

4.0 ENVIRONMENTAL IMPACT ANALYSIS

C. GLOBAL CLIMATE CHANGE

INTRODUCTION

This section of the EIR analyzes the project's potential to result in the following global climate change-related impacts: generation of greenhouse gas emissions, either directly or indirectly, based on any applicable threshold of significance, and conflicts with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. No issues regarding greenhouse gas emissions were scoped out of the EIR in the project's Initial Study (IS). Technical data utilized in this section are included in Appendix B of this EIR. A reference-list of entries for all cited materials is provided in Chapter 7, *Document Preparation and References*, of this EIR.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however some data indicate that the current global conditions differ from past climate changes in rate and magnitude. There continues to be significant scientific uncertainty concerning the extent to which increased concentrations of GHGs have caused or will cause climate change, and over the appropriate actions to limit and/or respond to climate change.

GHGs are those compounds in the Earth's atmosphere which play a critical role in determining temperature near the Earth's surface. Specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere, but retain some of the low frequency infrared energy which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Increased concentrations of GHGs in the Earth's atmosphere have been linked to global climate change and such conditions as rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increased frequency and magnitude of severe weather conditions. Existing climate change models also show that climate warming portends a variety of impacts on agriculture, including loss of microclimates that support specific crops, increased pressure from invasive weeds and diseases, and loss of productivity due to changes in water reliability and availability. In addition, rising temperatures and shifts in microclimates associated with global climate change are expected to increase the frequency and intensity of wildfires.

GHGs include carbon dioxide (CO₂), methane (CH₄), ozone (O₃), water vapor (H₂O), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Carbon dioxide is the most abundant GHG in the atmosphere, and represents 77 percent of total GHG emissions.¹ GHGs are the result of both natural and anthropogenic activities. Forest fires, decomposition, industrial processes,

¹ *Intergovernmental Panel on Climate Change, Fourth Assessment Report, Synthesis Report, 2007.*

landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. In the state of California, the transportation sector is the greatest source of GHG emissions, accounting for 38 percent of total GHG emissions in 2004, the latest year for which data are available.²

Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified in the equivalent mass of CO₂, denoted as CO₂e. CO₂e allows for comparability among GHGs with regard to the global warming potential (GWP). Mass emissions are calculated by converting pollutant specific emissions to CO₂e emissions by applying the proper global warming potential (GWP) value.³ These GWP ratios are available from the United States Environmental Protection Agency (USEPA) and published in the California Climate Action Registry (CCAR) Protocol. By applying the GWP ratios, project related CO₂e emissions can be tabulated in metric tons per year. The CO₂e values are calculated for the entire construction period. Construction output values used in this analysis are adjusted to represent a CO₂e value representative of CO₂, CH₄, and N₂O emissions from project construction activities. HFCs, PFCs, and SF₆ are not byproducts of combustion, the primary source of construction-related GHG emissions, and therefore are not included in the analysis. Construction CH₄ and N₂O values are derived from factors published in the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. These values are then converted to metric tons of CO₂e for consistency.

Our understanding of the fundamental processes responsible for global climate change has improved over the past decade, and our predictive capabilities are advancing. However, there remains significant scientific uncertainty, for example, in predictions of local effects of climate change, occurrence of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system, the uncertainty surrounding climate change may never be completely eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or will cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change.

The IPCC, in its Fourth Assessment Report (FAR), stated that "it is likely that there has been significant anthropogenic warming over the past 50 years."⁴ However, it is impossible to identify a single development project as the cause of future specific climate change impacts due to the global nature of climate change. Also in the FAR, the IPCC holds that the impacts of future climate change will vary across regions. While "large-scale climate events have the potential to cause very large impacts," the impacts of future climate change will be mixed across regions.

² California Air Resources Board, *Greenhouse Gas Emissions Inventory Data: 2004 GHG emissions by Sector, 2008. Greenhouse Gas Emissions Inventory 2004 Statewide Total: 479,740,000 MTCO₂e.*

³ CO₂e was developed by the Intergovernmental Panel on Climate Change (IPCC), and published in its *Second Assessment Report (SAR) 1996.*

⁴ Intergovernmental Panel on Climate Change, *Fourth Assessment Report, Summary for Policy Makers, 2007.*

b. Regulatory Framework

In an effort to stabilize GHG emissions and reduce impacts associated with climate change, international agreements, as well as federal and state actions were implemented beginning as early as 1988. The international, federal, state, regional, and local government agencies discussed below work jointly, as well as individually, to address GHG emissions through legislation, regulations, planning, policy making, education, and a variety of programs.

(1) Federal

Kyoto Protocol

The United States participated in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008–2012 (UNFCCC 1997). It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments.

In anticipation of providing an updated international treaty for the reduction of GHG emissions, representatives from 170 countries met in Copenhagen in December 2009 to ratify an updated UNFCCC agreement (Copenhagen Accord). The Copenhagen Accord, a voluntary agreement between the United States, China, India, and Brazil, recognizes the need to keep global temperature rise to below 2°C and obliges signatories to establish measures to reduce greenhouse gas emissions and to prepare to provide help to poorer countries in adapting to climate change. The countries met again in Cancun in December 2010 and adopted the Cancun Agreements, which reinforces and builds upon the Copenhagen Accord. The nations agreed to recognize country targets, develop low-carbon development plans and strategies, and report inventories annually. In addition, agreements were made regarding financing for developing countries and technology support and coordination among all nations. The next conference of the parties is scheduled for December 2011 in South Africa.

Climate Change Technology Program

The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (which is led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative.

United States Environmental Protection Agency

The United States Environmental Protection Agency (USEPA) is responsible for implementing federal policy to address global climate change. The federal government administers a wide array of public-private partnerships to reduce GHG intensity generated by the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions. Programs include: the State Climate and Energy Partner Network that allows for the exchange of information between federal and state agencies regarding

climate and energy, the Climate Leaders program for companies, the Energy Star labeling system for energy-efficient products, and the Green Power Partnership for organizations interested in buying green power. All of these programs play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05-1120), the U.S. Supreme Court held in April of 2007 that the USEPA has authority to regulate greenhouse gases, and the USEPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the USEPA should be required to regulate CO₂ and other greenhouse gases as pollutants under Section 202(a)(1) of the federal Clean Air Act (CAA).

The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October of 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufactures of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The Final Rule was effective December 29, 2009, with data collection beginning January 1, 2010, and the first annual reports due in March 2011. This rule does not regulate the emission of GHGs; it only requires the monitoring and reporting of greenhouse gas emissions for those sources above certain thresholds (USEPA 2009). USEPA adopted a Final Endangerment Finding for the six defined GHGs on December 7, 2009. The Endangerment Finding is required before USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA in fulfillment of the U.S. Supreme Court decision.

On May 13, 2010, the USEPA issued a Final Rule that establishes a common sense approach to addressing greenhouse gas emissions from stationary sources under the CAA permitting programs. In the first phase of the Rule (January 2011-June 2011), only sources currently subject to the New Source Review Prevention of Significant Deterioration (PSD) permitting program (i.e., those that are newly-constructed or modified in a way that significantly increases emissions of a pollutant other than GHGs) are subject to permitting requirements for their GHG emissions under PSD. For these projects, only GHG increases of 75,000 tons per year (tpy) CO₂e or more need to determine the Best Available Control Technology (BACT) for their GHG emissions. This final rule sets a threshold of 75,000 tons per year for GHG emissions. Similarly for the operating permit program, only sources currently subject to the program are subject to Title V requirements for GHG. In the second phase of the rule (July 2011-June 2013) new construction projects that exceed a threshold of 100,000 tpy and modifications of existing facilities that increase emissions by at least 75,000 tpy will be subject to permitting requirements. Additionally, operating facilities that emit at least 100,000 tpy will be subject to title V permitting requirements (USEPA 2010). New and existing industrial facilities that meet or exceed that threshold will require a permit under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs. This rule took effect January 2, 2011.

(2) State

California Air Resources Board

The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets state ambient air quality standards (California Ambient Air Quality Standards (CAAQS)), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and

barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. The SIP is required for the State to take over implementation of the Clean Air Act.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

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

The first California Climate Action Team (CCAT) Report to the Governor in 2006 contained recommendations and strategies to help meet the targets in Executive Order S 3-05. The 2010 CCAT Biennial Report, finalized in December 2010, expands on the policy oriented 2006 assessment. The new information detailed in the CCAT Biennial Report includes development of revised climate and sea-level projections using new information and tools that have become available in the last two years; and an evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts (CCAT 2010). The action items in the report focus on the preparation of the Climate Change Adaptation Strategy, required by Executive Order S-13-08, described below.

Assembly Bill 32, The Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006, focusing on reducing GHG in California. GHGs as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 required CARB to adopt rules and regulations directing State actions that would achieve greenhouse gas emissions equivalent to 1990 statewide levels by 2020. On or before June 30, 2007, CARB was required to publish a list of discrete early action GHG emission reduction measures that would be implemented to be made enforceable by 2010. The law further required that such measures achieve the maximum technologically feasible and cost effective reductions in GHGs from sources or categories of sources to achieve the statewide greenhouse gas emissions limit for 2020.

CARB published its Final Report for Proposed Early Actions to Mitigate Climate Change in California in October 2007. This report described recommendations for discrete early action measures to reduce GHG emissions as part of California's AB 32 GHG reduction strategy. Resulting from this are three new regulations proposed to meet the definition of "discrete early action greenhouse gas reduction measures," including the following: a low carbon fuel standard; reduction of HFC 134a emissions from non-professional servicing of motor vehicle air conditioning systems; and improved landfill methane capture (CARB 2007d). CARB estimates that by 2020, the reductions from those three measures would be approximately 13-26 million metric tons (MMT) CO₂e.

Under AB 32, CARB has the primary responsibility for reducing GHG emissions. In 2007, CARB released a report, California 1990 GHG Emissions Level and 2020 Emissions Limit (CARB 2007a), that determined the

statewide levels of GHG emissions in 1990 to be 427 MMT CO₂e. Additionally, in December 2008, CARB adopted the Climate Change Scoping Plan, which outlines the State's strategy to achieve the 2020 GHG limit. This Scoping Plan proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve the environment, reduce dependence on oil, diversify energy sources, save energy, create new jobs, and enhance public health. The plan emphasizes a cap-and-trade program, but also includes the discrete early actions (CARB 2008).

Senate Bill 97

SB 97, enacted in 2007, amended the California Environmental Quality Act (CEQA) to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directed the California Office of Planning and Research (OPR) to develop revisions to the State CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" and directed the Resources Agency to certify and adopt these revised State CEQA Guidelines by January 2010. The revisions were completed March 2010 and codified into the California Code of Regulations and became effective within 120 days pursuant to CEQA. The amendments provide regulatory guidance for the analysis and mitigation of the potential effects of GHG emissions.

Senate Bill 375

Senate Bill 375 (SB 375), which establishes mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions, was adopted by the State on September 30, 2008. On September 23, 2010, CARB adopted the vehicular greenhouse gas emissions reduction targets that had been developed in consultation with the metropolitan planning organizations (MPOs); the targets require a 7 to 8 percent reduction by 2020 and between 13 to 16 percent reduction by 2035 for each MPO. SB 375 recognizes the importance of achieving significant greenhouse gas reductions by working with cities and counties to change land use patterns and improve transportation alternatives. Through the SB 375 process, MPOs, such as the Southern California Council of Governments (SCAG), which includes Orange County, will work with local jurisdictions in the development of sustainable communities strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces greenhouse gas emissions while meeting housing needs and other regional planning objectives. SCAG's reduction target for per capita vehicular emissions is 8 percent by 2020 and 13 percent by 2035 (CARB 2010b). The MPOs will prepare their first SCS according to their respective regional transportation plan (RTP) update schedule; to date, no region has adopted an SCS. The first of the RTP updates with SCS strategies are expected in 2012.

Executive Order S-13-08

On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08, the Climate Adaptation and Sea Level Rise Planning Directive, to provide clear direction on how the State should plan for future climate impacts. Executive Order S-13-08 calls for the implementation of four key actions to reduce the vulnerability of California to climate change:

- Initiate California's first statewide Climate Change Adaptation Strategy (CAS) that will assess the State's expected climate change impacts, identify where California is most vulnerable, and recommend climate adaptation policies;
- Request that the National Academy of Sciences establish an expert panel to report on sea level rise impacts in California in order to inform State planning and development efforts;

- Issue interim guidance to State agencies for how to plan for sea level rise in designated coastal and floodplain areas for new and existing projects; and
- Initiate studies on critical infrastructure projects and land-use policies vulnerable to sea level rise.

The 2009 CAS Report summarizes the best known science on climate change impacts in the state to assess vulnerability, and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. This is the first step in an ongoing, evolving process to reduce California's vulnerability to climate impacts (California Natural Resources Agency 2009a).

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Non-residential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Since use of fossil fuels to produce energy results in GHG emissions, energy efficient buildings that use less energy result in less GHG emissions as well.

In November 2008, the California Building Standards Commission established the California Green Building Standards Code (CALGreen) which sets performance standards for residential and nonresidential development to reduce environmental impacts and encourage sustainable construction practices. When the CALGreen code went into effect in 2009, compliance through 2010 was voluntary. As of January 1, 2011, the CALGreen code is mandatory for all new buildings constructed in the State. The CalGreen code addresses energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality.

(3) Regional

The proposed project is located in the South Coast Air Basin (SoCAB). Air emissions are regulated by the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for promoting and improving the air quality of the SoCAB. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles. After AB 32 was passed, SCAQMD formed a Climate Change Committee along with a Greenhouse Gases CEQA Significance Thresholds Working Group and the SoCal Climate Solutions Exchange Technical Advisory Group. On September 5, 2008, the SCAQMD Board approved the SCAQMD Climate Change Policy, which outlines actions the District will take to assist businesses and local governments in implementing climate change measures, decrease the agency's carbon emissions, and provide information to the public regarding climate change. On December 5, 2008, the Board approved interim CEQA GHG significance thresholds for stationary sources, and related rules, and plans. The District also adopted a tiered approach for determining significance. Projects that are exempt from CEQA or consistent with an approved local GHG reduction plan can be found to be less than significant. Tier 3, the primary tier the Board will use for determining significance, has a screening significance threshold designed to capture 90 percent of sector GHG emissions (SCAQMD 2008).

There is no regional agency responsible for the regulation of GHG emissions related to global climate change. The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast

Air Basin (SCAB). Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate factors leading to global climate change or GHG emission issues associated with plans and new development projects throughout the SCAB. In order to provide GHG emission analysis guidance to the local jurisdictions within the SCAB, the SCAQMD has organized a Working Group to develop GHG emission analysis guidance and thresholds.

(4) Local

The City of Huntington Beach has signed the U.S. Mayors Climate Protection Agreement, which aims to meet or exceed the Kyoto Protocol targets of a 7% reduction from 1990 emissions levels by 2012, as well as support bipartisan emission reduction legislation. As there exists an overlap between land use and GHG emissions, the Beach and Edinger Corridor Specific Plan requires that sustainable or “green” building practices shall be incorporated into all projects proposing new structures and/or site improvements. The Specific Plan guidelines provide the following techniques to incorporate sustainability into building architecture: a) Solar Access, Daylighting, Passive Solar Heating & Cooling, b) Materials, and c) Other (recycling practices). In addition, the City of Huntington Beach has developed a City-wide Program called “HB Goes Green”.⁵ The program encourages citizens to go green, providing citizens with current information about available programs that provide assistance to home and business owners interested in incorporating sustainable designs to lower energy costs and reduce environmental impact. The City of Huntington Beach offers incentives for voluntary participation, such as permit fee waivers for energy efficiency and solar upgrades and provides recognition to homeowners for installing green features in their homes through the Huntington Beach Green Scorecard program.⁶ Any energy efficiency upgrades, such as adding Energy Star appliances or recycled content flooring, may be counted toward recognition on the Huntington Beach Scorecard. If homeowners meet certain goals on the Huntington Beach Scorecard, they receive a commendation from the mayor as recognition for their greening measures. In addition, the City requires that all new permit and plan review applications submitted shall comply with the mandatory measures of CalGreen.

2. ENVIRONMENTAL IMPACTS

a. Significance Thresholds

Appendix G of the *CEQA Guidelines* contains the Initial Study Environmental Checklist form used during preparation of the project Initial Study (contained in Appendix A of this EIR). The Initial Study Environmental Checklist includes questions relating to global climate change. The Initial Study Environmental Checklist questions relating to GHG emissions have been utilized as the 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:

Threshold 1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance (refer to Impact Statement 4.C-1).

⁵ http://www.huntingtonbeachca.gov/residents/green_city/mayor.cfm

⁶ http://www.huntingtonbeachca.gov/Residents/green_city/files/hb_greenscorecard_pilot_program_v7.pdf

Threshold 2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (refer to Impact Statement 4.C-2).

b. Methodology

(1) Construction

Construction emissions are calculated using the California Emission Estimator Model (CalEEMod), which is an emissions estimation/evaluation model developed by SCAQMD to calculate emissions from construction activities. The output values used in this analysis were adjusted to be project-specific, based on usage rates of construction equipment, type of fuel, and construction schedule. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate GHG emissions values for each construction year (refer to Appendix A). The CalEEMod model outputs CO₂ equivalent (CO₂e) emissions, which includes CH₄ and N₂O emissions estimated based on the emissions ratios for construction and industrial equipment from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

Construction tends to occur over a short duration compared to the overall project lifetime. In order to provide a representative equivalent annual emission rate, the SCAQMD recommends that construction GHG emissions be amortized over a period of 30-years and added to the annual operational emissions.

(2) Operation

Mobile source emission calculations associated with operation of the proposed project utilize a projection of trip rate and annual vehicle miles traveled (VMT), which is derived from the Traffic Study prepared by Austin-Foust Associates, Inc. Mobile source emissions are generated from vehicle traffic traveling to and from the project site. Mobile source calculations are estimated within CalEEMod and also utilize EMFAC2007 and the CCAR GRP, Version 3.1 to generate emission factors for CO₂ and CH₄, and N₂O. It should be noted that greenhouse gas reduction factors from *Alternative Compliance Strategies*, contained in AB 1493, are applied in the CalEEMod software for fleet mixes containing post 2009 vehicles.

The consumption of fossil fuels to generate electricity and to provide heating and hot water creates GHG emissions. Future fuel consumption rates and water demand are estimated based on square footage of the project. Natural gas and electricity usage factors derived from the CEQA Handbook (1993)⁷ are used to project fuel consumption rates. Embodied energy rates associated with the proposed project's future water supply needs are calculated using factors derived from the California Energy Commission (CEC). GHG emission factors from the CCAR protocol are then applied to the respective usage rates, to calculate annual greenhouse gas emissions in metric tons. These emission factors do not reflect targeted future reductions in GHG emissions under SB 1368. Thus, these emission factors are considered conservative and representative.

The CEC estimate for energy intensity of the water use cycle in southern California is used to calculate the energy usage related to water conveyance. Emission factors from the CCAR GRP, Version 3.1 are implemented in calculating the associated GHGs. Because water conveyance associated with the proposed project is regional in nature, the emission factors used in this component of the analysis represent a State-wide average of known power producing facilities, utilizing various technologies and emission control strategies.

⁷ *South Coast Air Quality Management District, California Environmental Quality Act Handbook, 1993.*

c. Effects Found Not To Be Significant

As indicated in the project's IS/NOP, all environmental issues related to greenhouse gas emissions were determined to be potentially significant, and therefore further detailed analysis of all issues is provided below.

d. Analysis of Project Impacts

The proceeding analysis of project impacts includes three "Impacts Statements": 4.C-1 through 4.C-3.

(1) Direct and Indirect GHG Emissions

Threshold	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?
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4.C-1 Based on the applicable threshold of significance, project implementation would not cause significant GHG emissions impacts during construction or operation of proposed uses, including operational impacts associated with special events.

Construction

Construction. Construction of the proposed project is assumed to commence in the summer of 2012 and take approximately five months to complete. The assumed construction schedule at the time the analyses were performed are tentative and most conservative, since emission factors and regulations improve with time. Emissions from fossil fuel powered on-site construction equipment and off-site vehicles used to transport construction workers and supplies were calculated, for each year of project construction. Construction of the project is projected to emit a total of 237 tons of CO₂e, and would emit 8 tons of CO₂e amortized over the 30-year lifetime. Results of this analysis are presented in **Table 4.C-1, Construction Greenhouse Gas Emissions**. Due to the potential persistence of GHGs in the environment, impacts are based on annual emissions and, in accordance with SCAQMD methodology, construction-period impacts are assessed together with operational-period impacts below.

Table 4.C-1

Construction Greenhouse Gas Emissions

Emission Source	CO ₂ e (Metric Tons)
Construction- Year 2012	237
Construction (Amortized - 30 years)	8

Source: PCR Services Corporation, 2011.

Operation

The Center Avenue Skate Park Project would include a skate park plaza area, skate bowl, turf/walking area, a skate shop/concession/restroom building, a skate park entrance kiosk, the main parking lot near the primary site access fronting Center Avenue, and a secondary parking area off McFadden Avenue (to be used only for special events). The site would be occupied and operational in the fall of 2012.

Emission calculations for the proposed project include quantifiable savings due to the proposed project's design features and GHG reducing measures, such as reductions in energy or water demand. Since the proposed project is subject to the CalGreen Code, project features will be incorporated consistent with the applicable mandatory measures. The proposed project would comply with CalGreen through incorporating strategies such as managing storm water drainage, providing energy efficient appliances, and complying with CalGreen Code's water efficiency and conservation standards by installing plumbing fixtures and fittings with flow rates set that reduce the overall use of potable water within the building by at least 20 percent. The installed automatic irrigation system controllers shall include weather or soil-based controllers. At least half of the nonhazardous construction and demolition debris shall be recycled or salvaged for reuse, except for excavated soil and land-clearing debris. The proposed project will incorporate recycled and regenerating finish materials in the flooring, kitchen, bathroom and roof systems. All finishing materials and all paints shall comply with the volatile organic compound (VOC) limits set forth in SCAQMD Rule 1168 VOC Limits. The building shall maintain interior moisture control in compliance with the standards as well. The heating and air-conditioning system shall be sized and designed in compliance with the CalGreen Code to maximize energy efficiency caused by heat loss and heat gain.

Based on the nature of the skate park/retail store and associated users, it is expected that the majority of park visitors would be youth utilizing non-vehicular transportation or dropped off by others. Trip rates were provided by the traffic impact study prepared by Austin-Foust Associates, which represents trip generation on typical mid-week and weekend days. In addition, the Skate Park facilities would host several special events per year, comprising up to approximately 15 event days, which would substantially increase park visitation and associated traffic on special event days. Guests arriving by vehicle would be diverted to the surface parking lots at the Huntington Beach Sports Complex, located approximately 2.8 miles south of the project site, which has a total of 850 parking stalls, and is commonly used for off-site parking needs during various events held intermittently throughout the City of Huntington Beach. Guests would access this parking area via the Sports Complex's eastern entrance off Gothard Street at Talbert Avenue, and then would be transported to and from the skate park via shuttle buses. Per coordination with the City and the Parking Management Plan (refer to the Traffic Impact Study), events at the Skate Park will be scheduled so as to avoid other uses at the Huntington Beach Sports Complex. Regional emissions associated with VMT to and from Huntington Beach for special events at the Skate Park are not expected to change from current practices during other special events utilizing the Sports Complex. Emissions from shuttle bus use during events are included in the analysis. Additionally, portable fossil-fueled generators could be needed to provide temporary lighting and power, and to store, cool, and prepare food and beverages during these special events. Thus, emissions from these activities are also included.

Annual GHG emissions resulting from vehicle, electrical, and natural gas usage resulting from operation of the proposed project are shown on **Table 4.C-2, Annual Greenhouse Gas Annual Emissions**, total project emissions, including amortized construction emissions, are expected to be 839 metric tons, which is less

Table 4.C-2

Annual Greenhouse Gas Annual Emissions

Emission Source	CO ₂ e (Metric Tons)
Construction (Amortized)	8
Operations	
Electricity	13
Water Conveyance	5
Natural Gas	<1
Waste	2
On-Road Mobile Sources (Typical days, 340days per year)	691
On-Road Mobile Sources (Special Events, 15 days per year) ^a	101
Shuttle Buses (Special Events) ^a	7
Temporary Generators (Special Events) ^a	13
Total Annual Operations	831
Total (Amortized Construction + Total Annual Operations)	839
Above 3,000 tons CO₂e annually?	No

^a Operation is expected to occur only on Special Event days.

Source: PCR Services Corporation, 2011.

than the 3,000 annual metric ton threshold proposed by SCAQMD. Therefore, construction and operational emissions are expected to result in less than significant impacts based on total GHG emissions.

Because impacts are less than significant, no mitigation measures are required to reduce GHG emissions. However, the following mitigation measures contained in the Beach and Edinger Corridors Specific Plan (BECSP) EIR would apply to the proposed project and would be implemented, as appropriate, to reduce GHG emissions:

- BECSPP MM4.15-1* The City shall require by contract specifications that all diesel-powered equipment used would be retrofitted with after-treatment products (e.g., engine catalysts and other technologies available at the time construction commences) to the extent that they are readily available and cost effective when construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
- BECSPP MM4.15-2* The City shall require by contract specifications that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) would be utilized to the extent feasible at the time construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
- BECSPP MM4.15-3* The City shall require that developers within the project site use locally available building materials, such as concrete, stucco, and interior finishes, for construction of the project and associated infrastructure.

- BECSPP MM4.15-4* The City shall require developers within the project site to establish a construction management plan with Rainbow Disposal to divert a target of 50 percent of construction, demolition, and site clearing waste.
- BECSPP MM4.15-5* The City shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer’s specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
- BECSPP MM4.15-6* The City shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than five minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
- BECSPP MM4.15-7* The City shall require that any new development within the Specific Plan area provide signs within loading dock areas clearly visible to truck drivers. These signs shall state that trucks cannot idle in excess of five minutes per trip.
- BECSPP MM4.15-8* The City shall require by contract specifications that electrical outlets are included in the building design of future loading docks to allow use by refrigerated delivery trucks. Future project-specific Applicants shall require that all delivery trucks do not idle for more than five minutes. If loading and/or unloading of perishable goods would occur for more than five minutes, and continual refrigeration is required, all refrigerated delivery trucks shall use the electrical outlets to continue powering the truck refrigeration units when the delivery truck engine is turned off.
- BECSPP MM4.15-9* The City shall require that any new development within the project site provide a bulletin board or kiosk in the lobby of each proposed structure that identifies the locations and schedules of nearby transit opportunities.

(2) Greenhouse Gas Plan

Threshold	Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?
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4.C-2 Project implementation would result in less than significant impacts regarding GHG emissions based on the proposed project’s compliance with applicable regulatory requirements and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The proposed project is consistent with the mandatory measures of CalGreen through incorporating strategies such as managing storm water drainage, providing energy efficient appliances, and complying with CalGreen Code’s water efficiency and conservation standards by installing plumbing fixtures and fittings with flow rates set that reduce the overall use of potable water within the building by at least 20 percent. The installed automatic irrigation system controllers shall include weather or soil-based controllers. At least half of the nonhazardous construction and demolition debris shall be recycled or salvaged for reuse, except for excavated soil and land-clearing debris. The proposed project will incorporate recycled and regenerating finish materials in the flooring, kitchen, bathroom and roof systems. All finishing materials will comply with the City’s air pollution control standards, and all paints shall comply with the

volatile organic compound (VOC) limits set forth. The building shall maintain interior moisture control in compliance with the standards as well. The heating and air-conditioning system shall be sized and designed in compliance with the CalGreen Code to maximize energy efficiency caused by heat loss and heat gain.

Thus, because the proposed project would not conflict with local policies and ordinances, it is consistent with the State's overarching regulation to reduce GHG emissions, AB32, and results in a less than significant impact. As such, no mitigation is required.

3. CUMULATIVE IMPACTS

4.C-3 The project combined with cumulative development would not result in cumulative air quality impacts. In addition, project-by-project analysis of greenhouse gas impacts, compliance with applicable regulatory requirements and implementation of the prescribed mitigation measure would ensure that potentially significant cumulative impacts regarding greenhouse gases are reduced to a less than significant level.

Typically, a cumulative impact results from the effects of a project in addition to the related projects identified in the traffic study. However, in the case of global climate change, the proximity of the proposed project to other GHG-generating activities is not directly relevant to the determination of a cumulative impact.

Although AB-32 sets statewide targets for future GHG emissions, the Scoping Plan and other implementing tools of the law are clear that the reductions are not expected to occur uniformly from all sources or sectors. **Table 4.C-3, GHG Reduction Strategies** contains a list of numerous GHG-reducing strategies potentially applicable to the proposed project, the identified related projects, and future development similar in scope and location. Included are the regulations or guidelines from which the strategies were developed, and the expected range in reduction of GHGs (for those strategies that can be quantified). The project-level analysis above highlights the manner by which the proposed project intends to meet many of these strategies.

As shown in Table 4.C-3, there exist numerous options for related project developers to reduce their contribution to city-, county-, and State-wide GHG emissions, while helping to meet the region's future housing, jobs, and infrastructure needs. However, it is not possible at this time to accurately quantify GHG emissions expected from the related projects or the GHG reductions anticipated from the above-listed strategies. Because of the complex physical, chemical and atmospheric mechanisms involved in global climate change, there is no basis for concluding that an emissions increase resulting from the proposed project and the related projects could actually cause a measurable increase in global GHG emissions sufficient to force global climate change. In addition, the emissions models used for project-level evaluations do not fully reflect improvements in technology and other reductions in GHG emissions that are likely to occur pursuant to State regulations, such as AB 1493, SB 1368, AB 32, and Executive Order S-3-5, as well as future federal and/or state regulations. Therefore, it is not possible or meaningful to calculate emissions from each of the identified related projects and compare that with a numeric threshold or reduction target. The proposed project would be consistent with the State's goals, result in a GHG emission profile that is below the most stringent threshold, and include implementation of the mandatory and many optional GHG-reducing strategies. Therefore, the proposed project does not contribute considerably to cumulatively significant GCC impacts.

Table 4.C-3

GHG Reduction Strategies

Source	Category / Description	Reduction Range
AB 1493 (Pavley Regulations)	Reduces greenhouse gas emissions in new passenger vehicles from 2012 through 2016. Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020	Up to 17 percent
SB 1368	Establishes an emissions performance standard for power plants within the State of California.	Improves RPS from 20 to 33 percent
Low Carbon Fuel Standard	Establishes protocols for measuring life-cycle carbon intensity of transportation fuels and helps to establish use of alternative fuels.	10 percent
CALGREEN Requirements	<p>All bathroom exhaust fans shall be Energy Star compliant</p> <p>Parking spaces shall be designed for carpool or alternative fueled vehicles. Up to eight percent of total parking spaces will be designed for such vehicles.</p> <p>Long-term and short-term bike parking shall be provided for up to five percent of vehicle trips.</p> <p>Indoor water usage must be reduced by 20 percent compared to current California Building Code Standards for maximum flow.</p> <p>All irrigation controllers must be installed with weather sensing or soil moisture sensors</p> <p>Wastewater usage shall be reduced by 20 percent compared to current California Building Standards.</p> <p>Requires a minimum of 50 percent recycle or reuse of nonhazardous construction and demolition debris.</p> <p>Requires documentation of types of waste recycled, diverted or reused.</p> <p>Requires use of low VOC coatings consistent with AQMD Rule 1168</p> <p>100 percent of vegetation, rocks, soils from land clearing shall be recycled or stockpiled on-site.</p>	<p>20 percent</p> <p>6.1 percent</p> <p>20 percent</p>
CALGREEN Voluntary Actions	<p>Building shall be oriented with long-side within 30 degrees of south</p> <p>Solar reflective index shall be consistent with CalGREEN or Cool Roof requirements</p> <p>Exceed 2008 California Energy Code requirements by 15 or 30 percent</p> <p>All appliances shall be Energy Star Rated</p> <p>Water heating efficiency shall be 0.80 or higher</p>	
Climate Action Team	<p>Reduce diesel-fueled commercial motor vehicle idling.</p> <p>Achieve California's 50 percent waste diversion mandate (Integrated Waste Management Act of 1989) to reduce GHG emissions associated with virgin material extraction.</p>	

Table 4.C-3 (Continued)

GHG Reduction Strategies

Source	Category / Description	Reduction Range
	<p>Plant five million trees in urban areas by 2020 to effect climate change emission reductions.</p> <p>Implement efficient water management practices and incentives, as saving water saves energy and GHG emissions.</p> <p>The California Energy Commission updates building energy efficiency standards that apply to newly constructed buildings and additions to and alterations to existing buildings. Both the Energy Action Plan and the Integrated Energy Policy Report call for ongoing updating of the standards</p> <p>Reduce GHG emissions from electricity by reducing energy demand. The California Energy Commission updates appliance energy efficiency standards that apply to electrical devices or equipment sold in California. Recent policies have established specific goals for updating the standards; new standards are currently in development.</p> <p>Apply strategies that integrate transportation and land-use decisions, including but not limited to promoting jobs/housing proximity, high-density residential/ commercial development along transit corridors, and implementing intelligent transportation systems.</p>	

Source: PCR Services, CalGreen Building Code, Climate Action Team, Attorney General's Office, 2011.