



## 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. GHG technical data are included as Appendix 13.4, *Air Quality and Greenhouse Gas Data*.

### 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 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.

### SCOPE OF ANALYSIS FOR CLIMATE CHANGE

The study area for climate change and the analysis of GHG 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.



## 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 three fold 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 GHG 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.

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<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 Intergovernmental Panel on Climate Change. (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 ( $O_3$ ) 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

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<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 April 25, 2013.

<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 April 25, 2013.

<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 SETTING

### 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 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.

In September 2009, the EPA finalized a GHG reporting and monitoring system that began on January 1, 2010. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO<sub>2</sub> per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective emissions reduction strategies. This new program covers approximately 85 percent of the nation's GHG emissions and applies to approximately 10,000 facilities. The reporting system is intended to provide a better understanding of where GHGs are coming from and will guide development of the best possible policies and programs to reduce emissions.

Currently, the EPA is moving forward with two key climate change regulatory proposals, one to establish a mandatory GHG reporting system and one to address the 2007 Supreme Court decision in *Massachusetts v. EPA* (Supreme Court Case 05-1120) regarding the EPA's obligation to make an endangerment finding under Section 202(a) of the Federal Clean Air Act (FCAA) with respect to GHGs. *Massachusetts v. EPA* was argued before the United States Supreme Court on November 29,

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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 April 25, 2013.



2006. 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.

## STATE

### California Global Climate Change Regulatory Programs

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 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 of Assembly Bill (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 Senate Bill (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. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

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 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<sup>9</sup> 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.

In *Association of Irrigated Residents v. California Air Resources Board*, the Superior Court of California for the County of San Francisco (Superior Court) issued a "tentative statement of decision" (Tentative Decision) that prevents CARB from implementing a state-wide GHG regulatory program under AB 32 until the agency complies with the requirements of CEQA. The Tentative Decision partially grants a petition for a writ of mandate brought by a coalition of environmental justice organizations (Petitioners) that alleged that CARB's Scoping Plan violated both AB 32 and CEQA. Although the Superior Court denied all claims related to AB 32, the court found that CARB: 1) failed to adequately discuss and analyze the impacts of alternatives in its proposed Scoping Plan as required by its CEQA implementing regulations; and 2) improperly approved the Scoping Plan prior to completing the environmental review required by CEQA. In upholding the Petitioners' challenge on these two CEQA issues, the Superior Court issued a Peremptory Writ of Mandate and enjoined CARB from further implementation of the Scoping Plan until it complies with all CEQA requirements. Parties to the case had 15 days from the issuance of the Tentative Decision to file objections before the Superior Court issued a final decision in the case.

On March 18, 2011, the Superior Court issued its Final Statement of Decision, which is substantially similar to the Tentative Decision. The Superior Court ruled in favor of CARB concerning AB 32 mandates and how to best reach the GHG reduction goals set by AB 32. However, the Superior

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<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.



Court determined that CARB failed to conduct adequate CEQA review for the Scoping Plan. Specifically, the Superior Court concluded that CARB failed to consider adequate alternatives to the mix of measures adopted in the Scoping Plan, including especially alternatives to cap-and-trade measures, and that CARB improperly began implementing the Scoping Plan measures before its CEQA review process was complete. Therefore, the Superior Court has suspended any further implementation of the measures contained in the Scoping Plan until the State has complied with CEQA.

On June 19, 2012, the California First District Court of Appeal ruled in favor of CARB and upheld the Scoping Plan. The decision also found the Scoping Plan to be in compliance with AB 32. The Court determined the entirety of the Scoping Plan “reflects an exercise of sound judgment” and was not arbitrary or capricious.

## LOCAL

### South Coast Air Quality Management District

The SCAQMD adopted a *Policy on Global Warming and Stratospheric Ozone Depletion* in April 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of CFCs, methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of HCFCs by the year 2000;
- Develop recycling regulations for HCFCs (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

The legislative and regulatory activity detailed above is expected to require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

### City of Huntington Beach

The City of Huntington Beach has prepared the *City of Huntington Beach Energy Action Plan (EAP)* (dated April 2011), and the *Steps Toward a Sustainable Huntington Beach* document (*Sustainability Report*), which are further discussed below.

#### City of Huntington Beach Energy Action Plan

The City’s *EAP* outlines the City’s history and commitment to eliminating energy waste, preparing for peak oil production, and reducing GHG emissions. As part of the City’s obligation under AB 32 to reduce GHG emissions by 20 percent, the City’s facilities energy savings goal is to reduce energy use by 20 percent from a 2005 baseline. The *EAP* identifies several ways the City could reduce energy consumption, including a variety of incentives and programs, as well as community based social marketing. There are several planned energy efficient projects within the City which would result in substantial energy savings, including lighting upgrades, heating, ventilation, and air



conditioning (HVAC) unit upgrades, furnace replacements, and installation of programmable thermostats. The *EAP* notes that future policy-making for the City will focus on the benefits of a cleaner environment, eliminating energy waste, and improving energy effectiveness. In order to track progress, the City will monitor energy usage and track energy reduction with the use of an Enterprise Energy Information Management System.

### Steps Toward a Sustainable Huntington Beach

The City's *Sustainability Report* discusses the importance of sustainability to the City's residents, business community, and visitors. The *Sustainability Report* identifies the following examples of City environmental initiatives: alternative transportation, waste reduction, energy waste reduction, green incentives, solar installation, water efficiency, and wastewater recycling. Recommended practices for citizens to assist the City in achieving optimal sustainability regarding energy efficiency, water efficiency, and pollution prevention are included in the *Sustainability Report*. There are also recommended energy efficiency, water efficiency, and pollution prevention guidelines for businesses and restaurants.

## **5.4.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA**

### **CEQA SIGNIFICANCE CRITERIA**

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).) The Bay Area Air Quality Management District (BAAQMD) GHG significance thresholds have been commonly utilized, as they are conservative in nature and have been vetted through a public review process. However, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD has complied with CEQA. Thus, the BAAQMD is no longer recommending that the thresholds be used to determine a project's significance.

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 metric tons of MTCO<sub>2</sub>eq/year. 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/year 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 November 2009 meeting of the SCAQMD GHG working group, SCAQMD staff presented two options for screening thresholds for residential and commercial projects. The first option would have different thresholds for specific land uses. The proposed threshold for residential projects is 3,500 MTCO<sub>2</sub>eq/year, the commercial threshold is 1,400 MTCO<sub>2</sub>eq/year, and the mixed-use threshold is 3,000 MTCO<sub>2</sub>eq/year. The second option would apply the 3,000 MTCO<sub>2</sub>eq/year screening threshold for all commercial/residential projects. Lead agencies would be able to select either option. These thresholds are based on capturing 90 percent of the emissions from projects and requiring them to comply with the higher tiers of the threshold (i.e., performance requirements or GHG reductions outside of the project) to not result in a significant impact.

Although the proposed project is a roadway improvement project and not a trip generating land use development project, the 3,000 MTCO<sub>2</sub>eq per year non-industrial screening threshold is conservatively used as the significance threshold, in addition to the qualitative thresholds of significance patterned after the Initial Study Checklist recommended by Appendix G of the *CEQA Guidelines*, as amended, and used by the City of Huntington Beach in its environmental review process. The Initial Study Checklist includes questions relating to GHGs. 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 adverse environmental impact if it would:

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



## 5.4.4 IMPACTS AND MITIGATION MEASURES

### GREENHOUSE GAS EMISSIONS

- **GREENHOUSE GAS EMISSIONS GENERATED BY THE PROJECT WOULD NOT HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.**

***Impact Analysis:*** Unlike land development projects, such as residential, commercial, or retail developments, transportation-related projects do not directly create vehicle trips and do not create a new demand for energy use. Instead, transportation-related projects typically affect traffic flow along the local and regional transportation networks. Due to the nature of the proposed project (intersection widening), project-related GHG emissions would be attributed to construction activities and vehicle miles traveled (VMT) associated with traffic operations in the area, which are further discussed below.

#### Construction-Related Greenhouse Gas Emissions

The California Emissions Estimator Model (CalEEMod) computer model and outputs contained within the Appendix 13.4, *Air Quality and Greenhouse Gas Data*, were used to calculate project-related construction GHG emissions. Project construction activities would generate approximately 348 MTCO<sub>2</sub>eq. 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> Thus, project construction GHG emissions have been amortized, and would result in approximately 12 MTCO<sub>2</sub>eq/year, which will be added to the total operational GHG emissions.

#### Operational-Related Greenhouse Gas Emissions

Although the project involves intersection improvements and does not propose a trip-generated land use, the transportation-related GHG emissions associated with the existing and forecast year 2030 without project and with project scenarios have been calculated. The proposed project would result in improvements to the Brookhurst Street/Adams Avenue intersection in order to relieve existing and forecast traffic congestion in the project area.

Table 5.4-1, *Vehicle Miles Traveled and Greenhouse Gas Emissions*, compares the existing and future annual VMT and GHG emissions. Based on traffic data provided in the *Traffic Impact Analysis*, the existing annual VMT in the project area is approximately 8,132,857, while the annual VMT in the project area would be 11,392,380 under both the forecast year 2030 without and with project scenarios. There is no change in VMT (and associated GHG emissions) between the forecast year 2030 without and with project scenarios since the project is not a trip-generating land use. The increase in VMT (and associated GHG emissions) between the existing and forecast year 2030 scenarios is attributed to projected growth in the area, and is not a result of project implementation.

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<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>).



**Table 5.4-1  
Vehicle Miles Traveled and Greenhouse Gas Emissions**

Scenario	Annual VMT <sup>1</sup>	Emissions (metric tons per year) <sup>2</sup>	
		CO <sub>2</sub>	CO <sub>2</sub> (Pavley I+LCFS)
Construction (amortized over 30 years)	N/A	12	12
Existing	8,132,857	3,745	3,745
Forecast Year 2030 Without Project	11,392,380	5,368	4,206
Forecast Year 2030 With Project	11,392,380	5,368	4,206
<i>Net Difference Between the Existing and the Forecast Year 2030 Without and With Project Scenarios</i>	3,259,523	1,623	461
<i>Net Difference Between the Existing and the Forecast Year 2030 Without and With Project Scenarios <u>Plus Construction</u></i>	3,259,523	1,635	473
VMT = Vehicle Miles Traveled; CO <sub>2</sub> = carbon dioxide; LCFS = Low Carbon Fuel Standard; N/A = Not Applicable			
Notes:			
1. VMT is based on data from the <i>Brookhurst Street/Adams Avenue Improvement Project Traffic Impact Analysis</i> , prepared by RBF Consulting, April 11, 2013.			
2. Emissions calculated using EMFAC2011.			

Conclusion

As depicted in Table 5.4-1, the resulting net emissions between the existing and the forecast year 2030 scenarios (including the amortized construction emissions) would be 1,635 MTCO<sub>2</sub>eq. With the implementation of the AB 1493 Pavley emissions reductions and the Low Carbon Fuel Standard, transportation-related GHG emissions would be reduced, and the resulting net emissions between the existing and the forecast year 2030 scenarios (including the amortized construction emissions) would be 473 MTCO<sub>2</sub>eq, which is below the 3,000 MTCO<sub>2</sub>eq/year screening threshold. Therefore, as the project would relieve congestion and improve intersection operations, and would not directly generate new trips or GHG emissions, GHG impacts would be less than significant.

**Mitigation Measures:** No mitigation measures are required.

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

**CONSISTENCY WITH APPLICABLE GHG PLANS, POLICIES, OR REGULATIONS**

- **IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.**

**Impact Analysis:** The City does not currently have an adopted plan for the purpose of reducing GHG emissions such as a climate action plan. However, as previously discussed, the City has prepared an *EAP* and a *Sustainability Report*, both of which address the City’s efforts in reducing energy consumption and becoming more sustainable. As concluded above, the proposed project



would reduce existing and forecast traffic congestion at the Brookhurst Street/Adams Avenue intersection, and would not result in a substantial GHG impact. Due to the nature of the proposed project (intersection widening), the measures within the City's *EAP* or *Sustainability Report* do not directly apply to the project. The proposed project would not conflict with the City's *EAP* or *Sustainability Report*, or an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts are less than significant in this regard.

***Mitigation Measures:*** No mitigation measures are required.

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

## 5.4.5 CUMULATIVE IMPACTS

- **GREENHOUSE GAS EMISSIONS GENERATED BY THE PROJECT WOULD NOT HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT OR CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.**

***Impact Analysis:*** As stated above, the proposed project would not result in a significant impact regarding GHG emissions, as the project would relieve congestion and improve intersection operations, and would not itself generate new trips or GHG emissions.

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> The additive effect of project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. For the reasons discussed in this section and because the project incorporates GHG reduction measures and design features, the project's cumulative GHG emissions would have a less than significant impact on the environment.

There are no applicable plans, policies, or regulations that have been adopted by the City for the purpose of reducing the emissions of GHGs. However, as previously discussed, the City has prepared an *EAP* and a *Sustainability Report*, both of which address the City's efforts in reducing energy consumption and becoming more sustainable. The project would not conflict with the policies or measures of the *EAP* or *Sustainability Report*. Therefore, the proposed project would not result in a cumulatively considerable impact with regard to a conflict with these documents. Therefore, a less than significant impact would occur in this regard.

***Mitigation Measures:*** No mitigation measures are required.

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

## 5.4.6 SIGNIFICANT UNAVOIDABLE IMPACTS

No unavoidable significant impacts related to GHG emissions have been identified.

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<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.