both direct and indirect sources. Direct emissions include emissions from fuel combustion in vehicles and natural gas combustion from stationary sources. Indirect sources include off-site emissions occurring as a result of electricity and water consumption and solid waste. In addition, construction activities would result in direct and indirect emissions.

The criteria air pollution and GHG emissions impacts created by the Proposed Project have been analyzed through use of California Emissions Estimator Model (CalEEMod) Version 2020.4.0. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses Emission Factor (EMFAC), a model that estimates the official emissions inventories of on-road mobile sources in California. The EMFAC2017 computer program calculates the emission rates specific for the VCAPCD regions for construction worker, vendor and haul truck vehicle trips during construction and a variety of vehicle trip types during operation as well as the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. The project characteristics in the CalEEMod model were set to a project location of VCAPCD, a Climate Zone of 8, and a utility company of Southern California Edison. The plan's opening year was set to 2030 for the GHG emissions analysis to provide an accurate comparison with the locally-applicable, Plan-specific threshold discussed below that is based on California's year 2030 GHG emission reduction target under SB 32. The construction schedule was provided by the Project Applicant and includes the phased buildout outlined in **Table 2.0-3** in **Section 2.0, Project Description**. Construction equipment used for each phase was based on CalEEMod defaults. It was assumed Phase 1 would involve

approximately 3.9 million cubic yards of earth material movement and Phase 3 would involve approximately 1.5 million cubic yards of earth material movement; however, grading would be balanced on-site with no off-site export or import required. The CalEEMod default estimates for construction worker and vendor trips for the building construction and architectural coating phases as well as the default estimates for the square footage for exterior and interior architectural coating were adjusted to reflect the proportion of plan buildout anticipated for each construction sub-phase.[35] For Project operation, the default trip length values for residential land uses were adjusted to match the Project's estimated 33,585 daily VMT, or 12,258,525 annual VMT, which is based on the VMT analysis contained in **Section 3.15, Transportation**. The operational emissions modeling also included the assumption that the Project would comply with the 2019 California Building Standards Code (at a minimum), which includes the following requirements:

- In accordance with Section 150.1(b)14 of the 2019 Building Energy Efficiency Standards, all new residential uses three stories or less must install solar PV panels that generate an amount of electricity equal to expected electricity usage. Therefore, it was assumed that 100 percent of electricity usage for the approximately 193 low-rise multifamily residences and approximately 427 single-family residences would be supplied by solar PV panels.

- Development under the proposed Specific Plan would be subject to 2019 CALGreen, which requires a 20 percent increase in indoor water use efficiency and use of water-efficient irrigation systems. CalEEMod does not incorporate water use reductions achieved by CALGreen. Thus, in order to account for compliance with CALGreen, a 20 percent reduction in indoor water use and the use of water-efficient irrigation systems were included in the water consumption calculations for the proposed Specific Plan.

In addition, although not required by Title 24, the project would include a rooftop solar system sized at approximately 112 kilowatts for the proposed four-story building that would accommodate the approximately 135 affordable apartment units. In Ventura County, the energy production factor for solar PV systems is approximately 1,900 kilowatt hours per kilowatt of solar PV system (United States Department of Energy 2003). Therefore, approximately 212,800 kilowatt-hours of energy consumption for the proposed four-story building would be supplied by the rooftop solar energy system, which was accounted for in the CalEEMod modeling.

[35] By default, CalEEMod assumes full plan buildout during each building construction and architectural coating phase. Therefore, adjustments are necessary to account for the proposed phased buildout of the Specific Plan.

The GHG emissions modeling outputs for the proposed Plan also represent conservative emissions results, given that CalEEMod Version 2020.4.0 does not yet account for additional state-level GHG reductions anticipated with implementation of the following requirements:

- Senate Bill 100 (electricity providers to increase renewably sourced energy to 60 percent clean energy by 2030 and 100 percent clean energy by 2045)
- Senate Bill 1383 (40 percent reduction in methane, 40 percent reduction in hydroflourocarbons, and 50 percent reduction in black carbon compared to 2013 levels by 2030); and
- Assembly Bill 341 and Assembly Bill 1826 (recycling and composting to divert at least 75 percent of materials from being landfilled).

3.7.3.3 CEQA Thresholds of Significance

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change. However, physical changes caused by a plan or project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a plan or project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]). For determining the significance of GHGs, a GHG emissions efficiency plan threshold of 2.10 MT of CO_2e per resident per year was utilized for the Plan. The methodology used to determine this threshold is detailed in the following paragraphs below; this threshold is intended to be consistent with the state goal of reducing emissions to 40 percent below 1990 levels by 2030.

Accordingly, a 2030 GHG efficiency threshold can be calculated to represent the rate of emissions reduction necessary for the Plan to achieve a fair share of statewide GHG reductions necessary to meet post-2020 SB 32 targets.[36] With the release of the 2017 Climate Change Scoping Plan Update, CARB recognized the need to balance population growth with emissions reductions and in doing so, provided a new local plan level methodology for target setting that provides consistency with state GHG reduction

[36] The *Cleveland National Forest Foundation vs. San Diego Association of Governments* (2017) case established that a GHG reduction goal established by executive order does not have to be used as significance threshold for the purposes of CEQA because it is not a binding legal mandate and does not include an adopted plan that demonstrates a discrete pathway to achieving that goal. In light of that case ruling, this analysis does not use the carbon neutrality goal set forth by EO B-55-18 as a significance threshold. Rather, this analysis uses the GHG reduction targets established by SB 32, which is a legal mandate, and the 2017 Scoping Plan, which is an adopted plan that demonstrates a discrete pathway to achieving the GHG reduction targets of SB 32.

goals using per capita efficiency targets. These statewide per capita targets account for all emissions sectors in the state, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the 2045 statewide target under EO B-55-18. To determine whether the Plan would impede substantial progress toward achieving the emissions reduction targets established by SB 32 and EO B-55-18, this EIR establishes a 2030 GHG emissions target to meet GHG reductions consistent with SB 32 and on a trajectory to achieve the goals in EO B-55-18. The 2030 GHG emission target represents the emissions reductions necessary for the Plan to achieve a fair share of statewide GHG reductions necessary to meet the state's long-term targets. The following details how the Plan-specific GHG efficiency threshold was calculated.

For the proposed Specific Plan, a 2030 efficiency threshold was calculated based on the year 2030 GHG emission levels for Moorpark that would be consistent with the state's 2030 target. This locally appropriate, plan-specific quantitative threshold is derived, in part, from the City's baseline 2010 GHG emissions inventory in line with the CARB's recommendations in the 2008 Climate Change Scoping Plan and the 2017 Climate Change Scoping Plan Update. Consistent with the legal guidance provided in the Golden Door (2018) and Newhall Ranch (2015) decisions regarding the correlation between state and local conditions, the City's 2010 baseline GHG emissions inventory was used to calculate a locally-appropriate, evidence-based, plan-specific threshold consistent with the state's 2030 target. Accordingly, the threshold established for this EIR is a locally-applicable, plan-specific threshold, as opposed to a threshold for general use.

The County of Ventura completed a 2010 baseline GHG emissions inventory for Moorpark that calculated communitywide emissions of 225,060 MT of CO_2e per year. However, because the proposed Specific Plan consists primarily of residential land uses with ancillary recreational land uses, only those portions of the 2010 baseline GHG inventory associated with residential land uses are appropriate to use in developing a Plan-specific threshold. Therefore, the 2010 baseline inventory was adjusted to remove emissions associated with nonresidential energy usage and to proportionally allocate a share of the transportation and mobile source emissions, process and fugitive emissions, solid waste emissions, and water/wastewater emissions to residential land uses based on the 2010 service population (residents plus employees) of Moorpark. **Table 3.7-2**, **City of Moorpark Baseline Inventory – 2010 (Adjusted for Residential Land Uses)**, summarizes the 2010 baseline GHG emissions inventory and details how the inventory was adjusted to calculate the proportion of communitywide GHG emissions attributed to residential land uses. As shown therein, approximately 157,803 MT of CO_2e per year of the 2010 baseline inventory is attributed to residential land uses.

Table 3.7-2
City of Moorpark Baseline Inventory – 2010 (Adjusted for Residential Land Uses)

Source	2010 Total (MT of CO_2e)[1]	Per Service Person (MT of CO_2e)[2, 3]	Total Attributed to Residential Land Uses (MT of CO_2e)[4]
Transportation & Mobile Sources	119,476	2.64	90,902
Residential Energy	51,485	No Adjustment Needed – Residential Only	51,485
Nonresidential Energy	33,871	N/A	N/A
Process and Fugitive Emissions	11,432	0.25	8,698
Solid Waste	2,948	0.07	2,243
Water & Wastewater	5,848	0.13	4,475
Total Emissions	225,060		157,803

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] Source: County of Ventura 2021

[2] Based on a citywide 2010 service population for Moorpark of 34,421 residents (California Department of Finance 2021) and 10,820 jobs (Southern California Association of Governments 2019).

[3] Calculations assume emissions from each sector are distributed equally among each resident and employee in the city.

[4] Based on a citywide 2010 population of 34,421 residents for Moorpark (California Department of Finance 2021).

Source: City of Moorpark, and Rincon Consultants, Inc. August 2021.

The total 2010 baseline GHG emissions attributed to residential land uses were then used to calculate a plan-specific GHG emissions threshold for year 2030 based on the state's GHG emission reduction targets under Assembly Bill 32 and Senate Bill 32. Assembly Bill 32 set a statewide target of reducing GHG emissions to 1990 levels by 2020. Therefore, for the City of Moorpark to be consistent with Assembly Bill 32, annual GHG emissions levels from residential land uses would need to have been reduced by 15 percent below baseline 2010 levels by 2020 to approximately 134,133 MT of CO_2e per year.[37] In addition, the state set a statewide GHG emission reduction target of 40 percent below 1990 levels in Senate Bill 32. Therefore, annual GHG emissions levels from residential land uses would need to be reduced by 40 percent below 1990 levels to approximately 80,480 MT of CO_2e per year to be consistent with the state's 2030 target. The 2030 plan-specific residential efficiency threshold can thus be calculated by dividing the

37 A 2020 GHG emissions inventory has not been completed for Moorpark; therefore, it is not known if existing communitywide GHG emissions have sufficiently declined to achieve this level. However, whether existing communitywide GHG emissions have been reduced by 15 percent below baseline 2010 levels does not affect the calculation of the threshold of significance because the threshold is calculated using the baseline 2010 GHG emissions inventory and the State's targets, which remain the same regardless of the current state of communitywide GHG emissions.

total communitywide GHG emissions target for residential land uses by the communitywide residential population for year 2030. The City's 2030 residential population is forecast to be approximately 38,313 persons.[38] Therefore, the 2030 locally-appropriate, Plan-specific threshold would be 2.10 MT of CO_2e per resident per year (see **Table 3.7-3, Locally Applicable Project-Specific 2030 Efficiency Threshold**).

Table 3.7-3
Locally Applicable Project-Specific 2030 Efficiency Threshold

Target Year	Value
2010 Baseline Levels[1]	157,803 MT of CO_2e/year
2020 Target (AB 32)[2]	134,133 MT of CO_2e/year
2030 Target (SB 32)[3]	80,480 MT of CO_2e/year
2030 Residential Population[4]	38,313 persons
2030 Project-Specific Efficiency Threshold	**2.10 MT of CO_2e per resident per year**

Notes:

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] 2010 emission levels from project-applicable sectors (see Table 3.7-2)

[2] AB 32 sets a target of reducing GHG emissions to 1990 levels (i.e., 15 percent below 2010 levels) by 2020.

[3] SB 32 sets a target of reducing GHG emissions 40 percent below 1990 levels by 2030.

[4] The 2030 residential population was calculated using linear interpolation of the City's current (2021) population of 35,981 persons and the Southern California Association of Governments' forecast population of 42,200 persons for year 2045 (California Department of Finance 2021; Southern California Association of Governments 2021).

Source: City of Moorpark, and Rincon Consultants, Inc., August 2021.

The target identified by remaining on the trajectory to meet Executive Order B-55-18, adjusted to be specific for the Plan, is appropriate for Moorpark to use as the basis for determining an applicable significance threshold for the Plan. Based on the above, the Plan must meet the target of net GHG emissions of approximately 2.10 MT of CO_2e per resident population per year at full buildout in the year 2030. Emissions greater than 2.10 MT of CO_2e per resident population per year would conflict with substantial progress toward the long-term reduction targets identified by SB 32 and Executive Order B-55-18, and the project's cumulative contribution of long-term emissions would be considered significant.

[38] The 2030 residential population was calculated using linear interpolation of the City's current (2021) population of 35,981 persons and the Southern California Association of Governments' forecast population of 42,200 persons for year 2045 (California Department of Finance 2021; Southern California Association of Governments 2021).

3.7.4 ENVIRONMENTAL IMPACTS

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

Less Than Significant

Construction Emissions

The Proposed Project would generate GHG emissions during temporary, short-term construction activities such as demolition, site preparation and grading, running of construction equipment engines, movement of on-site heavy-duty construction vehicles, hauling of materials to and from the site, asphalt paving, and construction worker motor vehicle trips.

The construction activities required to facilitate buildout of the Proposed Project would include the use of heavy-duty construction equipment. The vast majority of construction equipment (*e.g.*, backhoes, cranes, rubber-tired loaders, scrapers, and haul trucks) relies on fossil fuels, primarily diesel, as an energy source. The combustion of fossil fuels in construction equipment results in GHG emissions of CO_2 and much smaller amounts of CH_4 and N_2O. Emissions of GHG would also result from the combustion of fossil fuels from haul trucks and vendor trucks delivering materials, and construction worker vehicles commuting, to and from the Project site. Typically, light-duty and medium-duty automobiles and trucks would be used for worker trips and heavy-duty trucks would be used for vendor trips. The vast majority of motor vehicles used for worker trips rely on gasoline as an energy source while motor vehicles used for vendor trips relies on diesel as an energy source. The combustion of gasoline in motor vehicles results in GHG emissions of CO_2 and smaller amounts of CH_4 and N_2O. The combustion of diesel in heavy-duty trucks results in GHG emissions of CO_2 and much smaller amounts of CH_4 and N_2O.

Construction GHG emissions would be short-term – that is, the emissions would occur only during active construction and would cease after the Proposed Project has been built out. The other primary GHGs (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) are typically associated with specific industrial sources and are not expected to be emitted during construction.

The construction-related emissions of GHG associated with construction equipment and activities were estimated using the CalEEMod model (the calculations are included in **Appendix 3.7-A** of this Draft EIR). Construction activity was modeled based on the construction schedule, equipment types, and activity levels described in **Section 3.2, Air Quality**.

As shown in **Table 3.7-4, Proposed Project Estimated Construction Greenhouse Gas Emissions**, the total GHG construction emissions over the approximately five-year construction duration of the Proposed Project would be approximately 3,277 MT CO_2e. As GHG emissions impact from construction activities would occur over a relatively short time span, it would contribute a relatively small portion of the lifetime of GHG emission impact of the Proposed Project. The total construction GHG emissions were divided by 30 to determine an annual construction emission rate estimate to be amortized over the project's first 30 years of operational life, consistent with SCAQMD's guidance.[39]

As presented in **Table 3.7-4, Proposed Project Estimated Construction Greenhouse Gas Emissions,** amortized over a 30-year period, consistent with CEQA analysis across the state, the Proposed Project is anticipated to emit approximately 109 MT CO_2e/year.

Table 3.7-4
Proposed Project Estimated Construction Greenhouse Gas Emissions

Construction Year	Emissions in Metric Tons CO_2e Per Year
2022	431
2023	643
2024	1,337
2025	465
2026	452
2027	149
Total Construction Emissions	3,277
30-Year Amortized Construction Emissions	109

Source: Rincon Consultants, Inc., December 2021.

Operational Emissions

Operational emissions are those that occur over the life of the Proposed Project. CalEEMod was also used to calculate the annual GHG emissions generated by the project during operation, including emissions from direct sources such as area and mobile sources and indirect source including electricity, waste, and water sources.

39 SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf, accessed November 20, 2019.

Area source emissions are based on the land use sizes, GHG emission factors for fuel combustion, and the global warming potential (GWP) values for the GHGs emitted. Electricity usage emissions are based on the land uses, default demand factors for the land use, GHG emission factors for the utility provider, and the GWP values of the GHGs emitted. Mobile-source GHG emissions are determined based on the Project's estimated annual VMT, which is based on the VMT analysis included in **Section 3.15, Transportation**. Waste and water emissions are derived from the anticipated water usage and wastewater generated based on the Project's proposed land uses and the associated water demand factors.

The GHG emissions associated with operation of the proposed Hitch Ranch project are presented below in **Table 3.7-5, Proposed Project Estimated Total Greenhouse Gas Emissions.** As shown in **Table 3.7-5**, the Hitch Ranch Specific Plan would emit approximately 5,067 MT CO_2e per year, or approximately 2.03 MT CO_2e per capita per year.

Table 3.7-5

Proposed Project Estimated Total Greenhouse Gas Emissions

Emissions Source	Emissions in Metric Tons CO_2e Per Year
Construction (Amortized)	109
Area	9
Energy	812
Mobile	3,569
Waste	346
Water	222
Total Operational GHG Emissions	**5,067**
Residential Population (persons)[1]	**2,492**
Per Capita GHG Emissions (MT CO_2e per year)	**2.03**
Locally-Applicable, Project-Specific Threshold (MT CO_2e per year)[2]	**2.10**
Threshold Exceeded?	**No**

[1] *See **Section 3.11, Population and Housing**.*
[2] For a discussion of how the threshold was determined, refer to Section 3.7.3.3, *CEQA Thresholds of Significance*.
Source: Rincon Consultants, Inc., December 2021.

As shown in **Table 3.7-5**, the Plan would achieve GHG reductions to reach less-than-significant levels (represented by equal to or less than 2.10 per capita $MTCO_2e$ per resident per year by 2030). The Plan would result in 2.03 per capita $MTCO_2e$ per resident per year through 2030. The Plan's conformance

within this threshold is primarily due to the Plan's requirement to comply with the 2019 Building Energy Efficiency Standards and 2019 CALGreen, requiring 100 percent of electricity usage for the proposed residential uses to be supplied by solar PV panels, a 20 percent reduction in indoor water use, and the use of water-efficient irrigation systems. As such, the Plan would also be in line with the state's 2030 and 2045 targets per SB 32 and EO B-55-8 respectively. Therefore, operational and total (construction plus operational) GHG emissions from buildout of the Plan would be less than significant, and no mitigation is required.

Impact GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas emissions.

Less Than Significant

Pursuant to Appendix G of the *CEQA Guidelines*, a significant GHG impact is identified if the project could conflict with applicable GHG reduction plans, policies, or regulations. Development projects would be subject to complying with SB 32, and the SCAG 2020 RTP/Sustainable Communities Strategy. SB 32 is a statewide reduction goal aimed at reducing emissions to 40 percent below 1990 levels by 2030. The CARB 2017 Scoping Plan Update sets a framework for the state to meet the reduction targets of SB 32. As discussed under Impact GHG-1, the Plan would be consistent with the state 2030 and 2045 GHG emissions targets per SB 32 and EO B-55-8, respectively.

Consistency with the CARB 2017 Scoping Plan Update

CARB issued the 2017 Scoping Plan Update in November 2017 that established GHG emissions reduction strategies necessary to meet the SB 32 2030 reduction goals.[40] **Table 3.7-6, Plan Consistency with CARB 2017 Scoping Plan Update GHG Emission Reduction Strategies** identifies the Scoping Plan policies that are applicable to the Proposed Project. As shown, Hitch Ranch project would be consistent with the Scoping Plan.

Table 3.7-6
Plan Consistency with CARB 2017 Scoping Plan Update GHG Emission Reduction Strategies

Measures	Project Consistency
Implement SB 350 by 2030:	Not Applicable. The measure is not related to development projects but intended for energy providers.
Increase the Renewables Portfolio Standard to 50 percent of retail sales by 2030 and grid reliability	

40 CARB. *California's 2017 Climate Change Scoping Plan*. Available online at: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, accessed February 20, 2020.

Measures	Project Consistency
Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	Not Applicable. This measure is directed towards policymakers, not development projects. However, the Plan is designed to meet CALGreen building standards by including measures designed to reduce energy consumption.
Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in the IRPs to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly-owned utilities meet GHG emissions planning targets through a combination of measures as described in IRPs.	Consistent. The Plan is designed to meet CALGreen building standards by including measures designed to reduce energy consumption.
Implement Mobile Source Strategy (Cleaner Technology and Fuels):	Consistent. The Plan would construct residential homes within a mile of the Moorpark Amtrak and the Moorpark Metrolink stations. Thus, this would reduce VMT traveled, promote alternatives to driving, and aim to reduce GHG emissions.
Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."	
By 2019, develop pricing policies to support low-GHG transportation (e.g. low-emission vehicle zones for heavy duty, road use, parking pricing, transit discounts).	Not Applicable. This measure is directed towards policymakers, not development projects. However, the Plan is located within one mile of the Moorpark Amtrak and Metrolink stations which would lead to a reduction in VMT.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	Not Applicable. This measure is directed towards CARB, CalRecycle, CDFA, SWRCB, and local air districts. However, the statewide policy goals of 75 percent of solid waste generated be source reduce, recycled, or composted by 2020 under AB 341. Since the Plan would be operational after this year, the Plan's waste collection service would be required to be compliant with this waste reduction.
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	Consistent. The Plan incorporates design features that would reduce GHG emissions from Plan-related energy, indoor water, and outdoor water use. Additionally, due to Plan area proximity to the Moorpark Metrolink and Amtrak stations, the Plan would reduce VMT and associated transportation emissions.

Source: Impact Sciences, 2020.
CARB. California's 2017 Climate Change Scoping Plan. Available online at: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, *accessed February 20, 2020.*

Based on this evaluation, this analysis finds that the Plan would be consistent with all feasible and applicable strategies recommended in the CARB 2017 Scoping Plan Update.

Consistency with SCAG Connect SoCal 2020-2045 RTP/SCS

At the regional level, the Connect SoCal Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) represent the region's Climate Action Plan that defines strategies for reducing GHGs. To assess the proposed Plan's potential to conflict with the RTP/SCS, this section analyzes the proposed Plan's land use profile for consistency with those in the RTP/SCS. Generally, proposed projects and plans are considered consistent with the provisions and general policies of applicable City and regional land use plans and regulations, such as SCAG's RTP/SCS, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals.[41]

Table 3.7-7, Proposed Plan Consistency with SCAG Connect SoCal GHG Emission Reduction Actions and Strategies, demonstrates the proposed Plan's consistency with the strategies set forth in the Connect SoCal Plan. The proposed Plan would also be consistent with the applicable strategies set forth in Connect SoCal's "A Path to Greater Access, Mobility, & Sustainability" chapter. Therefore, the proposed Plan would be consistent with the GHG emission reduction related actions and strategies contained in Connect SoCal.

Table 3.7-7
Plan Consistency with SCAG Connect SoCal Plan
GHG Emission Reduction Actions and Strategies

Actions and Strategies	Consistency Analysis
Focus Growth Near Destinations & Mobility Options	
Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations	**Consistent:** The proposed Plan would construct 755 residential units proximate to the Moorpark Amtrak and Metrolink stations which would lead to a reduction in VMT. The proposed Plan would include pedestrian, bicycle and equestrian trails that connect to the local and regional trail systems in the surrounding hills.
Focus on job/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets	**Consistent:** The proposed Plan would construct 755 new housing units proximate to the Moorpark Amtrak and Metrolink stations, and in close proximity to the Moorpark High Street business district.
Plan for growth near transit investments and support implementation of first/last mile strategies	**Consistent:** The proposed Plan would construct 755 new housing units proximate to the Moorpark Amtrak and Metrolink stations, and in close proximity to the Moorpark High Street business district.
Focus Growth Near Destinations & Mobility Options	

41 Southern California Association of Governments. 2020. *Connect SoCal*. Available online at: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176.

Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses	**Not Applicable:** The proposed Plan is currently undeveloped, so there is no opportunity for redevelopment.
Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods	**Consistent:** The proposed Plan would develop an undeveloped site, surrounded by other residential, institutional, and commercial development. The proposed Plan includes circulation upgrades that would benefit the surrounding residential communities, schools, and businesses.
Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations)	**Consistent:** The proposed Plan would construct 755 new housing units proximate to the Moorpark Amtrak and Metrolink stations, and in close proximity to the Moorpark High Street business district.
Promote Diverse Housing Choices	
Preserve and rehabilitate affordable housing and prevent displacement	**Consistent:** The proposed Plan would develop an undeveloped site and would not displace any affordable housing units. Instead, the proposed Plan would construct housing on the Proposed Project site, including 135 affordable residential units.
Identify opportunities for new workforce and affordable housing development	**Consistent:** The proposed Plan would develop 755 new housing units, in a range of housing opportunities with varying densities, types, styles, prices, and tenancy characteristics (for sale versus rental), including 135 affordable residential units.
Leverage Technology Innovations	
Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedications lanes, charging and parking/drop-off space	**Not Applicable:** This strategy is aimed at local government to promote shared bikes and scooters, electric vehicles, ride sharing and provide safe infrastructure such dedicated lanes, charging and parking/ drop-off space. The Proposed Project would not interfere with such policymaking.
Identify ways to incorporate "micro-power grids" in communities, for example solar energy, hydrogen fuel cell power storage and power generation	**Not Applicable:** This strategy is aimed at local government to identify ways to incorporate "micro-power grids." The Proposed Project would not interfere with such policymaking.
Support Implementation of Sustainability Policies	
Pursue funding opportunities to support local sustainable development implementation projects that reduce GHG emissions	**Not Applicable:** While this strategy calls on local governments to adopt policies for sustainable infrastructure and development projects, the Proposed Project would not interfere with such policymaking.
Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations	**Not Applicable:** While this strategy calls on the state to adopt policies to new construction near transit corridors and stations, the Proposed Project would not interfere with such policymaking and would construct a residential development in proximity to a major transit station.
Support cities in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects	**Not Applicable:** While this strategy calls on cities to establish tax incentive or other value capture tools to finance sustainable infrastructure, the Proposed Project would not interfere with such policymaking.
Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies	**Not Applicable:** While this strategy calls on SCAG to work with local jurisdictions to identify ways to implement sustainable strategies, the Proposed Project would not interfere with such policymaking.
Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region	**Not Applicable:** While this strategy calls on planning organizations to promote resources and best practices in SCAG, the Proposed Project would not interfere with such policymaking.

Continue to support long range planning efforts by local jurisdictions	**Not Applicable:** While this strategy calls on local jurisdictions to support long range planning, the Proposed Project would not interfere with such policymaking.
Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy	**Not Applicable:** While this strategy calls on local jurisdictions to provide educational opportunities on new tools and practices to promote the Sustainable Communities Strategy, the Proposed Project would not interfere with such policymaking.
Promote a Green Region	
Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards.	**Not Applicable:** While this strategy calls on local jurisdictions to support the development of local climate adaptation and hazard mitigation plans, the Proposed Project would not interfere with this goal.
Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration	**Not Applicable:** While this strategy calls on local governments to adopt policies for renewable energy production, the Proposed Project would not interfere with such policymaking.
Integrate local food production into the regional landscape	**Not Applicable:** While this strategy calls on local governments to integrate local food into the regional landscape, the Proposed Project would not interfere with such policymaking.
Promote more resource efficient development focused on conservation, recycling, and reclamation	**Consistent.** The proposed Plan would be required to adhere to the latest CALGreen Building Codes and Title 24, which would result in a more efficient Proposed Project site. Moreover, the Proposed Project site is proximate to a major transit station that would promote public transit and reduce vehicle trips to the site. The proposed Plan would focus on water and energy efficiency in design by constructing the site with a drought tolerant landscape, LED lighting, and ENERGY STAR appliances.
Preserve, enhance and restore regional wildlife connectivity	**Consistent:** The proposed Plan would be constructed on undeveloped land within the Moorpark community. As discussed in Section 3.3, Biological Resources, the Project site is almost entirely surrounded by various densities of development and is not expected to be used as a movement corridor by wildlife. However, the proposed Plan would maintain approximately 55 acres of natural open space and would restore native habitat removed by the project, which would benefit local wildlife.
Reduce consumption of resource areas, including agricultural land	**Consistent**. The proposed Plan would be located on undeveloped land. The loss of agriculture resources related to the Proposed Project is limited to Farmland of Local Importance and grazing lands, and does not include Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the loss of these resources is not considered a significant impact. Please refer to section 3.10, Land use for further discussion.
Identify ways to improve access to public park space	**Not Applicable.** While this strategy calls on local governments to improve access to public park space, the Proposed Project would not interfere with this goal. Further, the Proposed Project would provide two new public parks along the southern edge of the Project site.

Source: Impact Sciences, 2021.
SCAG. 2020. Connect SoCal – The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Chapter 3: A Path to Greater Access, Mobility, & Sustainability. Available online at: https://www.connectsocal.org/Documents/Draft/dConnectSoCal-03_Draft-Plan.pdf, *accessed October 19, 2020.*

As described above, the proposed Plan would implement a series of project design features, including installing ENERGY STAR appliances and LED lighting, that would reduce GHG emissions. As a result, the proposed Plan is consistent with the CARB 2017 Scoping Plan Update and SCAG Connect SoCal 2020 RTP/SCS. Furthermore, the proposed Plan would be developed consistent with California Code of Regulations Title 24 (both the 2019 CALGreen Building Code and the 2019 California Building Energy Efficiency Standards); this would reduce on-site operational GHG emissions from area and energy sources. For these reasons, the proposed Plan would not conflict with an applicable plan, policy, or regulations adopted for the purpose of reducing the emissions of greenhouse gas emissions. Impacts would be less than significant.

3.7.5 CUMULATIVE IMPACTS

The analysis of a project or plan's GHG emissions is inherently a cumulative impacts analysis, because climate change is a global problem. Accordingly, the analysis above took into account the potential for the Plan to contribute to the significant cumulative impact of global climate change. The analysis above illustrates that implementation of the Plan's design features in conjunction with state GHG reduction-related mandates would be in compliance with state goals for GHG emissions reduction and not significantly contribute to the global climate change problem.

The analysis also shows that the Plan is consistent with the CARB Climate Change Scoping Plan Update, particularly its emphasis on the identification of GHG emission reduction opportunities that promote economic growth while achieving greater energy efficiency and accelerating the transition to a low-carbon economy. In addition, the Plan is consistent with the Connect SoCal 2020 RTP/SCS' regulatory requirements to reduce regional GHG emissions from the land use and transportation sectors by 2040. For these reasons, the Plan's contribution to the cumulative global climate change impact is less than significant.

3.7.6 MITIGATION PROGRAM

3.7.6.1 Project Design Features

The proposed Plan would implement the following project design features to help reduce GHG emissions:

- Install high-efficiency irrigation systems.
- Install low flow water-efficient faucets, toilets, and showers.
- Install on-site photovoltaic (PV) panels capable of providing 100 percent of the on-site electricity demand for all residential buildings of three stories or less.

- Install an approximately 212-kilowatt rooftop solar PV system on each four-story residential building
- Install ENERGY STAR appliances.
- Install high-efficacy lighting and design lighting system.

3.7.6.2 Mitigation Measures

Impacts would be less than significant – no mitigation is required.

3.7.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts would be less than significant without mitigation.