



## 5.4 Greenhouse Gas Emissions

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## 5.4 GREENHOUSE GAS EMISSIONS

This section evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section. Information in this section is based on the air quality modeling data provided in [Appendix 13.4, \*Air Quality/Greenhouse Gas Data\*](#), for the proposed project.

### 5.4.1 EXISTING SETTING

The project site lies within the southern portion of the South Coast Air Basin (Basin). The Basin is a 6,600-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 Geronio 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 air pollution 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.

### SCOPE OF ANALYSIS FOR CLIMATE CHANGE

The study area for climate change and the analysis of greenhouse gas emissions is broad as climate change is influenced by world-wide emissions and their global effects. However, the study area is also limited by the CEQA Guidelines [Section 15064(d)], which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact which may be caused by the project.

The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities that have grown more than 70 percent between 1970 and 2004. The State of California is leading the nation in managing GHG emissions. Accordingly, the impact analysis for this project relies on guidelines, analyses, policy, and plans for reducing GHG emissions established by the California Air Resources Board (CARB). This analysis also cites and relies on local air quality management district recommendations from the South Coast Air Quality Management District (SCAQMD) for CEQA assessment of GHG emissions. The analysis is largely a cumulative impact assessment because GHG emissions contribute, by their nature on a cumulative basis, to the adverse environmental impacts of global climate change.



## GLOBAL CLIMATE CHANGE – GREENHOUSE GASES

The natural process through which heat is retained in the troposphere is called the “greenhouse effect.”<sup>1</sup> The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and GHGs in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This “trapping” of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO<sub>2</sub>). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long wave radiation.

GHGs include, but are not limited to, the following:<sup>2</sup>

- Water Vapor (H<sub>2</sub>O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.

The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.

- Carbon Dioxide (CO<sub>2</sub>). Carbon Dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO<sub>2</sub> in the atmosphere has increased 39 percent.<sup>3</sup> Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs.
- Methane (CH<sub>4</sub>). 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 (the digestive process in animals with a rumen, typically cattle, causing methane gas). 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.

<sup>1</sup> The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers.

<sup>2</sup> All Global Warming Potentials are given as 100-year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the IPCC. (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

<sup>3</sup> U.S. Environmental Protection Agency, *Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2010*, April 2012.



- 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 (for the industrial production of nylon), and nitric acid production (for rocket fuel, woodworking, and as a chemical reagent). The GWP of nitrous oxide is 310.
- Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants, aerosol propellants, solvents and fire retardants. The major emissions source of HFCs is from their use as refrigerants in air conditioning systems in both vehicles and buildings. HFCs were developed as a replacement for chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). The GWP of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.<sup>4</sup>
- Perfluorocarbons (PFCs). PFCs are compounds produced as a by-product of various industrial processes associated with aluminum production and the manufacturing of semiconductors. Like HFCs, PFCs generally have long atmospheric lifetimes and high Global Warming Potentials of approximately 6,500 and 9,200.<sup>5</sup>
- Sulfur hexafluoride ( $SF_6$ ).  $SF_6$  is used in magnesium processing and semiconductor manufacturing, electrical transmission equipment, including circuit breakers, as well as a tracer gas for leak detection.  $SF_6$  is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900.

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.<sup>6</sup>
- 1,1,1 trichloroethane. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The GWP of methyl chloroform is 110 times that of  $CO_2$ .<sup>7</sup>
- Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the U.S. Environmental Protection Agency's (EPA's) Final Rule (57 FR 3374) for the phase out of  $O_3$  depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for

<sup>4</sup> U.S. Environmental Protection Agency, *Greenhouse Gas Emissions*, June 14, 2012. <http://www.epa.gov/climatechange/ghgemissions/gases/fgases.html#Trends>, accessed on January 28, 2014.

<sup>5</sup> Ibid.

<sup>6</sup> U.S. Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, dated October 29, 2009. <http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html>, accessed on January 28, 2014.

<sup>7</sup> Ibid.



cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with GWPs ranging from 4,000 for CFC 11 to 14,000 for CFC 13.<sup>8</sup>

## 5.4.2 REGULATORY FRAMEWORK

### FEDERAL

The Federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The EPA actively participates in multilateral and bilateral activities by establishing partnerships and providing leadership and technical expertise. Multilaterally, the United States is a strong supporter of activities under the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC).

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In December 2007, Congress passed the first increase in corporate average fleet fuel economy (CAFE) standards. The new CAFE standards represent an increase to 35 miles per gallon (mpg) by 2020. In March 2009, the Obama Administration announced that for the 2011 model year, the standard for cars and light trucks will be 27.3 mpg, the standard for cars will be 30.2 mpg; and standard for trucks would be 24.1 mpg. Additionally, in May 2009 President Barack Obama announced plans for a national fuel-economy and GHG emissions standard that would significantly increase mileage requirements for cars and trucks by 2016. The new requirements represent an average standard of 39 mpg for cars and 30 mpg for trucks by 2016.

Currently, the EPA is moving forward with two key climate change regulatory proposals, one to establish a mandatory GHG reporting system. Under the FCAA, the EPA is now obligated to issue rules regulating global warming pollution from all major sources. In April 2009, the EPA concluded that GHGs are a danger to public health and welfare, establishing the basis for GHG regulation. However, as of the date of this study there are no Federal regulations or policies regarding GHG emissions applicable to the proposed project.

### STATE

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every

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<sup>8</sup> U.S. Environmental Protection Agency, *Class I Ozone Depleting Substances*, August 19, 2010. <http://www.epa.gov/ozone/ods.html>, accessed on January 28, 2014.



nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-1-07. Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Executive Order S-3-05. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various State agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-13-08. Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

Executive Order S-14-08. Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-20-04. Executive Order S-20-04, the California Green Building Initiative, (signed into law on December 14, 2004), establishes a goal of reducing energy use in State-owned buildings by 20 percent from a 2003 baseline by 2015. It also encourages the private commercial sector to set the same goal. The initiative places the California Energy Commission (CEC) in charge of developing a building efficiency benchmarking system, commissioning and retro-commissioning



(commissioning for existing commercial buildings) guidelines, and developing and refining building energy efficiency standards under Title 24 to meet this goal.

Executive Order S-21-09. Executive Order S-21-09, 33 percent Renewable Energy for California, directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002) which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006) which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). California passed the California Global Warming Solutions Act of 2006 (AB 32; *California Health and Safety Code* Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

Assembly Bill 1493. AB 1493 (also known as the Pavley Bill) requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 and adoption of 13 CCR Section 1961.1 require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty weight classes for passenger vehicles (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily to transport people), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term standards will result in a reduction of about 30 percent.

Assembly Bill 3018. AB 3018 established the Green Collar Jobs Council (GCJC) under the California Workforce Investment Board (CWIB). The GCJC will develop a comprehensive approach to address California's emerging workforce needs associated with the emerging green economy. This bill will ignite the development of job training programs in the clean and green technology sectors.

Senate Bill 97. SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB



guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

Senate Bill 375. SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets.

Senate Bills 1078 and 107. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Senate Bill 1368. SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

### **CARB Scoping Plan**

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations.



CARB's Scoping Plan contains the main strategies California will implement to reduce CO<sub>2</sub>eq<sup>9</sup> emissions by 174 million metric tons (MT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 million MT CO<sub>2</sub>eq under a business as usual (BAU)<sup>10</sup> scenario. This is a reduction of 42 million MT CO<sub>2</sub>eq, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

## LOCAL

### City of Azusa

The City of Azusa does not have any plans, policies, regulations, significance thresholds, or laws addressing climate change at this time.

## 5.4.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

### CEQA SIGNIFICANCE CRITERIA

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (refer to Impact Statement GHG-1); and
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement GHG-2).

Based on these standards and thresholds, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts.

<sup>9</sup> Carbon Dioxide Equivalent (CO<sub>2</sub>eq) - A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

<sup>10</sup> "Business as Usual" refers to emissions that would be expected to occur in the absence of GHG reductions. See <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>. Note that there is significant controversy as to what BAU means. In determining the GHG 2020 limit, CARB used the above as the "definition." It is broad enough to allow for design features to be counted as reductions.



## SCAQMD THRESHOLDS

### Greenhouse Gas Emissions Thresholds

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance. Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change. (See *CEQA Guidelines* Section 15064.7[c].)

On December 5, 2008, the SCAQMD adopted GHG significance threshold for Stationary Sources, Rules, and Plans where the SCAQMD is lead agency. The threshold uses a tiered approach. The project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For industrial stationary source projects, the SCAQMD adopted a screening threshold of 10,000 MTCO<sub>2</sub>eq/yr. This threshold was selected to capture 90 percent of the GHG emissions from these types of projects where the combustion of natural gas is the primary source of GHG emissions. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. Tier 4 consists of three decision tree options.

Under the Tier 4 first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the Tier 4 second option the project would be excluded if it had early compliance with AB 32 through early implementation of CARB's Scoping Plan measures. Under the Tier 4 third option, project would be excluded if it met sector based performance standards. However, the specifics of the Tier 4 compliance options were not adopted by the SCAQMD board in order to allow further time to develop the options and coordinate with CARB's GHG significance threshold development efforts. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

While not adopted by the SCAQMD Board, the guidance document prepared for the stationary source threshold also suggested the same tiered approach for residential and commercial projects with a 3,000 MTCO<sub>2</sub>eq/yr screening threshold. However, at the time of adoption of the industrial stationary source threshold, the SCAQMD felt additional analysis was required along with coordination with CARB's GHG significance threshold development efforts.

At the most recent meeting of the SCAQMD GHG working group (September 2010), SCAQMD staff recommended extending the 10,000 MT CO<sub>2</sub>eq per year industrial project threshold for use by all lead agencies. The two options for land-use thresholds discussed in the November 2009 meeting were reiterated with a recommendation that lead agencies use the second, 3,000 MT CO<sub>2</sub>eq per year threshold for all non-industrial development projects. Staff indicated that they would not be recommending a specific approach to address the first option of Tier 4, Percent Emissions Reduction Target. If lead agencies enquire about using this approach staff will reference the



approach recommended by the San Joaquin Valley Air Pollution Control District and describe the challenges to using this approach. For the third option of Tier 4, SCAQMD staff re-calculated the recommended Tier 4 efficiency targets for project level analyses to 4.8 MT CO<sub>2</sub>eq per year in 2020 and 3.0 MT CO<sub>2</sub> per year in 2035. The recommended plan level analysis efficiency target remains 6.6 MT CO<sub>2</sub>eq per year for 2020, but was lowered to 4.1 MT CO<sub>2</sub>eq per year for 2035. SCAQMD staff also stated that they are no longer proposing to include a 25,000 MT CO<sub>2</sub>eq per year maximum emissions requirement for compliance with Tier 4. Staff indicated that they hoped to bring the proposed GHG significance thresholds to the board for their December 2010 meeting; however, this did not occur.

For the proposed project, the 10,000 MT CO<sub>2</sub>eq per year industrial project screening threshold is used as the significance threshold in addition to the qualitative thresholds of significance set forth below from section VII of Appendix G to the CEQA Guidelines. The methodology recommends that total construction emissions be amortized over a 30-year period or the project's expected lifetime if it is less than 30 years. Although the SCAQMD's 10,000 MT CO<sub>2</sub>eq per year screening threshold initially applied to stationary sources, discussions at the last GHG working group meeting indicated that this threshold would be utilized for all industrial related emissions that include both stationary and mobile sources.

## 5.4.4 IMPACTS AND MITIGATION MEASURES

### PROJECT RELATED SOURCES OF GREENHOUSE GASES

#### **GHG-1 THE PROJECT WOULD NOT GENERATE GREENHOUSE GAS EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.**

**Impact Analysis:** The proposed project consists of the demolition of the existing one-story office building in the eastern portion of the site near North Todd Avenue, demolition of building foundations and the concrete remnants of the former shipping/receiving bay, and the construction of a 342,629 square-foot industrial/warehousing development. Project-related GHG emissions would include emissions from direct and indirect sources. The proposed project would result in direct and indirect emissions of CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. Operational GHG estimations are based on energy emissions from natural gas usage and automobile emissions. CalEEMod relies upon trip data within the project's *Traffic Impact Study* and project specific land use data to calculate emissions. The project proposes a warehousing/industrial development on the project site. Table 5.4-1, Estimated Business as Usual Greenhouse Gas Emissions, presents the estimated CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> emissions of the proposed project. CalEEMod outputs are contained within Appendix 13.4, Air Quality/Greenhouse Gas Data.



**Table 5.4-1  
Estimated Business as Usual Greenhouse Gas Emissions**

Source	CO <sub>2</sub>	CH <sub>4</sub>		N <sub>2</sub> O		Total MTCO <sub>2</sub> eq
	MT/yr <sup>1</sup>	MT/yr <sup>1</sup>	MTCO <sub>2</sub> eq <sup>2</sup>	MT/yr <sup>1</sup>	MTCO <sub>2</sub> eq <sup>2</sup>	
<b>Proposed Project-Related Business As Usual Greenhouse Gas Emissions</b>						
Construction (amortized over 30 years)	37.78	0.01	0.21	0.00	0.00	38.0
Area Source	0.02	0.00	0.00	0.00	0.00	0.02
Energy	874.05	0.03	0.63	0.00	0.00	874.71
Mobile Source <sup>3</sup>	3,477.08	0.06	1.30	0.00	0.00	3,478.44
Waste	70.43	4.16	87.4	0.00	0.00	161.99
Water Demand	324.18	2.54	53.3	0.06	18.60	398.68
<b>Total Proposed Project-Related Emissions</b>	<b>4,951.84 MTCO<sub>2</sub>eq</b>					
Notes:						
1. Emissions calculated using the California Emissions Estimator Model.						
2. Carbon dioxide equivalent values calculated using the United States Environmental Protection Agency Website, Greenhouse Gas Equivalencies Calculator, <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a> , accessed January 2014.						
3. Mobile source emissions were conservatively calculated based on the December 2013 <i>Traffic Impact Analysis</i> , prepared by Stantec Consultants. The project-generated trips calculated in the December 2013 <i>Traffic Impact Study</i> (1,462 total trips, 219 heavy truck trips) are greater than the trips calculated in the April 2014 <i>Traffic Impact Study</i> (1,309 total trips, 165 heavy truck trips), prepared by Stantec Consultants. Thus, this analysis of greenhouse gas emissions is considered conservative. Refer to <a href="#">Appendix 13.3, Traffic Report</a> .						
Refer to <a href="#">Appendix 13.4, Air Quality/Greenhouse Gas Data</a> , for detailed model input/output data.						

### Direct Project-Related Sources of Greenhouse Gases

Construction Emissions. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.<sup>11</sup> As seen in [Table 5.4-1](#), the proposed project would result in 38.0 metric tons carbon dioxide equivalent per year (MTCO<sub>2</sub>eq/yr) (amortized over 30 years), which represents a total of 1,140 MTCO<sub>2</sub>eq from construction activities.

Area Source. Area source emissions were calculated using CalEEMod and project-specific land use data. As noted in [Table 5.4-1](#), the proposed project would not result in 0.02 MTCO<sub>2</sub>eq/yr of area source GHG emissions.

Mobile Source. The CalEEMod model relies upon trip data within the *Traffic Impact Study* and project specific land use data to calculate mobile source emissions. The proposed project would result in 1,492 daily vehicle trips, which equates to approximately 3,478.44 MTCO<sub>2</sub>eq/yr of mobile source-generated GHG emissions; refer to [Table 5.4-1](#).

### Indirect Project-Related Sources of Greenhouse Gases

Energy Consumption. Energy consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site via Southern California Edison (SCE). The project would indirectly result in 874.71 MTCO<sub>2</sub>eq/year due to energy consumption; refer to [Table 5.4-1](#).

<sup>11</sup> The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District (<http://www.aqmd.gov/hb/2008/December/081231a.htm>).



Solid Waste. Solid waste associated with operations of the proposed project would result in 161.99 MTCO<sub>2</sub>eq/year; refer to [Table 5.4-1](#).

Water Demand. The project operations would result in a demand of approximately 5.48 million gallons of water per year. Emissions from indirect energy impacts due to water supply would result in 398.68 MTCO<sub>2</sub>eq/year; refer to [Table 5.4-1](#).

Total Project-Related Sources of Greenhouse Gases. As shown in [Table 5.4-1](#), the total amount of project-related “business as usual” GHG emissions from direct and indirect sources combined would total 4,951.84 MTCO<sub>2</sub>eq/yr.

Although the proposed project’s “business as usual” greenhouse gas emissions are below the 10,000 MTCO<sub>2</sub>eq/yr GHG threshold, the proposed project would implement Mitigation Measures AQ-1 through AQ-3, and include design features that would further reduce project-related greenhouse gas emissions. The proposed project would comply with Title 24 requirements (e.g., minimum heating, ventilation, and air conditioning [HVAC] and water heating equipment efficiencies), as well as the California Green Building Code standards (e.g., Section: 5.106.10 requires a drainage system that will restrict surface water flows from entering buildings). Energy efficient lighting and appliances would be installed throughout the project site. Additionally, the proposed project would install water efficient irrigation systems and landscapes, as well as incorporate water reducing features and fixtures into the buildings. Due to the project site’s location, existing public transportation options (Foothill Transit bus routes 185, 187, and 494) are located in close proximity to the project site. The nearest bus stop is located approximately 0.4-mile to the south along Foothill Boulevard. Thus, the proposed project design features would result in further reduced greenhouse gas emissions.

Implementation of Mitigation Measures AQ-1 through AQ-3 would further reduce GHG emissions. Mitigation Measure AQ-1 would implement dust control techniques (i.e., daily watering), limitations on construction hours, and adherence to SCAQMD Rules 402 and 403 (which require watering of inactive and perimeter areas, track out requirements, etc.), to reduce PM<sub>10</sub> and PM<sub>2.5</sub> concentrations. Mitigation Measure AQ-2 will reduce construction emissions, which requires all off-road diesel-powered construction equipment greater than 50 horsepower to meet Tier 3 off-road emissions standards, and all construction equipment to be outfitted with Best Available Control Technology (BACT) devices certified by CARB. Mitigation Measure AQ-3 requires design features and programs to reduce emissions from mobile sources, including meeting California engine emission standards, trip reduction programs, and rideshare programs, among others.

## Conclusion

As shown in [Table 5.4-1](#), “business as usual” emissions would be 4,951.84 MTCO<sub>2</sub>eq/yr, which are below the 10,000 MTCO<sub>2</sub>eq/yr threshold. The proposed project’s energy, transportation, water, and solid waste efficiency design features would further reduce project-related greenhouse gas emissions. Therefore, the proposed project would result in a less than significant impact with regard to GHG emissions. It should be noted that although project GHG emissions would be under the identified thresholds of significance, implementation of Mitigation Measures AQ-1 through AQ-3 would further reduce GHG impacts to an even lesser level of insignificance.

**Mitigation Measures:** Refer to Mitigation Measures AQ-1 through AQ-3.

**Level of Significance:** Less Than Significant Impact.



## GHG PLAN CONSISTENCY

### **GHG-2 THE PROJECT WOULD NOT CONFLICT WITH AN APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES.**

**Impact Analysis:** The City does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, other than the *Geology Hazards Implementation Program*, GEO 18 (Interagency Coordination), which states “To reduce the possibility of significant changes in climate and regional hydrology that could lead to local flooding, support national and international efforts to protect the Earth’s ozone layer, including policy to minimize or prevent the release of greenhouse gases.” As concluded in Impact Statement GHG-1, the proposed project would not result in a significant impact related to GHG emissions. Therefore, the proposed project would not conflict with the City’s Geology Hazards Implementation Program. The proposed project would include design features to reduce energy and water consumption, and reduce mobile emissions (Mitigation Measures AQ-1 through AQ-3). As such, the proposed project would not hinder the State’s GHG reduction goals established by AB 32. Therefore, impacts are less than significant in this regard. It should be noted that although project would not result in any significant impacts related to GHG plan consistency, implementation of Mitigation Measures AQ-1 through AQ-3 would further reduce GHG impacts to an even lesser level of insignificance.

**Mitigation Measures:** Refer to Mitigation Measures AQ-1 through AQ-3.

**Level of Significance:** Less Than Significant Impact.

## 5.4.5 CUMULATIVE IMPACTS

### **● PROJECT-RELATED GREENHOUSE GAS EMISSIONS WOULD NOT IMPACT GREENHOUSE GAS LEVELS ON A CUMULATIVELY CONSIDERABLE BASIS.**

**Impact Analysis:**

#### **Cumulative Project Related Sources of Greenhouse Gases**

As stated previously, the proposed project’s “business as usual” emissions would be 4,951.84 MTCO<sub>2</sub>eq/yr. Therefore, project related GHG emissions are below the 10,000 MTCO<sub>2</sub>eq threshold and would be less than significant. It should be noted that implementation of Mitigation Measures AQ-1 through AQ-3 would reduce the project’s GHG emissions, but would not alter the project’s level of significance regarding GHG plan consistency. Impacts would remain less than significant.

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.<sup>12</sup> GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.<sup>13</sup> Therefore, the project’s

<sup>12</sup> California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.

<sup>13</sup> Ibid.



cumulatively considerable GHG emissions would have a less than significant impact on the environment.

**Mitigation Measures:** Refer to Mitigation Measures AQ-1 through AQ-3.

**Level of Significance:** Less Than Significant Impact With Mitigation Incorporated.

#### **Cumulative GHG Plan Consistency**

GEO 18 is the City's *Geology Hazards Implementation Program* (Interagency Coordination), which intends to reduce the possibility of significant changes in climate, support international efforts to protect the Earth's ozone layer, including policy to minimize or prevent the release of greenhouse gases. Cumulative projects would be required to be consistent with this program to avoid cumulatively considerable impacts. The proposed project would not generate a significant amount of GHGs. Therefore, the proposed project would not result in a cumulatively considerable impact with regard to a conflict with the City's Geology Hazards Implementation Program, and the State's GHG reduction goals established by AB 32. There are no other applicable plans, policies, or regulations that have been adopted by the City or other regulating agency for the purpose of reducing the emissions of greenhouse gases.

**Mitigation Measures:** Refer to Mitigation Measures AQ-1 through AQ-3.

**Level of Significance:** Less Than Significant Impact With Mitigation Incorporated.

#### **5.4.6 SIGNIFICANT UNAVOIDABLE IMPACTS**

No unavoidable significant impacts related to greenhouse gas emissions have been identified in this section.