4.4 Greenhouse Gas Emissions

This section identifies and analyzes the potential greenhouse gases (GHG) emissions associated with the proposed Project. As discussed in Section 3.0, Project Description, a major component of the proposed Project is to update emissions inventory, projections, targets, and GHG reduction strategies and measures per the City of Murrieta Draft Climate Action Plan (CAP) Update. As such, this section analyzes the GHG impacts of the Draft CAP Update. The information and analysis in this document are organized by a discussion of existing climate conditions, a summary of applicable regulations and a description of potential impacts of the proposed Project related to climate change. Refer to Appendix C, Revised Draft Technical Memo: Air Quality and Greenhouse Gas Impact Analysis, prepared by Ascent February 14, 2020, for the assumptions used in this analysis.

4.4.1 Regulatory Setting

Section 5.6.1 of the 2011 General Plan EIR described the regulatory framework for GHG emissions, many of which are still relevant in today's setting. However, since the certification of the 2011 General Plan EIR, there have been a number of changes or updates to regulations surrounding GHG emissions. These changes and/or updates are described below at the Federal, State and Local level:

FEDERAL

In October 2012, EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to further reduce GHG emissions and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 54.5 miles per gallon, limiting vehicle emissions to 163 grams of CO2 per mile for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630). However, on April 2, 2018, the EPA administrator announced a final determination that the current standards are not appropriate and should be revised. It is not yet known what revisions will be adopted or when they will be implemented (EPA 2018).

In 2015, EPA unveiled the Clean Power Plan. The purpose of the plan was to reduce carbon dioxide (CO2) emissions from electrical power generation by 32 percent relative to 2005 levels within 25 years. EPA is proposing to repeal the Clean Power Plan because of a change to the legal interpretation of Section 111(d) of the federal Clean Air Act, on which the Clean Power Plan was based. The comment period on the proposed repeal closed April 26, 2018.

In June 2019, the EPA, under authority of the Clean Air Act section 111(d), issued the Affordable Clean Energy (ACE) rule which provides guidance to states on establishing emissions performance standards for coal-fired electric generating units (EGUs). Under this rule, states are required to submit plans to the EPA which demonstrate the use of specifically listed retrofit technologies and operating practices to achieve carbon dioxide reduction though heat rate improvement (HRI). HRI is a measurement of power plant efficiency that EPA determined as part of this rulemaking to be the best system of emissions reduction for carbon dioxide generated from coal fired EGUs (EPA 2019).

STATE

Statewide GHG Emission Targets and the Climate Change Scoping Plan

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other state agencies also released the 2030 Draft Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal of Executive Order B-55-18. The Plan furthers the state's goals through improving the carbon sequestration potential of the state's natural and working lands through improved soil health and forest management strategies.

The state has also passed more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below.

Cap-and-Trade Program

CARB administers the state's cap-and-trade program, which covers GHG emission sources that emit more than 25,000 metric tons of CO2 equivalent per year (MTCO2e/year), such as refineries, power plants, and industrial facilities. This market-based approach to reducing GHG emissions provides economic incentives for achieving GHG emission reductions.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles. In addition, the program's zero-emission vehicle regulation requires battery, fuel cell, and plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2016b:15). By 2025, when the rules will

be fully implemented, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016 (CARB 2016c:1).

Executive Order B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million zero-emission vehicles on the road by 2030, as well as 200 hydrogen fueling stations and 250,000 electric vehicle–charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

Legislation Associated with Electricity Generation

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California utilities are required to generate 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011); 52 percent by 2027 (SB 100 of 2018); 60 percent by 2030 (also SB 100 of 2018); and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The current California Energy Code (2016) is scheduled to be replaced by the 2019 standards on January 1, 2020. The 2019 California Energy Code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. Additionally, new residential units will be required to include solar panels, sized to offset the estimated electrical requirements of each unit (CCR, Title 24, Part 6, Section 150.1[c]14). CEC estimates that the combination of required energy-efficiency features and mandatory solar panels in the 2019 California Energy Code will result in new residential buildings that use 53 percent less energy than those designed to meet the 2016 California Energy Code. CEC also estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 standards, primarily through the transition to high-efficiency lighting (CEC 2018).

LOCAL

City of Murrieta

The City of Murrieta prepared a CAP as part of the 2011 General Plan. In February 2020, the City of Murrieta released a proposed Draft CAP Update. The purpose of the Draft CAP Update is to:

- Address new State and regional goals since the adoption of the City's 2011 CAP;
- Provide an updated baseline year of 2016;

- Provide emissions forecasts for 2030, 2035, and 2050 with GHG emission targets for 2030 and 2035;
- Analyze the changes to land use designations in the proposed Project.

As previously discussed, the Draft CAP Update is analyzed at a programmatic level under this SEIR, compliant with CEQA Guidelines, Section 15183.5. Through adoption of this SEIR, future project-specific environmental documents to tier from and/or incorporate by reference the programmatic review of the proposed Project. In addition, adoption of this SEIR the Draft CAP Update will be considered a "Qualified" CAP, as it will have undergone required environmental review.

4.4.2 Environmental Setting

The project site lies within the southern portion of the South Coast Air Basin (Basin). The Basin is a 10,743-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The Basin's terrain and geographical location (i.e., a coastal plain with connecting broad valleys and low hills) determine its distinctive climate.

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

Physical Scientific Basis of Greenhouse Gas and Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are CO2, methane (CH4), nitrous oxide (N2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-generated emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropomorphic increase in GHG concentrations and other anthropomorphic forcing (IPCC 2014:5). This warming is observable considering the 20 hottest years ever recorded occurred within the past thirty years (McKibben 2018).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with perfect certainty, it is understood that more CO2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO2 emissions remain stored in the atmosphere (IPCC 2013:467).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES AND SINKS

As discussed previously, GHG emissions are attributable in large part to human activities. CO2 is the main byproduct of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, organic material decomposition in landfills, and the burning of forest fires (Black et al. 2017). Nitrous oxide emissions are largely attributable to agricultural practices and soil management. CO2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO2 through sequestration and dissolution (CO2 dissolving into the water); respectively, these are the two of the most common processes for removing CO2 from the atmosphere.

The total GHG inventory for California in 2016 was 429 million metric tons of CO2 equivalents (MMTCO2e) (California Air Resources Board [CARB] 2018a). This is less than the 2020 target of 431 MMTCO2e equal to the inventory for 1990 (CARB 2018b:1). Table 4.4-1 summarizes the statewide GHG inventory for California.

Table 4.4-1
Statewide GHG Emissions by Economic Sector

Sector	Percent
Transportation	41
Industrial	23
Electricity generation (in state)	10
Electricity generation (imports)	6
Agriculture	8
Residential	7
Commercial	5
Not specified	<1
Source: CARB 2018a	

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 1.5 degrees Celsius (°C) (2.7 degrees Fahrenheit [°F]) by 2040. This 1.5 warming represents a global average indicating that portions of the earth will experience more dramatic warming than others. The oceans, which support a high specific heat, will experience less dramatic warming as compared to continents, particularly in inland regions.

According to California's Fourth Climate Change Assessment, if global GHGs are reduced at a moderate rate, California will experience average daily high temperatures that are warmer than the historic average by 2.5 °F from 2006 to 2039, by 4.4 °F from 2040 to 2069, and by 5.6 °F from 2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7 °F from 2006 to 2039, by 5.8 °F from 2040 to 2069, and by 8.8 °F from 2070 to 2100 (Governor's Office of Planning and Research [OPR] 2019:23). The potential effects of this warming in California are well documented.

Since its previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012-2016, an almost non-existent Sierra Nevada winter snowpack in 2014-2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR 2019:56). According to CNRA's Safeguarding California Plan: 2018 Update, California experienced the driest 4-year statewide precipitation on record from

2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018:55). In contrast, the northern Sierra Nevada experienced its wettest year on record during the 2016—2017 water year (CNRA 2018:64). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires increases. In November 2018, the Camp Fire completely destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the State's deadliest fire in recorded history. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018 following the Thomas Fire, 0.5 inches of rain fell over just 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018:190–192).

Temperature increases and changes to historical precipitation patterns will likely affect ecologically productivity. Existing habitats may migrate from climatic changes where possible into new areas, and those that lack the ability to retreat will be severely threatened. Changes in climatic conditions dramatically endanger the survival of arthropods which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018:64, 116–117, 127; OPR 2019:63). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

Cal-Adapt is a climate change scenario planning tool developed by the California Energy Commission (CEC) that downscales global climate model data to local and regional resolution under two emissions scenarios. The Representative Concentration Pathway (RCP) 8.5 scenario represents a business-as-usual future emissions scenario, and the RCP 4.5 scenario represents a future with reduced GHG emissions. According

to Cal-Adapt, annual average maximum temperatures in the project area are projected to rise by 5.9°F to 10.9°F by 2099, with the low and high ends of the range reflecting the lower and higher emissions increase scenarios (CEC 2019). Annual average minimum temperatures are expected to rise within a similar range.

The project area experienced an annual average high temperature of 73.3°F between 1961 and 1990. Under the RCP 4.5 scenario, the county's annual average high temperature is projected to increase by 5.2°F to 78.5°F by 2050 and increase an additional 0.7°F to 79.2°F by 2099 (CEC 2019). Under the RCP 8.5 scenario, the county's annual average high temperature is projected to increase by 5.6°F to 78.9°F by 2050 and increase an additional 5.0°F to 83.9°F by 2099 (CEC 2019).

The project area experienced an average precipitation of 24.2 inches per year between 1961 and 1990. Under the RCP 4.5 scenario, the county is projected to experience an increase of 9.2 inches to 33.4 inches per year by 2050 and decrease to 25.6 inches per year by 2099 (CEC 2019). Under the RCP 8.5 scenario, the project area is projected to experience an increase of 14.5 inches to 28.7 inches per year by 2050 and decrease to 28.7 inches per year by 2099 (CEC 2019).

GHG EMISSIONS INVENTORY METHODOLOGY

In California, some counties, cities, and air districts have developed guidance and thresholds of significance for determining significance of GHG emissions that occur within their jurisdiction. The City of Murrieta is the CEQA Lead Agency for the proposed Project and is; therefore, responsible for determining whether an impact would be considered significant. This analysis relies on the proposed Project's consistency with State GHG reduction targets to assess impacts.

To set the stage for how California would meet targets set forth by Assembly Bill (AB) 32, Senate Bill (SB) 32, Executive Order (EO) B-30-15, and EO S-3-05, the emissions inventory and targets developed in the baseline inventory were compared to the State reduction targets. To avoid a cumulative impact on climate change, the Statewide GHG reduction targets are as follows:

- 1990 levels by 2020 (AB 32)
- 40 percent below 1990 levels by 2030 (SB 32 and EO B-30-15)
- 80 percent below 1990 levels by 2050 (EO B-30-15 and S-3-05)

The necessary data are not available to estimate the City's 1990 emission level. Therefore, a baseline year of 2016 has been designated because it is the year with the most available data. Proportional targets for the baseline inventory were developed to express the level of GHG emissions reductions that would be needed locally between 2016 and future target years to demonstrate consistency with statewide targets. Thus, in order to stay consistent with the State's targets and to account for the City's 2016 inventory, the City's percent-based GHG reduction targets are matched with the state-

level reduction targets relative to a 2016 baseline. According to the inventories available from CARB, Statewide emissions from all sectors were approximately 431 million MTCO2e (MMTCO2e) in 1990 and 429 MMTCO2e in 2016 (CARB 2018). Thus, 2016 Statewide emissions were 2 MMTCO2e (0.37 percent) less than the 1990 level and the State's 2020 GHG target. Consequently, no further reductions from 2016 emissions levels are needed to reach the 2020 target of returning emissions to 1990 levels. To be consistent with the General Plan Update building out year, a target was established based on interpolation of the 2030 and 2050 targets. To avoid a cumulative impact on climate change, the City's GHG reduction targets are as follows:

- 2020 target: no reductions required
- 2030 target: 40 percent below 2016 levels
- 2035 target: 50 percent below 2016 levels
- 2050 target: 80 percent below 2016 levels

4.4.3 Significance Threshold Criteria

Since the certification of the 2011 General Plan EIR, there have been no changes to the CEQA significance criteria for greenhouse gas emissions. Per the CEQA Guidelines Section 15064 and relevant portions of Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans, and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. In Appendix G of the State CEQA Guidelines, two questions are provided to help assess if the project would result in a potentially significant impact on climate change.

The issues presented in the Initial Study Environmental Checklist (Appendix G of the *CEQA Guidelines*) have been utilized as thresholds of significance in this Section. Accordingly, greenhouse gas impacts resulting from the implementation of the proposed Project may be considered significant if they would result in the following:

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

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

Based on these standards the proposed Project's effects have been categorized as either "no impact," a "less than significant impact," or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

4.4.4 Project Impacts and Mitigation Measures

GREENHOUSE GAS EMISSIONS

- **GREENHOUSE GAS EMISSIONS GENERATED BY DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT COULD HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.**

Level of Significance Before Mitigation: Potentially significant impact.

Impact Analysis:

As mentioned above in section 4.4.2, California has experienced several of the most extreme natural events in its recorded history since 2012, many of which are related to climate. At a state level, according to California's Fourth Climate Change Assessment, if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7 °F from 2006 to 2039, by 5.8 °F from 2040 to 2069, and by 8.8 °F from 2070 to 2100. Cal-Adapt is a climate change scenario planning tool developed by the California Energy Commission (CEC) that downscales global climate model data to local and regional resolution under two emissions scenarios. The Representative Concentration Pathway (RCP) 8.5 scenario represents a business-as-usual future emissions scenario, and the RCP 4.5 scenario represents a future with reduced GHG emissions. According to Cal-Adapt, annual average maximum temperatures in the project area are projected to rise by 5.9°F to 10.9°F by 2099, with the low and high ends of the range reflecting the lower and higher emissions increase scenarios (CEC 2019). Annual average minimum temperatures are expected to rise within a similar range.

The following climate change effects could potentially affect the City of Murrieta:

Natural Disasters

Climate change could result in increased flooding and weather-related disasters. As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system

Wildfires

Climate change could result in increased occurrences and duration of wildfire events due to warmer temperatures, longer dry seasons, reduced winter precipitation, and early snowmelt. The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires increases.

Ecological Productivity

Temperature increases and changes to historical precipitation patterns will likely affect ecologically productivity. Existing habitats may migrate from climatic changes where possible to new areas, and those that lack the ability to retreat will be severely threatened. Changes to climatic conditions dramatically endanger the survival of arthropods which could have cascading effects throughout ecosystems (Lister and Garcia 2018).

Public Health

As mentioned above, changes in climate could impact and endanger certain species and alter existing habitats. Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease. Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

While the potential effects of climate change discussed above are a concern for society at large, implementation of City policies and regional, State, and Federal regulations regarding health and safety would lessen potential impacts to the City of Murrieta.

Projected Greenhouse Gas Emissions

The City's proposed Draft CAP Update includes a variety of strategies, measures, and actions to reduce GHG emissions in accordance with State reduction goals. Additionally, the proposed Draft CAP Update provides a 2016 baseline GHG emissions inventory; and GHG emissions forecasts for years 2030, 2035 (General Plan Update horizon year) and 2050. Table 4.4-2 summarizes the updated baseline and forecast year emissions.

Table 4.4-2
City of Murrieta Emissions Forecasts (MT CO_2e/yr)

	2016	2030	2035	2050
BAU Forecast	900,280	963,647	1,133,343	1,573,729
Percentage Change from 2016		26%	36%	75%
ABAU Forecast	900,280	878,357	815,174	875,589
Percentage Change from 2016		-9%	-9%	-3%
State Reduction Target (percent change from 2016)		40%	50%	80%
City of Murrieta Target Emissions		536,836	447,363	178,945
City of Murrieta Emissions with CAP		535,711	443,266	333,142

Notes: ABAU = legislative-adjusted business-as-usual, BAU = business-as-usual, CO_2e = carbon dioxide equivalents, N/A = Not Available, MT = metric tons

1 Based on the State's GHG inventory in 1990 and 2016. (CARB 2018a)
2 Interpolated between 2030 and 2050

The GHG Emissions Forecasts, in Table 4.4-2 above, summarizes the forecasted GHG emissions under "business-as-usual" (BAU) and legislative-adjusted BAU scenarios (ABAU). A BAU scenario is one in which no action is taken by local, State or federal agencies to reduce GHG emissions. A legislative-adjusted scenario is one in which BAU conditions are adjusted to reflect policy or regulatory actions enacted by State or federal agencies, but without considering any local actions to reduce GHG emissions. As indicated in Table 4.4-2, after implementation of State, federal, and local actions, the forecasted years still do not meet City goals to reduce its impact on climate change.

The emissions generated by development associated with the implementation of the proposed Project are inconsistent with statewide goals and CARB's 2017 Scoping Plan, which is a potentially significant impact. Mitigation Measure GHG-1 would ensure the approved Draft CAP Update provide measures to meet statewide climate goals.

Mitigation Measures:

GHG-1 The approved Draft CAP Update and General Plan Update shall identify strategies, measures, and actions that would be implemented to reduce GHG emissions consistent with State legislative requirements. The approved Draft CAP Update and General Plan Update shall include the following components in order to be consistent with CEQA Guidelines Section 15183.5:

GHG-1.1 Prepare community baseline GHG emission inventories and analyze the potential growth of these emissions over time;

GHG-1.2 Establish communitywide GHG emission reduction targets for forecasted years 2030, 2035 (General Plan Update horizon year) and 2050 consistent with guidance provided in SB 32;

GHG-1.3 Identify and evaluate strategies, measures, and actions to reduce community GHG emissions to comply with the established community GHG reduction targets;

GHG-1.4 Establish a comprehensive approach to reduce community GHG emissions by incorporating technologically feasible GHG emission reduction measures;

GHG-1.5 Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

GHG-1.6 Provide a mechanism through which future projects may tier and streamline their analysis of GHG emissions pursuant to CEQA Guidelines Section 15183.5(b)(2); and

GHG-1.7 Be adopted in a public process following environmental review.

GHG-1.8 Upon adoption, the CAP will be monitored and progress for achieving targets will be reported on a regular basis as follows:

- Implementation Monitoring Report – prepared annually;
- Greenhouse Gas Emissions Inventory – updated every two years; and
- Climate Action Plan – updated every five years.

Level of Significance After Mitigation: The proposed Draft CAP Update and General Plan Update identifies strategies, measures, and actions that would be

implemented to reduce GHG emissions consistent with State legislative requirements, therefore with the implementation of the mitigation measures above, the GHG emissions generated by development associated with the implementation of the proposed Project would be less than significant.

4.4.5 Cumulative Impacts and Mitigation Measures

- **GREENHOUSE GAS EMISSIONS RESULTING FROM DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND CUMULATIVE DEVELOPMENT COULD IMPACT GREENHOUSE GAS EMISSIONS ON A CUMULATIVELY CONSIDERABLE BASIS.**

Level of Significance Before Analysis and Mitigation: Potentially significant impact.

Impact Analysis:

The issue of global climate change is inherently a cumulative issue, as the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the proposed Project's impact to climate change is addressed only as a cumulative impact. The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

As mentioned above, to avoid a cumulative impact on climate change, the City's GHG reduction targets are as follows:

- 2020 target: no reductions required
- 2030 target: 40 percent below 2016 levels
- 2035 target: 50 percent below 2016 levels
- 2050 target: 80 percent below 2016 levels

Per the emission forecast shown in Table 4.4-2 above, even after implementation of State, federal, and local actions, the forecasted years still do not meet City goals to reduce its impact on climate change. Therefore, the proposed Project's emissions are inconsistent with statewide goals and CARB's 2017 Scoping Plan, which is a potentially significant impact.

Mitigation Measures: Mitigation Measure GHG-1 as described above.

Level of Significance After Mitigation: The proposed Draft CAP Update identifies strategies, measures, and actions that would be implemented to reduce GHG emissions consistent with State legislative requirements. Therefore, with the implementation of the mitigation measures stated above and the adopted Draft CAP Update, GHG emissions generated by the proposed Project would be reduced to meet State GHG reduction targets. Therefore, after mitigation the level of significance would be less than significant.

4.4.6 Significant Unavoidable Impacts

As discussed in Section 4.4.4, GHG emissions impacts associated with implementation of the proposed Project would be less than significant by the adoption of the proposed Project. The Project as proposed identifies strategies, measures, and actions that could be implemented to reduce GHG emissions. With the adoption of the proposed Draft CAP Update and General Plan Update, no significant unavoidable GHG emissions impacts would occur as a result of buildout of the proposed Project.

4.4.7 Sources Cited

Ascent Environmental, *Draft Technical Memorandum: Air Quality and Greenhouse Gas Impact Analysis*, February 2020.

City of Murrieta, *City of Murrieta General Plan 2035,* July 2011.

City of Murrieta, *Environmental Impact Report,* July 2011.