

4.8 GLOBAL CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

Global climate change describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. Global temperatures are modulated by naturally occurring components in the atmosphere (e.g., water vapor, carbon dioxide [CO₂], methane [CH₄], and nitrous dioxide [N₂O]) that capture heat radiated from the Earth's surface, which in turn warms the atmosphere. This natural phenomenon is known as the "greenhouse effect." That said, excessive human-generated greenhouse gases (GHGs)¹ emissions can and are altering the global climate.

This analysis of GHGs provides a discussion of the physical setting of the project area as well as the existing global climate setting, of the regulatory framework for global climate change, and of the potential global climate-related emissions associated with the proposed project. Modeled project emissions are based on project design, projected energy and resource use on site, construction emissions, vehicle data, and the project trip generation estimate prepared for this project.

As described below, the emissions from vehicle exhaust comprise approximately 85–90 percent of the total global climate change-related emissions (GHG emissions) from this project; however, vehicle emissions standards are regulated by the State and federal governments and are largely outside the control of this project, although to some small degree, the vehicle miles traveled can be minimized by local land use controls. The remaining 10–15 percent of the project's emissions are split between building heating systems, which are within the control of the project and will be minimized by compliance with State Title 24 regulations for building energy efficiency, and off-site electrical power plant emissions caused by producing electricity to serve the project. State law defines GHG to include the following: CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code, Section 38505(g)). The most common GHG that results from human activity is CO₂, followed by CH₄, and N₂O.

This section evaluates potential GHG emissions impacts associated with the proposed project, and identifies mitigation measures recommended for potentially significant impacts. This section summarizes information provided in the Air Quality Analysis for Newport Beach City Hall prepared by LSA Associates, Inc. (July 2009). The Air Quality Analysis Technical Report is included in Appendix C of this Environmental Impact Report (EIR). GHG is not currently listed in the California Environmental Quality Act (CEQA) Guidelines Appendix G checklist, and therefore was not addressed in the Initial Study/Notice of Preparation (IS/NOP) circulated for the proposed project. None of the comments received on the NOP pertained to GHG emissions.

4.8.1 Methodology

This evaluation was prepared in conformance with appropriate standards, utilizing procedures and methodologies in the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook and the State CEQA Guidelines to the extent that those documents are relevant to the analysis of GHG. SCAQMD has not adopted guidance at this time for evaluating GHG emissions

¹ The principle GHGs of concern contributing to the greenhouse effect are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is the largest naturally occurring GHG; however it is not identified as an anthropogenic constituent of concern.

associated with non-industrial type facilities (such as commercial facilities, which are most analogous to this project).

The recommended approach for GHG analysis included in the Governor's Office of Planning and Research (OPR) June 2008 Technical Advisory (TA) is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below significance.¹ Neither the CEQA statute nor Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis.

The June 2008 the Governor's Office of Planning and Research (OPR) guidance provides some additional direction regarding planning documents as follows: "CEQA can be a more effective tool for greenhouse gas emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce greenhouse gas emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan Environmental Impact Reports (EIRs) that analyze broad jurisdiction-wide impacts of greenhouse gas emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews."

Additionally, OPR is in the process of developing guidelines for analysis of the effects of greenhouse gas emissions. As part of this process, OPR has asked the California Air Resources Board (ARB) technical staff to recommend statewide interim thresholds of significance for GHGs. ARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects. The ARB anticipates adopting the significance criteria in 2009 to allow coordination with OPR's efforts on global climate change.²

In April 2009, proposed CEQA Guideline amendments released by OPR included the following preliminary direction regarding determination of significant impacts from GHG emissions (Section 15064.4):

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

¹ California, State of, 2008. Governor's Office of Planning and Research (OPR). *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*. June 19.

² California, State of, 2008. California Air Resources Board (ARB). *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act*. October 24.

- (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or
- (2) Rely on a qualitative analysis or performance based standards.

For the purpose of this section of the EIR, the concept of equivalent carbon dioxide (or CO₂e) is used to describe how much global warming a given type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of carbon dioxide (CO₂) as the reference. Individual GHGs have varying global warming potentials (GWP) and atmospheric lifetimes. The CO₂e is a consistent methodology for comparing GHG emissions since it normalizes various GHG to the same metric. The reference gas is CO₂, which has a GWP equal to 1. Table 4.8.A presents a set of GHGs and their GWPs and lifetimes.

Table 4.8.A: Global Warming Potentials and Atmospheric Lifetimes

Gas	Atmospheric Lifetime	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide	50–200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC	50,000	6,500
PFC	10,000	9,200
Sulfur hexafluoroethane	3,200	23,900
Sulfur hexafluoride	50–200	1

Source: AEP, Alternative Approached to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, November 2007.

HFC = hydrofluorocarbon

PFC = perfluorocarbon

The equation below provides the basic calculation required to determine CO₂e from the total mass of a given GHG using the GWPs published by the Intergovernmental Panel on Climate Change (IPCC).

$$\text{Tonnes (Metric Tons) of CO}_2\text{e} = \text{Tonnes (Metric Tons) of GHG} \times \text{GWP}.$$

This method was used to evaluate GHG emissions during construction and operation of the proposed project. For this analysis only CO₂, CH₄, and N₂O are considered. This is due to the relatively large contribution of these gases in comparison to other GHGs produced during the project construction and operation phases.

The GHG emission estimates were calculated using URBEMIS 2007. URBEMIS stands for “Urban Emissions,” and URBEMIS 2007 is an air quality modeling program that estimates air pollution emissions in pounds per day (lbs/day) or tons per year (tpy) for various land uses, area sources, construction projects, and project operations. Mitigation measures can also be specified to analyze the effects of mitigation on project emissions. The URBEMIS 2007 model uses the ARB EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. URBEMIS 2007 includes CO₂ emissions factors, the principal GHG constituent.

4.8.2 Existing Environmental Setting

Global Setting. The Earth’s climate is continuously evolving, as evidenced by the extremes in climate over the last 500,000 years. Over the last 10,000 years, the global climate has been fairly stable; however, there has recently been a rapid change in the global climate and an increase in the pollutants that affect climate change that are attributable to human activities (Climate Action Team 2006).

Global climate change describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from:

- Natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun
- Natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHGs and other gases to the atmosphere from volcanic eruptions)
- Human activities that change the atmosphere’s composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification)

The impact of anthropogenic activities on global climate change is apparent in the observational record. For example, surface temperature data show that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.¹ In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet (ft); and a marked decline has occurred in mountain glaciers and snow pack in both hemispheres, polar ice, and ice sheets in both the Arctic and Antarctic regions.

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO₂, CH₄, and N₂O from before the start of industrialization (around 1750) to over 650,000 years ago. For that period, it was found that CO₂ concentrations ranged from 180 parts per million (ppm) to 300 ppm. For the period from around 1750 to the present, global CO₂ concentrations increased from an average preindustrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the preindustrial period range.

¹ Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, February 2007.

Global warming is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose $0.6 \pm 0.2^\circ$ Celsius ($^\circ\text{C}$) ($1.1 \pm 0.4^\circ$ Fahrenheit [$^\circ\text{F}$]) in the 20th Century. The prevailing scientific opinion on climate change is that "most of the warming observed over the last 50 years is attributable to human activities."¹ The increased amounts of CO₂ and other GHGs are the primary causes of the human-induced component of warming. They are released by the burning of fossil fuels, land clearing, agriculture, and smaller activities, and lead to an increase in the greenhouse effect.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. As previously indicated, human activities are altering the chemical composition of the Earth's atmosphere through the release and buildup of climate change emissions. However, GHGs such as water vapor, CO₂, CH₄, N₂O, and ozone (O₃) can also be associated with natural sources. Conversely, several classes of halogenated substances that contain fluorine, chlorine, or bromine are also climate change emissions, but they are for the most part solely a product of industrial activities. In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While GHGs include CO₂, CH₄, and N₂O, which occur naturally, others, such as chlorofluorocarbons (CFCs), are completely new to the atmosphere.

Natural sources of CO₂ include the respiration (breathing) of animals and plants and evaporation from the oceans. Together, these natural sources release approximately 150 billion tons of CO₂ each year, far outweighing the 7 billion tons of humanmade emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural CO₂ removal processes such as photosynthesis by land- and ocean-dwelling plant species cannot keep pace with this extra input of humanmade CO₂, and consequently, the gas is building up in the atmosphere.

CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Humanmade sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. Total annual emissions of CH₄ are approximately 500 million tons, with humanmade emissions accounting for the majority. As with CO₂, the major removal process of atmospheric CH₄—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

State and Regional Setting. Worldwide, California is the 12th to 16th largest emitter of CO₂² and is responsible for approximately 2 percent of the world's CO₂ emissions³ Estimated at over 400 million tons of CO₂ a year.⁴ Transportation is responsible for 41 percent of the State's GHG emissions, followed by the industrial sector (23 percent), electricity generation (20 percent), agriculture and

¹ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: The Scientific Basis*, www.grida.no/climate/ipcc_tar/wg1/index.htm, accessed March 28, 2007.

² Ibid.

³ Ibid.

⁴ California Energy Commission, *Inventory of California GHG Emissions and Sinks: 1990 to 2004*, 2009. http://www.energy.ca.gov/global_climate_change/inventory/documents/index.html.

forestry (8 percent), and other sources (8 percent).¹ Emissions of CO₂ and N₂O are byproducts of fossil fuel combustion, among other sources. CH₄, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, as well as other sources. Table 4.8.B presents regional, State, and national GHG emissions.² (See Section 4.8.1 for an explanation of carbon CO₂e.)

Table 4.8.B: Annual Greenhouse Gas Emissions

Region	Region Carbon Dioxide Equivalent (CO ₂ e) Terragrams (Tg) ¹
SCAG ²	177
California ³	484
United States ⁴	7,065

Source: California Energy Commission 2009.

¹ Totals do not include land use, land use changes, and forestry.

² Southern California Association of Governments, 2009

³ California Air Resources Board, 2009

⁴ United States Environmental Protection Agency, 2007
Terragrams = 1 million metric tons (tonnes) = 1.1 million short tons

Climate studies indicate that California is likely to see an increase of 3–4 degrees Fahrenheit (°F) over the next century. Because primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

Water Resources. Water cycles and carbon cycles are complex processes that are partially interrelated. Therefore, changes to the carbon cycle can substantially affect the water cycle. The Draft Supplemental EIS/EIR to the Environmental Water Account Final EIS/EIR prepared by the United States Department of the Interior lists multiple potential impacts of global climate change on the water cycle. Table 4.8.C presents potential effects of global warming on water resources in California.

¹ Ibid.

² California Air Resources Board. Greenhouse Gas Inventory Data - 2000 to 2006.

Table 4.8.C: Potential Impacts of Global Warming on Water Resources and Expected Consequences for California

Potential Water Resource Impacts	Anticipated Consequences Statewide
<ul style="list-style-type: none"> • Reduction of the State’s average annual snowpack 	<ul style="list-style-type: none"> • Potential loss of 5 million acre-feet or more of average annual water storage in the State’s snowpack • Increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply
<ul style="list-style-type: none"> • Changes in the timing, intensity, location, amount, and variability of precipitation 	<ul style="list-style-type: none"> • Potential increased storm intensity and increased potential for flooding • Possible increased potential for droughts • Long-term changes in vegetation and increased incidence of wildfires • Changes in the intensity and timing of runoff • Possible increased incidence of flooding and increased sedimentation • Sea level rise and inundation of coastal marshes and estuaries • Increased salinity intrusion into the Sacramento-San Joaquin River Delta • Increased potential for Delta levee failure • Increased potential for salinity intrusion into coastal aquifers (groundwater) • Increased potential for flooding near the mouths of rivers due to backwater effects
<ul style="list-style-type: none"> • Increased water temperatures • Possible critical effects on listed and endangered aquatic species 	<ul style="list-style-type: none"> • Increased environmental water demand for temperature control • Possible increased problems with foreign invasive species in aquatic ecosystems • Potential adverse changes in water quality, including the reduction of dissolved oxygen levels
<ul style="list-style-type: none"> • Changes in urban and agricultural water demand 	<ul style="list-style-type: none"> • Changes in demand patterns and evapotranspiration

Source: Environmental Water Account Draft Supplemental EIS/EIR to the Environmental Water Account Final EIS/EIR, October 2007, United States Department of the Interior, Bureau of Reclamation Mid-Pacific Region, Sacramento, California

Anticipated Changes to the Existing Environment as a Result of Global Climate Change. The impact of anthropogenic activities on global climate change is a rise in the average global tropospheric¹ temperature of 0.2 degrees Celsius (°C) per decade, determined from meteorological measurements worldwide between 1990 and 2005.² Climate change modeling using 2000 emission rates shows that further warming would occur under these circumstances that would induce further changes in the global climate system during the current century.³ Changes to the global climate system and ecosystems and to California would be expected to include, but would not be limited to:

¹ The troposphere is the lowest portion of the earth’s atmosphere.

² Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, February 2007.

³ Ibid.

- The loss of sea ice and mountain snow pack, resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures¹
- Rise in global average sea level, primarily due to thermal expansion and melting of glaciers and ice caps in the Greenland and Antarctic ice sheets²
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones³
- Decline of the Sierra snowpack, which accounts for approximately half of the surface water storage in California by 70 percent to as much as 90 percent over the next 100 years⁴
- Increase in the number of days conducive to O₃ formation by 25–85 percent (depending on the future temperature scenario) in high O₃ areas of Los Angeles and the San Joaquin Valley by the end of the 21st century⁵
- High potential for erosion of California's coastlines and seawater intrusion into the delta and levee systems due to the rise in sea level⁶

These changes to the environment as a result of climate change may affect the project site and the proposed project, however the precise nature and extent of change cannot be predicted at this time without undue speculation.

Rising Ocean Levels. Rising ocean levels, more intense coastal storms, and warmer water temperatures may increasingly threaten the Orange County coastal region. The Intergovernmental Panel on Climate Change (IPCC) reviewed several possible GCC scenarios, and under the higher warming scenario, the IPCC anticipates that ocean levels will rise 4–30 inches along the California coast by 2100. Based on information included in “The Impacts of Sea-level Rise on the California Coast” (Pacific Institute, March 2009),⁷ under medium to medium-high greenhouse gas emissions scenarios, mean sea level along the California coast is expected to rise from 3.28–4.59 ft by 2100. Elevations of the sea level may result in inundation of coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and other natural habitats.

¹ Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, February 2007.

² Ibid.

³ Ibid.

⁴ California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March 2006.

⁵ Ibid.

⁶ Ibid.

⁷ Pacific Institute, California Climate Change Center, *The Impacts of Sea-Level Rise on the California Coast*, March 2009.

Rising sea levels may affect the natural environment in the coming decades by eroding beaches, converting wetlands to open water, exacerbating coastal flooding, and increasing the salinity of estuaries and freshwater aquifers. Coastal headlands and beaches are expected to erode at a faster pace in response to future sea level rise. The Pacific Institute (2009) estimates that 430,000 acres of wetlands exist along the California coast, but additional work is needed to evaluate the extent to which these wetlands would be degraded over time, or to what extent new wetland habitat would be created if those lands are protected from further development. Cumulatively, the effects of sea level rise may be combined with other potential long-term factors such as changes in sediment input and nutrient runoff. The cumulative impacts of physical and biological change due to sea level rise on the quality and quantity of coastal habitats are not well understood.¹ At the proposed project site, there is little potential for the sea level change to adversely affect the ecosystem. The existing City Hall site is located on the Newport Peninsula in proximity to the Pacific Ocean and Newport Bay, and is therefore more susceptible to the effects of rising sea levels. The Newport Bay west of the project site provides habitat for a variety of special-status (i.e., federally or State-listed as threatened, endangered, or candidate) species.

Rising sea levels may also affect the built environment, including coastal development such as buildings, roads, and infrastructure. The Pacific Institute (2009) estimates that nearly \$1000 billion (in year 2000 dollars) worth of property is at risk of flooding from a 100-year event with a 4.59 ft sea level rise if no adaption actions are taken. There is uncertainty with regard to methodology for assessing the timing and magnitude of sea level rise impacts and quantifying the projected costs and benefits of implementing adaptation measures. Potential adaptations for the built environment include the construction of dikes and seawalls; beach nourishment; and elevating structures and roadways. The project site is between 130 ft and 250 ft above sea level and is therefore unlikely to be directly affected by the change in sea level.

Under the higher warming scenario, the IPCC anticipates that ocean levels will rise 4–30 inches in Orange County by 2100. The Pacific Institute (2009) estimates a rise of 3.28–4.59 ft statewide by 2100. According to the Scenarios for Climate Change in California published by California Climate Change Center in 2006, Orange County is expected to experience moderate to very extensive sea level rises within this century; ocean level rises are expected to substantially exceed the historical rate of ocean level rise. Elevations of this magnitude are known to inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and other natural habitats.

In November 2006, California voters passed Propositions 1E and 84 to provide \$4.9 billion in new flood management investments (which will help prepare for more frequent and intense floods and sea level rise), and nearly \$1 billion in integrated regional water management and climate change evaluation and adaptation. Recommended actions in the Pacific Institute Report (2009) included integrating climate change into insurance policies and strategies, protecting wetlands and potential migratory paths, limiting development in areas at risk from rising seas, involving communities most vulnerable to harm in developing preparation and adaptation strategies, considering phased

¹ Climate Change Science Program (CCSP) 4.1 January 15, 2009, 1 of 784 Final Report, United States CCSP, Synthesis and Assessment Product 4.1. Coastal Sensitivity to Seal Level Rise: A Focus on the Mid-Atlantic Region. Lead Agency: United States Environmental Protection Agency, Other Key Participating Agencies: United States Geological Survey, National Oceanic and Atmospheric Administration. Contributing Agencies: Department of Transportation.

abandonment of low- and medium-density areas at high risk, protecting vital coastal-dependent resources, considering the cost-benefit of building coastal protection structures, improving disaster response and recovery in coastal communities, and considering adoption of a principle of “No Adverse Impact” when designing and permitting flood protection, beach nourishment, and other coastal protection projects.

Water Supply. With the change in temperatures that could occur with global warming, the evaporation of water will accelerate in some regions, whereas the precipitation of water will increase in other regions. As a result, hydrologic cycles will be affected, and some regions may experience more frequent droughts, while others may experience frequent floods. Rising temperatures will decrease snow zones in the mountains and will cause the snow pack to melt more rapidly. According to the California Water Plan Update (CWPU), Climate Change, and California Water Resources Report 2005 published by the California Energy Commission (CEC), decreasing snowpack in the Sierra Nevada Mountains will affect water resources in California. The California Department of Water Resources (DWR) indicates that scientists project a loss of at least 25 percent of the Sierra snowpack by 2050, which amounts to a reduction of approximately 4.5 million acre-feet (af).¹ Other changes to the water supply that could occur as a result of global climate change identified by DWR include changes to river flow, increased runoff and flooding, more frequent droughts, and a lower groundwater table.

Changes to the hydrologic cycle caused by rising temperatures and decreased snowpack in the mountains will ultimately affect river and creek ecosystems in California. The rapid changes to local temperatures and precipitation patterns may ultimately result in physical changes to the Newport Bay ecosystem and its estuarine systems in the long term. Warmer air and less snow pack may raise the average stream and estuary water temperatures, thus affecting cold-water fisheries. Saltwater intrusion is known to degrade estuaries, wetlands, and groundwater aquifers. Alteration of the water supply could also affect California agriculture, causing variations in crop quality and yield. These potential effects could adversely affect the natural resources in the project area and could adversely affect regional water supply. Currently, there is sufficient water availability and infrastructure to serve the proposed project; however, long-term viability of the water supply is unknown. The direct effects of water supply to the proposed project would be somewhat offset by the incorporation of water-saving features in the project design in accordance with the United States Green Building Council’s Leadership in Energy and Environmental Design (LEED-New Construction [NC]) Silver standards. While it is not anticipated that the project would necessitate development of new sources of water, the long-term changes in availability of water in the Newport Beach region as a result of climate changes have not been quantified at this time.

Groundwater. Currently, there are not enough data to derive the potential impacts of climate change to groundwater levels. However, DWR reports that historic patterns of groundwater recharge may change considerably as a result of climate change.² According to the CWPU (2005), impacts of climate change will differ and will depend on the specific groundwater basin characteristics such as percolation rate, recharge rate, and water quality. Alteration of groundwater recharge as a result of

¹ <http://www.water.ca.gov/climatechange/>; site accessed February 19, 2009.

² *Managing an Uncertain Future: Climate Change Adaptation Strategies for California’s Water*,” State of California, The Resources Agency, Department of Water Resources, October 2008.

global warming may occur from changes in rainfall events and changes in timing of the recharge season. Continuing saltwater intrusion and rising sea levels may also impact the quality of the aquifers.

Wildfires. Global warming is expected to intensify the occurrence of wildfires statewide. The project is located in a built-out environment; there is not much probability of wildfires affecting the project site directly. As global warming increases the fire risk, the resultant wildfires may emit more CO₂, which will continue to accelerate global warming.

4.8.3 Regulatory Setting

International and Federal Policies, Regulations, and Programs.

Kyoto Protocol. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). The Kyoto Protocol is a treaty reached 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. 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.

The goal of the Protocol is to achieve overall emissions reduction targets for six GHGs by the period of 2008 to 2012. The six GHGs regulated under the Protocol are CO₂, CH₄, N₂O, SF₆, HFCs, and perfluorocarbons. Each nation has an emissions reduction target to reduce GHG emissions a certain percentage below 1990 levels (e.g., 8 percent reduction for the European Union, 6 percent reduction for Japan). The average reduction target for nations participating in the Kyoto Protocol is approximately 5 percent below 1990 levels. Many subsequent measures are tied to these Kyoto Protocol commitments.

United States Climate Policy and Actions. The United States has opted for a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. In February 2002, the United States government announced a comprehensive strategy to reduce the GHG intensity of the American economy by 18 percent over the 10-year period from 2002 to 2012. GHG intensity measures the ratio of GHG emissions to economic output.

Currently there are no adopted regulations to control global climate change on a national level. However, recent statutory authority has been granted to the EPA that may change the voluntary approach taken under the current administration to address this issue. On April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO₂ emissions under the federal Clean Air Act (CAA). Consequently, it is anticipated that the regulation of GHG emissions on a national level by the EPA is forthcoming.

EPA ENERGY STAR and WaterSense Programs. ENERGY STAR is a joint program of the EPA and the United States Department of Energy that is focused on reducing costs and increasing environmental protections through the promotion of energy-efficient products and practices. In 1992 the EPA introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products to reduce GHG emissions. Computers and monitors were the first labeled products. Through 1995, EPA expanded the label to additional office equipment products and residential heating and cooling equipment. In 1996, EPA partnered with the United States Department of Energy for particular product categories. The ENERGY STAR label is now on major appliances, office equipment, lighting, home electronics, and more. The EPA has also extended the label to cover new homes and commercial and industrial buildings.

WaterSense, a partnership program sponsored by the EPA, seeks to protect the future of the nation's water supply by promoting water efficiency and enhancing the market for water-efficient products, programs, and practices. WaterSense helps consumers identify water-efficient products and programs. The WaterSense label indicates that these products and programs meet water efficiency and performance criteria. WaterSense-labeled products will perform well, help save money, and encourage innovation in manufacturing. WaterSense is partnering with irrigation professionals and irrigation certification programs to promote water-efficient landscape irrigation practices. WaterSense is also partnering with manufacturers, retailers, distributors, and utilities to bring WaterSense products to the marketplace and make it easy to purchase high-performing, water-efficient products.

State Policies and Regulations.

Title 24 (California Energy Code). The Energy Efficiency Standards for Residential and Nonresidential Buildings, commonly referred to as Title 24 of the California Code of Regulations (CCR), were established by the CEC in 1978. All new projects in California are required to meet the standards, which are updated approximately every 3 years. The most current standards are from 2005 and superseded standards from 2001. Currently, the CEC is considering changes to the Building Energy Efficiency Standards contained in CCR, Title 24, Part 6, and associated administrative regulations in Part 1.

The current standards significantly reduce energy consumption as compared to previously constructed projects, particularly those built before 1990. Generally, the 2005 standards mandate efficient outdoor and indoor lighting, cool roofs, demand control ventilation, efficient space conditions systems, and duct and pipe insulations, etc. The premise for the standards is that energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency in buildings results in fewer GHG emissions.

Assembly Bill 1493 Vehicular Emissions of Greenhouse Gases. In a response to the transportation sector accounting for more than half of California's CO₂ emissions, Assembly Bill (AB) 1493 (Pavley) was enacted on July 22, 2002. AB 1493 requires the California Air Resources Board (ARB) to set GHG emission standards for passenger vehicles, light-duty trucks,

and other vehicles determined to be vehicles whose primary use is noncommercial personal transportation in the State manufactured in 2009 and all subsequent model years. In setting these standards, the ARB considered cost effectiveness, technological feasibility, and economic impacts. ARB adopted the standards in September 2004. When fully phased in, the near-term (2009 to 2012) standards would result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013 to 2016) standards would result in a reduction of approximately 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions, and hybrid electric drives. To set its own GHG emissions limits on motor vehicles, California must receive a waiver from the EPA. The EPA approved the waiver in June 2009.

Executive Order S-03-05. In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order (EO) S-3-05. The EO established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. Furthermore, EO S-03-05 requires the Secretary of the California Environmental Protection Agency (Cal EPA) to evaluate the impacts of climate change and establish mitigation measures that would reduce potential impacts.

Assembly Bill 32—California Global Warming Solutions Act of 2006. California's major initiatives for reducing GHG emissions are outlined in AB 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006, the 2005 EO discussed above, and a 2004 ARB regulation to reduce passenger car GHG emissions. The statute begins with several legislative findings and declarations of intent, including the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems. (Health and Safety Code, Section 38501.)

The State goal is to reduce GHG emissions to 1990 levels by 2020, a reduction of approximately 25 percent, and then an 80 percent reduction below 1990 levels by 2050. The main strategies for making these reductions are outlined in the Scoping Plan, which when completed will include a range of GHG reduction actions that can include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

Pursuant to the requirements of AB 32, the State's reduction in global warming emissions will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012. Additional early action items include a comprehensive framework of regulatory and nonregulatory elements that will result in significant and effective GHG emission reductions. ARB was required to prepare a plan demonstrating how the 2020 deadline can be met by January 1, 2009. The ARB Board approved the Scoping Plan in December, 2008. The Scoping Plan provides the outline for actions to reduce GHG emissions. In addition, AB 32 directed ARB and the newly created Climate Action Team (CAT) to identify a list of "discrete early action GHG reduction measures" that can be adopted and made enforceable by January 1, 2010. CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of ARB's jurisdiction.

AB 32 requires the ARB to adopt GHG emission limits and emission reduction measures by January 1, 2011, both of which are to become effective on January 1, 2012. The ARB must also evaluate whether to establish a market-based cap and trade system. AB 32 does not identify a significance level of GHG for CEQA purposes, nor has the ARB adopted such a significance threshold.

ARB 2007 Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Air Resources Board pursuant to the requirements of the California Global Warming Solutions Act of 2006 (AB 32) has directed its staff to pursue and adopt so-called early actions measures that would help the state in achieving its 2020 GHG reduction goals. The Early Action Measures to Reduce Greenhouse Gas Emissions in California report published in 2007 adopted first 37 measures. Based on additional meetings with stakeholders that included SCAQMD, CARB, and the California Air Pollution Control Officers Association (CAPCOA), existing measures were revised and new actions measures were proposed. To report the findings an Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions report was published later the same year. In the report ARB recommends expansion of the adopted 37 strategies to a total of 44 measures. The broad spectrum of strategies includes a Low Carbon Fuel Standards, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate GHG reductions, and green ports etc. The report describes each measure and either recommends its approval or reclassification, or reports on the input received from the stakeholders group. The report analyzes the potential emissions reductions achieved from each measure, estimates the cost of the implementation, and analyses their feasibility.

ARB Climate Change Scoping Plan. Subsequent to approval of the early action measures ARB developed a Climate Change Scoping Plan to lower the state's greenhouse gas emissions to meet the AB 32 2020 limit. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates synergistically all ARB and CAT early actions and additional GHG reduction measures, and defines the role of any potential market mechanisms. The Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California through reduction on oil dependency, diversification of energy sources, energy savings, and enhanced public health while maintaining growth in California's economy.

Executive Order S-01-07. EO S-01-07 was put forth by Governor Arnold Schwarzenegger on January 18, 2007. California further solidified its dedication to reducing GHGs above what was intended in EO S-03-05 by setting a new Low Carbon Fuel Standard for transportation fuels sold within the State. EO S-1-07 sets a declining standard for GHG emissions measured in CO₂e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. Essentially, the order mandates the following: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

Senate Bill 97. To address GHG emission and global climate change in General Plans and CEQA documents, SB 97 (Chapter 185, 2007) requires the OPR to develop CEQA guidelines on how to address global warming emissions and mitigate project-specific GHG. OPR was required to prepare, develop, and transmit these guidelines on or before July 1, 2009. As described below, OPR has issued a Technical Advisory (TA) in advance of developing amendments to the CEQA Guidelines, and proposed draft amendments to the CEQA Guidelines.

Senate Bill 375. SB 375, which was signed into law on October 1, 2008, provides emissions reduction goals and provides incentives for local governments and developers to follow new conscientiously planned growth patterns in order to reduce GHG emissions. SB 375 enhances the ARB's ability to reach AB 32 goals by directing the ARB to develop regional GHG emission reduction targets to be achieved by the automobile and light truck sectors for 2020 and 2035. The ARB will also work with California's 18 metropolitan planning organizations to align their regional transportation, housing and land use plans; prepare a "sustainable communities strategy" to reduce the number of vehicle miles traveled in their respective regions; and demonstrate the region's ability to attain its GHG reduction targets.

OPR Guidelines. OPR issued a TA titled "CEQA and Climate Change: Addressing Climate Change Through CEQA Review" on June 18, 2008. The TA was intended as a guide to planners and CEQA practitioners for addressing climate change in CEQA documents. The TA noted that neither the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. However, even in the absence of clearly defined thresholds for GHG emissions, the emissions from projects must be disclosed. OPR identified three basic steps for the GHG approach in CEQA documents: (1) identify and quantify the GHG emissions; (2) assess the significance of the impact on climate change, and (3) if the impact is found to be significant, identify alternatives and/or mitigation measures that will reduce the impact below significance.

OPR released draft amendments to the CEQA Guidelines in January 2009, providing informal guidance for public agencies as they address the issue of climate change in CEQA documents. The proposed draft amendments were prepared by OPR in collaboration with the California Resources Agency, Cal EPA, and the ARB. The TA provides OPR's perspective on the issue and precedes the development of draft implementing regulations for CEQA in accordance with SB 97

(Chapter 185, Statutes of 2007). The proposed amendments are to 14 sections of the CEQA Guidelines, and it is anticipated that amended regulations will be adopted by 2010.

Waste Diversion. AB 75 was passed in 1999, and the State Agency Model Integrated Waste Management Act (Chapter 764, Statutes of 1999, Strom-Martin) took effect on January 1, 2000. This bill added new provisions to the Public Resources Code (PRC), mandating that State agencies develop and implement an integrated waste management plan (IWMP); AB 75 also mandated that community service districts providing solid waste services report disposal and diversion information to the city, county, or regional agency in which the community service district is located. Among other things, AB 75 established the requirement to divert at least 25 percent of their solid waste from landfills or transformation facilities by January 1, 2002, and divert 50 percent on and after January 1, 2004.

Other Programs.

Leadership in Energy and Environmental Design (LEED). LEED is an internationally recognized green building certification program that is implemented through the U.S. Green Building Council (USGBC). USGBC is a consensus nonprofit organization representing the entire building industry, consisting of almost 20,000 companies and organizations. The first LEED program for new construction was initiated in 2000. (1998-first project under NC in pilot stage). Currently, there are programs for other types of construction as well, including Existing Buildings: Operations and Maintenance, Core and Shell, Commercial Interiors, Homes, Schools, Healthcare, Retail and Neighborhood Development. The LEED rating system is based on six major sections (Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials Resources, Indoor Air Quality, Innovation in Design) in which the buildings can achieve credits towards certification. In addition to the basic level of certification, Silver, Gold and Platinum certification program are also available.

SCAG Regional Plans. As described in Section 4.1, the Regional Comprehensive Plan (RCP) assembles all of the planning and policy work produced by SCAG into a usable reference document for local planners, business people, and other individuals whose work affects the future built environment in Southern California. The current RCP is built around the SCAG Compass Growth Vision and the 2% Strategy adopted by the Regional Council in April 2004. The recommendations made in the RCP call for infrastructure and resource activities consistent with the envisioned growth pattern. The policies in the RCP call for a reduction of emissions and increased mobility through strategic land use changes, such as encouraging job growth to be concentrated near transit services, transit nodes, existing freeways, high-occupancy vehicle (HOV) lanes, and toll roads.

SCAG is also developing a growth visioning process called Compass Blueprint, which will provide the voluntary framework for growth management in the Southern California region. Driven by four key principles—mobility, livability, prosperity, and sustainability—the Compass Vision emphasizes the following strategies to better coordinate land use and transportation decision making:

- Focus growth in existing and emerging centers and along major transportation corridors
- Create significant areas of mixed-use development and walkable communities
- Target growth around existing and planned transit stations
- Preserve existing open space and stable residential areas

A purpose of the Compass Blueprint growth project is to encourage communities that balance employment, housing, and services to reduce vehicle trips and emissions, enhance livability, expand prosperity, and increase sustainability. These policies support a land use pattern that minimizes GHG emissions by limiting VMT.

The 2008 Regional Transportation Plan (RTP) acknowledges that transportation is the largest single source of GHG emissions in California, and emissions from the transportation sector have grown more rapidly than from other sources over the past ten years. The plan promotes ridesharing and alternative modes of transportation, as well as reduced VMT through telecommuting and use of non-motorized transportation such as bicycling and walking. The RTP supports land use patterns that facilitate reduced VMT.

Local Policies and Regulations: City of Newport Beach.

City of Newport Beach General Plan 2006. The General Plan for the City of Newport Beach was adopted in 2006, and recognizes that Newport Beach is primarily a residential community, with diverse coastal and upland neighborhoods. As Newport Beach is almost fully built out, the General Plan focuses on conserving the existing pattern of land uses and establishes policies for their protection and long-term maintenance. While the General Plan contains no policies specifically pertaining to GHG emissions, the Natural Resources Element of the General Plan provides direction regarding the conservation, development, and utilization of natural resources. It identifies Newport Beach's natural resources and provides goals and policies for their preservation, development, and wise use. This element addresses water supply (as a resource) and water quality (includes bay and ocean quality, and potable drinking water), air quality, terrestrial and marine biological resources, open space, mineral resources, visual resources, and energy. The General Plan goals and policies that reasonable relate to GCC are presented in Table 4.8.D.

Table 4.8.D: Newport Beach General Plan Goals and Policies

Goal	Policies as Related to the Conservation and Energy Efficiency
<p>Goal 1 – Water Quality Minimized water consumption through conservation methods and other techniques.</p>	<p>Policy NR 1.1 Water Conservation in New Development: Enforce water conservation measures that limit water usage, prohibit activities that waste water or cause runoff, and require the use of water-efficient landscaping and irrigation in conjunction with new construction projects. <i>(Imp 2.1, 7.1, 17.1)</i></p>
	<p>Policy NR 1.2 Use of Water Conserving Devices: Establish and actively promote use of water conserving devices and practices in both new construction and major alterations and additions to existing buildings. This can include the use of rainwater capture, storage, and reuse facilities. <i>(Imp 6.1, 7.1, 17.1)</i></p>
	<p>Policy NR 1.4 Alternative Conservation Measures: Explore implementation of alternative conservation measures and technology as they become available. <i>(Imp 7.1, 17.1, 18.1)</i></p>
<p>Goal 6 – Air Quality Reduced mobile source emissions.</p>	<p>Policy NR 6.1 Walkable Neighborhoods: Provide for walkable neighborhoods to reduce vehicle trips by siting amenities such as services, parks, and schools in close proximity to residential areas. <i>(Imp 1.2, 2.1)</i></p>
	<p>Policy NR 6.4 Transportation Demand Management Ordinance: Implement the Transportation Demand Management (TDM) Ordinance, which promotes and encourages the use of alternative transportation modes, and provides those facilities such as bicycle lanes that support such alternate modes. <i>(Imp 7.3, 16.8, 16.11)</i></p>
	<p>Policy NR 6.5 Local Transit Agency Collaboration: Collaborate with local transit agencies to: develop programs and educate employers about employee rideshare and transit; establish mass transit mechanisms for the reduction of work-related and non-work-related vehicle trips; promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles; and develop bus shelters, bicycle lanes, and other bicycle facilities. <i>(Imp 14.4, 14.9, 16.8, 29.1)</i></p>

Table 4.8.D: Newport Beach General Plan Goals and Policies

Goal	Policies as Related to the Conservation and Energy Efficiency
<p>Goal 7 – Air Quality Reduced air pollutant emissions from stationary sources.</p>	<p>Policy NR 7.2 Source Emission Reduction Best Management Practices: Require the use of Best Management Practices (BMP) to minimize pollution and to reduce source emissions. <i>(Imp 7.1)</i></p> <p>Policy NR 7.3 Incentives for Air Pollution Reduction: Provide incentives to promote siting or to use clean air technologies and building materials (e.g., fuel cell technologies, renewable energy sources, UV coatings, hydrogen fuel). <i>(Imp 2.1, 6.1, 7.1)</i></p>
<p>Goal 8 – Air Quality Reduced air pollutant emissions from construction activities.</p>	<p>Policy NR 8.1 Management of Construction Activities to Reduce Air Pollution: Require developers to use and operate construction equipment, use building materials and paints, and control dust created by construction activities to minimize air pollutants. <i>(Imp 7.1)</i></p>
<p>Goal 24 – Energy Conservation Increased energy efficiency in City facilities and operations and in private developments.</p>	<p>Policy NR 24.1 Incentives for Energy Conservation: Develop incentives that encourage the use of energy conservation strategies by private and public developments. <i>(Imp 7.1)</i></p> <p>Policy NR 24.2 Energy-Efficient Design Features: Promote energy-efficient design features. <i>(Imp 7.1)</i></p> <p>Policy NR 24.3 Incentives for Green Building Program Implementation: Promote or provide incentives for “Green Building” programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate to achieve “green building” status. <i>(Imp 7.1)</i></p> <p>Policy NR 24.4 Incentives for Provision of Leadership in Environmental and Energy Design (LEED) Certified Buildings: Provide incentives for implementing LEED-certified building such as fee waivers, bonus densities, and/or awards recognition programs. <i>(Imp 2.1, 7.1)</i></p>

Table 4.8.D: Newport Beach General Plan Goals and Policies

Goal	Policies as Related to the Conservation and Energy Efficiency
Goal 6.2 – Reduced automobile travel through the use of travel demand management strategies.	<p>CE 6.2.1 Alternative Transportation Modes: Promote and encourage the use of alternative transportation modes, such as ridesharing, carpools, vanpools, public transit, bicycles, and walking; and provide facilities that support such alternate modes. (<i>Imp 16.8, 16.11</i>)</p> <p>CE 6.2.2 Support Facilities for Alternative Modes: Require new development projects to provide facilities commensurate with development type and intensity to support alternative modes, such as preferential parking for carpools, bicycle lockers, showers, commuter information areas, rideshare vehicle loading areas, water transportation docks, and bus stop improvements. (<i>Imp 16.8, 16.11</i>)</p>

Source: The Newport Beach City General Plan 2006.

4.8.4 Impact Significance Criteria

Under CEQA, an EIR must identify and analyze the significant environmental effects of a project. Significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. (Pub. Resources Code, § 21068.) CEQA further states that the CEQA Guidelines shall specify certain criteria that require a finding that a project may have a significant effect on the environment. That said, while the global impact of climate change has been widely recognized, the standards and methodologies for analyzing what a project’s contribution to that impact may be, as well as assessing whether that impact is significant, is still substantially uncertain. As of the writing of this EIR, the agencies with jurisdiction over air quality regulation and GHG emissions such as the Air Resources Board (ARB) and the South Coast Air Quality Management District (SCQAMD) have not adopted regulations, methodologies, significance thresholds, standards, or analysis protocols for the assessment of greenhouse gas emissions and climate change. OPR has issued very general guidance on how to approach GHG emission, recommending that the agency (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below significance. In April 2009, proposed CEQA Guideline amendments released by OPR included the following direction regarding determination of significant impacts from GHG emissions (Section 15064.4):

A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:

- (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

These Guidelines have not been adopted. Thus, to date, there have been no prescribed thresholds of significance or a particular methodology for performing an impact analysis. CEQA Guidelines Section 15064(b) states that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

CEQA provides guidance on how to approach analysis of subject matters that are not well understood as yet such as climate change. Sections 15144 and 15145 of the CEQA Guidelines address forecasting and speculation. Section 15144 notes that drafting an EIR necessarily involves some degree of forecasting, whereas Section 15145 deals with the difficulty of forecasting when reasonable investigation is unable to resolve the issues and thus may result in speculative answers. As stated in the CEQA Guidelines, the Lead Agency is not required to engage in speculation discussion but is required to inform the decision makers of the potential impacts of the proposed activity. CEQA Guidelines Section 15002(a)(1) states that one of the basic purposes of CEQA is to "inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities." The Governor of California and the State Legislature have expressed their interest in and importance of Global Climate Change to the citizens of California through the passage of AB 32 in the Legislature and the Governor's Executive Order (EOs), which call for reductions of GHG emissions. Therefore, the presented discussion is warranted to inform decision makers of the potential effects of the proposed project.

Some policy makers and regulators suggest that a zero emissions threshold would be appropriate when evaluating GHGs and their potential effect on climate change. Such a rule appears inconsistent with the State's approach to mitigation of climate change impacts. AB 32 does not prohibit all new GHG emissions; rather, it requires a reduction in statewide emissions to a given level. Thus, AB 32 recognizes that GHG emissions will continue to occur; and that increases will result from certain activities, but that emissions reductions must be achieved overall. Moreover, if all economic development were to cease, the state would very likely be unable to fund the very measures that are needed to combat climate change.

This EIR analyzes whether the project's emissions should be considered significant. The proposed project may result in a significant global climate change impact if it would impede achievement of the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

4.8.5 Project Impacts

An individual project cannot generate enough GHG emissions to significantly influence climate change, but individual projects can incrementally contribute toward the potential for the cumulative emissions driving global climate change. This EIR analyzes whether the project's contributions combined with emissions from all other past, present, and probable future projects contribute toward the potential for global climate change on a cumulative basis, and whether the project's contribution to the impact is "cumulatively considerable."

4.8.6 Cumulative Impacts

The cumulative study area for consideration of impacts related to global climate change is the State of California. Climate change is a global issue caused by many factors, therefore, project impacts must be considered in the context of multiple sectors and the combined efforts of many industries, including land development, energy use, and transportation. State-wide, the Transportation sector is the largest current contributor to existing cumulative GHG emission, with 38 percent of the state's total greenhouse gas emissions or 179.3 MMTCO_{2e}. The Electricity and Commercial/Residential Energy sector is the next largest contributor with over 30 percent of the statewide greenhouse gas emissions or 150.0 MMTCO_{2e}. California's Industrial sector includes refineries, cement plants, oil and gas production, food processors, and other large industrial sources. This sector contributed 20 percent of California's greenhouse gas emissions or 95.9 MMTCO_{2e}. The Forest sector is unique in that forests both emit greenhouse gases and uptake carbon dioxide (CO₂). While the current inventory shows forests as a sink of 4.7 MMTCO_{2e}, carbon sequestration has declined since 1990. The agricultural greenhouse gas emissions are largely methane emissions from livestock, both from the animals and their waste. Emissions of greenhouse gases from fertilizer application are also important contributors from the Agricultural sector. This sector contributed 5.9 percent of California's greenhouse gas emissions or 27.7 million tons carbon dioxide equivalent (MMTCO_{2e}).¹

Threshold 4.8.1 **Would the project impede achievement of the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.**

Significant and unavoidable. ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act*. That Guidance, while still in draft form, does provide some assistance to the City in evaluating whether this project would impede the State's mandatory requirements under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020.

The Guidance does not specifically identify public projects such as the City Hall and park Development Plan project, since they are relatively uncommon sorts of projects. The Guidance describes generally three classes of common projects: industrial, commercial, and residential projects. For each type of project, the Guidance recommends that a two-pronged threshold be employed, one

¹ ARB Scoping Plan.

performance based and one numerical. For performance standards, the draft guidance suggests that operations and construction of the project be evaluated for its consistency with applicable performance standards contained in plans designed to reduce GHG emissions and/or help meet the State's emission reduction objectives in AB 32. The Guidance contains two numerical standards that will guide the City's analysis of the impacts of this Project to a degree. First, the Guidance states that some small residential and commercial projects, emitting 1,600 metric tons of CO₂e per year or less, would clearly not interfere with achieving the States emission reduction objectives in AB 32 (and EO S-03-05) and thus may be deemed categorically exempt from CEQA. The Guidance does not state or imply that projects emitting more than 1,600 metric tons of CO₂e per year will necessarily result in a significant impact, although at this point, the Guidance has no precise numerical threshold for commercial and residential projects. For industrial projects, the Guidance proposes that projects that emit less than 7,000 metric tons of CO₂e per year may be considered less than significant, recognizing that AB 32 will continue to reduce or mitigate emissions from these sorts of projects over time.

Thus, while State agencies and local air pollution control districts are currently working to develop CEQA thresholds of significance that would guide classification of impacts associated with global climate change in CEQA documents, to date, the City lacks sufficient information to establish formal, permanent thresholds by which classify projects with relatively small, incremental contributions to the State's total GHG emissions as cumulatively considerable or not. Until appropriate regulatory entities develop CEQA thresholds for GHGs, projects emitting more than 1,600 metric tons of CO₂e per year, the City will apply interim standards based on the existing draft Guidance. For residential and commercial projects, the City will evaluate the project's consistency with performance standards set out in City policies, which promote sustainability and reduce emissions, as well as State policies and strategies designed to meet the State's emission reduction objectives in AB 32¹; the City will also evaluate project emissions numerically. Until further guidance is provided by the State or other appropriate expert agencies, the City will conservatively apply a standard that falls somewhat below the State's proposed threshold for industrial projects, which is 7,000 metric tons of CO₂e per year. To restate, until more Guidance is provided from the expert agencies, the City will consider projects emitting 1,600 metric tons of CO₂e per year or less to be less than significant and no further analysis is required. For projects exceeding the screening threshold of 1,600 metric tons of CO₂e per year, the City will consider projects to have significant impacts under this threshold if they either (1) are not substantially consistent with policies and standards set out in federal, state, and local plans designed to reduce greenhouse gas emission or (2) would emit more than 6,000 metric tons of CO₂e per year. Projects that are not substantially consistent with policies and standards set out in federal, state, and local plans designed to reduce greenhouse gas emission or would emit more than 6,000 metric tons of CO₂e per year would be considered to have significant impacts under this threshold, and thus could be expected to impede the State's mandatory requirement under AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The City recognizes that this standard is interim and will likely change over time as further guidance is provided by the expert regulatory agencies.

¹ These interim standards are consistent with the general guidance on cumulative impacts analysis. For instance, section 15064(h)(3) of the proposed amendment to the CEQA Guidelines states that a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a plan or regulation that apply to the project that is specified in law or adopted by the public agency and has specific requirements to reduce the emissions of GHG.

Operational Emissions

Forecast emissions calculated for the project indicate that the project, during operations, will likely exceed the interim numerical standard of 6,000 metric tons of CO₂e per year. Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with on-site employees and visitors to the project site. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed uses.

In addition, non-quantifiable GHG emissions would result from the clearing of existing vegetation on the project site. The net removal of vegetation for construction results in a loss of the carbon sequestration in plants. However, planting of additional vegetation would result in additional carbon sequestration and would reduce the carbon footprint of the project.

The GHG emission estimates presented in Table 4.8.E show the emissions associated with the operation of the proposed project if it were built using conventional building design.

Table 4.8.E: Greenhouse Gas Emissions Using Conventional Building Design

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Vehicles ⁽¹⁾	5,400	0.18	0.4	5,500
Electricity Production	530	0.0058	0.0032	530
Natural Gas Combustion ¹	160	0.0022	0.0021	160
Solid Waste	--	--	--	260
Other Area Sources ²	1.4	--	--	1.4
Total Annual Emissions	6,100	0.19	0.41	6,451

Source: LSA Associates, Inc. July 2009.

Note: Numbers in Table may not appear to add up correctly due to rounding of all numbers to two significant digits.

¹ CO₂ emissions for vehicles and natural gas based on URBEMIS 2007 output.

² Includes CO₂ emissions for hearth combustion and landscaping equipment from URBEMIS 2007 output.

CH₄ = methane

CO₂e = carbon dioxide equivalent

CO₂ = carbon dioxide

N₂O = nitrous oxide

The GHG emission estimates presented in Table 4.8.F show the operational emissions associated with the proposed project at build out, incorporating all planned energy efficiency improvements and other greenhouse gas emissions reduction measures. Refer to Chapter 3.0, Project Description, and Section 4.8.8 for a list of the proposed project design features. A more in depth discussion of the LEED features and other energy-efficiency improvements incorporated into the project design is set out in Table 4.8.F.

Table 4.8.F: Greenhouse Gas Emissions for the Proposed Project

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Vehicles ¹	5,400	0.18	0.4	5,500
Electricity Production	290	0.0032	0.0018	290
Natural Gas Combustion	93	0.0018	0.0017	94
Solid Waste	--	--	--	234
Other Area Sources ²	1.4	--	--	1.4
Total Annual Emissions	5,800	0.19	0.4	6,119

Source: LSA Associates, Inc. July 2009.

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.

¹ CO₂ emissions for vehicles from URBEMIS 2007 output.

² Includes CO₂ emissions for hearth combustion and landscaping equipment from URBEMIS 2007 output.

CH₄ = methane

CO₂e = carbon dioxide equivalent

CO₂ = carbon dioxide

N₂O = nitrous oxide

The quantifiable GHG emissions source include motor vehicle trips, energy and water consumption, and solid waste generation. As shown in these two tables, the enhanced energy efficiency features planned for the project will result in a reduction of 332 metric tons per year of CO₂e compared to conventional building design. Emissions from vehicular trips remains consistent between the two scenarios. A 26 tonne reduction is realized from reductions in solid waste generation. Improved building design and features result in energy savings (electricity and natural gas consumption) that reduce GHG emissions by 306 metric tons. The following text describes the GHG emissions sources listed in Tables 4.7.E and 4.8.F. Appendix C shows how these tables were calculated, including the worksheets for the GHG emissions which were calculated using URBEMIS.

Energy and Natural Gas Use. Buildings represent 39 percent of the United States' primary energy use and 70 percent of electricity consumption.¹ The proposed project would increase the demand for electricity and natural gas due to the increased building area and number of employees. The project would indirectly result in increased GHG emissions from off-site electricity generation at power plants (a portion of 290 metric tons of CO₂e/year). The project would indirectly result in increased GHG emissions from off-site natural gas generation of 94 CO₂e.

Water Use. Water-related energy use consumes 19 percent of California's electricity every year.² Energy use and related GHG emissions are based on electricity used for water supply and conveyance, water treatment, water distribution, and wastewater treatment. The project would indirectly result in increased GHG emissions from the off-site electricity generation at power plants (the remainder of the 290 metric tons of CO₂e/year).

¹ United States Department of Energy. 2003. *Buildings Energy Data Book*.

² California, State of, 2005. California Energy Commission. California's Water-Energy Relationship. November.

Solid Waste Disposal. The proposed project would also generate solid waste during the operation phase of the project. Average waste generation rates from a variety of sources are available from the California Integrated Waste Management Board (CIWMB).¹ This analysis uses an average waste generation rate of 0.59 dry metric tons per employee per year for government uses (for the City Hall) and 0.0013 dry metric tons per square foot per year for education/school uses (for the Library). The project would indirectly result in increased GHG emissions from solid waste treatment at treatment plants (approximately 234 metric tons of CO₂e/year).

Mobile Sources. Mobile sources (vehicle trips and associated miles traveled) are the largest source of GHG emissions in California and represent approximately 38 percent of annual CO₂ emissions generated in the State. Like most land use development projects, vehicle miles traveled (VMT) is the most direct indicator of CO₂ emissions from the proposed project, and associated CO₂ emissions function as the best indicator of total GHG emissions. The proposed project would generate 3,045 daily trips.

The project-related vehicle exhaust includes approximately 5,500 metric tons of CO₂e per year of new emissions, approximately 89–90 percent of the project's total CO₂e emissions. These vehicle exhaust emissions themselves are controlled by the State and federal governments and are outside the control of the City; thus, the City's efforts to improve on conventional construction techniques will not affect mobile source emissions. It is anticipated that the State's regulations of vehicles will eventually reduce the overall projected fleet emissions, including project-related emissions. For instance regulations adopted pursuant to under AB 1493 are projected to be phased such that near-term (2009 to 2012) standards would result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013 to 2016) standards would result in a reduction of approximately 30 percent. These efforts have been delayed by litigation and economic constraints, but are expected to go forward. Other State activities may further reduce project-related mobile-source emissions. EO S-01-07 is intended to establish a new Low Carbon Fuel Standard for transportation fuels sold within the State; the target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. To some degree, land use planning can facilitate a reduction in vehicle miles traveled. As explained elsewhere, however the voters identified the site location and project amenities when they adopted Measure B. Moreover, this project is located within the urban center of the City, and, as essentially an infill project, has already minimized the emissions from vehicle miles traveled. The project can incorporate other measures to encourage alternative modes of travel and thus reduce vehicle miles travel, but the effectiveness depends on employee and visitor voluntary behaviors and thus is difficult to quantify.

¹ California Integrated Waste Management Board, 2009. Estimated Solid Waste Generation Rates for Residential Developments. Available at <http://www.ciwmb.ca.gov///.htm>.

CFCs. At present, there is a federal ban on CFCs; therefore, it is assumed the project would not generate emissions of CFCs. The project may emit a small amount of hydrofluorocarbon (HFC) emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used on site are unknown at this time. Perfluorinated carbons (PFCs) and sulfur hexafluoride, refrigerants with some of the greatest global warming potentials, are typically used in industrial applications, none of which would be used on the project site. Moreover, the LEED design process encourages the use of alternatives to CFC-based refrigerants. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

The project incorporates energy savings features through the site design and LEED-NC design. Mitigation measures identified at the end of this section further reduce energy use during construction and project operation.

The LEED-NC Silver Green Building Rating System™ promotes sustainable green building and development practices through the creation and implementation of accepted tools and performance criteria. LEED-NC Silver is a third-party certification program and is the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. LEED-NC Silver gives building owners and operators a menu of optional design features that, when combined, can have a measurable impact on a building's performance. Depending on the number of points or credits a building is able to achieve, it may qualify for basic certification, or Silver-, Gold-, or Platinum-level certification.

Addressed earlier, LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. The City will implement the appropriate certification approach prior to final design of the new building construction.

The LEED-NC checklist is divided into seven sections that are subdivided into individual credits that the project can achieve if it designs, constructs, or implements measures as prescribed in each credit. It is anticipated that the credits that will be applied at the Newport Beach City Hall to achieve LEED-NC Silver certification will include, but may not be limited to the following:

Alternative Transportation/Bicycle Storage and Changing Rooms. A project's conformance with this standard is achieved by incorporation of project components that foster use of alternative transportation to reduce GHG emissions from automobiles. The provision of bicycle storage and changing rooms for employees and City Hall users would also encourage alternative transportation to the site.

Heat Island Effect Nonroof. Conformance with this credit will be achieved by reduction of a project's heat island effect (which is a thermal gradient difference between developed and undeveloped areas) to minimize impacts on microclimate and human and wildlife habitat. Methods of reducing the heat island effect (nonroof) include use of light-colored paint and

building materials to reflect heat, use of light-colored materials on the rooftop fields, covered parking, and incorporation of landscaping in parking lots to reduce heat generated by asphalt parking lots. The proposed parking structure will be a semisubterranean parking structure that reduces the heat island effect compared to an open asphalt parking lot.

Water Use Reduction (20 percent). Building design components that can reduce water use in new buildings include the use of high-efficiency fixtures, dry fixtures (composting toilet systems), nonwater-using urinals, and occupant sensors to reduce the potable water demand. Other strategies include reuse of storm water and gray water for nonpotable applications such as toilet and urinal flushing and custodial uses. Compliance with the Water Efficiency Credit will reduce the project's water use by up to 20 percent. Compliance will minimize the increased burden on municipal water suppliers and wastewater system and reduce the additional energy consumption as a result of collection, treating, and distribution of potable water.

Optimize Energy Performance. This credit intends to achieve increased levels of energy performance above current building energy efficiency standards. The credit reduces environmental and economic impacts associated with excessive energy use. All new buildings are required to achieve at least a 10.5–42 percent reduction above the baseline scenario to obtain this credit.

Enhanced Refrigerant Management. This credit reduces or eliminates the use of CFC-based refrigerants. The intent of the credit is to reduce O₃ depletion and minimize direct contributions to global warming.

Enhanced Commissioning. This credit is achieved by designation of an independent commissioning authority to lead, review, and oversee the completion of all commissioning process activities. The systems to be commissioned include heating, ventilation, and air-conditioning (HVAC) systems, building envelopes, storm water management systems, water treatment systems, and information technology systems.

Green Power. The Green Power credit can be achieved by using off-grid sources of power and renewable energy technologies. Implementation of this credit is dependent on the local availability of green power by the service provider serving the project site. The intent of the credit is to provide at least 35 percent of the building's electricity from renewable sources by engaging in at least a 2-year renewable energy contract.

Construction Waste Management–Divert 50 Percent from Disposal. This credit is executed by diversion of 50 percent of nonhazardous construction waste debris from disposal in landfills and incinerators. The materials used for recycling could include: cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet, and insulation. The credit also anticipates the redirection of recyclable recovered resources back to the manufacturing

process and redirection of reusable materials to appropriate sites. A construction waste management plan is prepared to achieve this credit.

Regional Materials–10 Percent Extracted, Processed, and Manufactured Regionally. In order to achieve this credit, the project is expected to use construction materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10 percent of the total materials value (based on the cost). The intent of this strategy is to support the use of indigenous resources and reduce environmental impacts resulting from transportation. To ensure compliance with this credit, the contractor will identify materials and material suppliers that can achieve this goal.

Minimum Indoor Air Quality Performance. Minimum Indoor Air Quality Performance is intended to prevent the development of indoor air problems in buildings, thus contributing to the comfort and well-being of the occupants. The project site's location in close proximity to the ocean lends itself to implementation of passive ventilation (naturally ventilated buildings). While intended to promote comfort, this strategy can also have the effect of reducing energy use for cooling.

As described above, there are a number of strategies identified by LEED for new construction projects. An appropriate combination of strategies will be applied to the project to achieve LEED-NC Silver certification, as committed to in the Project Design Feature (PDF) identified below (Section 4.8.8). In addition, the proposed project incorporates design components that reduce overall energy consumption. For example, the City Hall administration building is sited to minimize the summer heating effects of the sun and maximize the moderating effects of coastal breezes, reducing the energy that will be required to cool the structure. Specifically, by orienting the long ends of the building east and west, the expanse of the southern face (the one that receives the most heat gain in the northern hemisphere) is reduced. The deep overhangs help to modulate the light and heat gain on the east and west faces of the structure. By facing the roof 'wave' forms to the north, the slope of the roof is at an angle that maximizes the efficiency of photovoltaic (PV) panels, should they be installed on those roof forms. Also, the north-facing clerestory allows for even (not direct) light throughout the day. The indirect natural lighting allows the artificial lighting on the second floor to be dimmed or off most of the day, reducing the amount of artificial lighting needed. The reduced requirement for artificial lighting conserves energy needed to power the lights and the mechanical systems energy needed to remove the heat that those lights would generate.

As shown in Tables 4.8.E and 4.8.F, the energy efficiency features planned for the project would achieve increased energy efficiency or reduce overall greenhouse gas emissions from the proposed project compared to conventional building design; however, the overall emissions are expected to exceed 6,000 metric tons of CO₂e/year. Under the interim standards and analysis applied in this document by the City, it is assumed that the project could result in GHG emission levels that would potentially conflict with implementation of the GHG reduction goals under AB 32 or other State regulations. As noted above in Table 4.8.F, the project is expected to result in GHG emissions of 6,100 metric tons of CO₂e/year.

Consistency with Policies and Standards Designed to Reduce GHG Emissions

Although the project would result in GHG emissions of 6,100 metric tons of CO₂e /year, the project is generally consistent with plans and regulations adopted by the State and City that apply to the project and that has specific requirements to reduce the emissions of GHG. The consistency of the project with applicable plans is discussed below. It is noted, however, that the currently applicable plans do not include specific requirements or mitigation that ensure reductions of GHG. Inasmuch as specific quantifiable reductions cannot be assumed to be realized as a result of implementation of these policies and strategies, the EIR also includes a quantitative analysis of project related GHG emissions, presented in above in Tables 4.8.E and 4.8.F.

As summarized in Table 4.8.G, the proposed project is generally consistent with the City of Newport Beach policies affecting GHG emissions. Table 4.8.G is not an exhaustive list of relevant city policies. It is expected that compliance with these policies would further reduce the project’s GHG emissions, although the amount of this reduction is difficult to quantify.

Table 4.8.G: Consistency with City Policies

Policy	Newport Beach City Hall and Park Development Plan Project Consistency with Policy
Consistency with Natural Resources and Circulation Elements of City of Newport Beach General Plan 2006	
Policy NR 1.1 Water Conservation in New Development: Enforce water conservation measures that limit water usage, prohibit activities that waste water or cause runoff, and require the use of water-efficient landscaping and irrigation in conjunction with new construction projects. <i>(Imp 2.1, 7.1, 17.1)</i>	Consistent. Refer to PDF BIO-2, PDF PSU-4, and PDF GHG-2, and Mitigation Measure 4.8.6. The proposed project would incorporate water conservation measures and use drought-tolerant and/or native species where feasible
Policy NR 1.2 Use of Water Conserving Devices: Establish and actively promote use of water conserving devices and practices in both new construction and major alterations and additions to existing buildings. This can include the use of rainwater capture, storage, and reuse facilities. <i>(Imp 6.1, 7.1, 17.1)</i>	Consistent. Refer to PDF PSU-4. The proposed project would be compliant with pertinent provisions of Title 20 and Title 24 and would utilize additional water conservation measures. Mitigation Measure 4.8.6 requires low-water-use fixtures. Once constructed, the proposed project would require less water than a similar building constructed using conventional construction methods.
Policy NR 1.4 Alternative Conservation Measures: Explore implementation of alternative conservation measures and technology as they become available. <i>(Imp 7.1, 17.1, 18.1)</i>	Consistent. The proposed project implements additional water conservation strategies so that water conservation exceeds requirements. Refer to PDF PSU-4, PDF GHG-2, and Mitigation Measure 4.8.6.
Policy NR 6.1 Walkable Neighborhoods: Provide for walkable neighborhoods to reduce vehicle trips by siting amenities such as services, parks, and schools in close proximity to residential areas. <i>(Imp 1.2, 2.1)</i>	Consistent. The proposed project would include on-site pedestrian pathways, replace existing sidewalks with parkways, and provide an integrated Civic Center to serve the needs of the community.

Table 4.8.G: Consistency with City Policies

<p>Policy NR 6.4 Transportation Demand Management Ordinance: Implement the Transportation Demand Management (TDM) Ordinance, which promotes and encourages the use of alternative transportation modes, and provides those facilities such as bicycle lanes that support such alternate modes. <i>(Imp 7.3, 16.8, 16.11)</i></p>	<p>Consistent. The proposed project would promote use of alternative modes because it would provide preferential parking for carpools, bicycle lockers, and would be located near an Orange County Transportation Authority (OCTA) bus stop and the Newport Transportation Center.</p>
<p>Policy NR 6.5 Local Transit Agency Collaboration: Collaborate with local transit agencies to: develop programs and educate employers about employee rideshare and transit; establish mass transit mechanisms for the reduction of work-related and non-work-related vehicle trips; promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles; and develop bus shelters, bicycle lanes, and other bicycle facilities. <i>(Imp 14.4, 14.9, 16.8, 29.1)</i></p>	<p>Consistent. The City has existing programs to promote commuter carpooling and transit use by City staff. Refer also to PDF GHG-2. The proposed project would provide preferential parking for carpools, bicycle lockers, and would be located near an OCTA bus stop and the Newport Transportation Center.</p>
<p>Policy NR 7.2 Source Emission Reduction Best Management Practices: Require the use of Best Management Practices (BMP) to minimize pollution and to reduce source emissions. <i>(Imp 7.1)</i></p>	<p>Consistent. The stationary source emissions from the proposed land uses would come primarily from consumption of natural gas and electricity. The proposed project implements Leadership in Environmental and Energy Design (LEED) New Construction (NC) Silver strategies so that energy consumption reduction exceeds Title 24 requirements. Incorporation of LEED-NC Silver strategies would minimize pollution and reduce source emissions. Refer to PDF GHG-1.</p>
<p>Policy NR 7.3 Incentives for Air Pollution Reduction: Provide incentives to promote siting or to use clean air technologies and building materials (e.g., fuel cell technologies, renewable energy sources, UV coatings, hydrogen fuel). <i>(Imp 2.1, 6.1, 7.1)</i></p>	<p>Consistent. The stationary source air quality emissions from the proposed land uses would come primarily from consumption of natural gas and electricity. Refer to PDFs GHG-2, PSU-2, and PSU-5. In addition, the incorporation of LEED-NC Silver strategies would minimize pollution and reduce source emissions.</p>
<p>Policy NR 8.1 Management of Construction Activities to Reduce Air Pollution: Require developers to use and operate construction equipment, use building materials and paints, and control dust created by construction activities to minimize air pollutants. <i>(Imp 7.1)</i></p>	<p>Consistent. Refer to Mitigation Measures 4.4.1 through 4.4.8, and Mitigation Measures 4.8.1 and 4.8.2. The construction contractor would be required to use techniques and construction equipment that minimize air pollutants to the extent feasible.</p>
<p>Policy NR 24.1 Incentives for Energy Conservation: Develop incentives that encourage the use of energy conservation strategies by private and public developments. <i>(Imp 7.1)</i></p>	<p>Consistent. The proposed project implements LEED-NC Silver strategies so that energy consumption reduction exceeds Title 24 requirements. Refer to PDFs GHG-1, GHG-2, PSU-2, and PSU-5, and to Mitigation Measures 4.8.3 to 4.8.5, and 4.8.7 to 4.8.9.</p>

Table 4.8.G: Consistency with City Policies

<p>Policy NR 24.2 Energy-Efficient Design Features: Promote energy-efficient design features. (<i>Imp 7.1</i>)</p>	<p>Consistent. In addition to the requirements of Title 24, the project would include additional energy conservation measures. Refer to PDFs GHG-1, GHG-2, PSU-2, and PSU-5, and to Mitigation Measures 4.8.3 to 4.8.5, and 4.8.7 to 4.8.9.</p>
<p>Policy NR 24.3 Incentives for Green Building Program Implementation: Promote or provide incentives for “Green Building” programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate to achieve “green building” status. (<i>Imp 7.1</i>)</p>	<p>Consistent. The City would register the City Hall administration building in the LEED-NC Silver program and seek LEED-NC Silver certification after construction. Refer to PDF GHG-7.</p>
<p>Policy NR 24.4 Incentives for Provision of LEED Certified Buildings: Provide incentives for implementing Leadership in Environmental and Energy Design (LEED) certified building such as fee waivers, bonus densities, and/or awards recognition programs. (<i>Imp 2.1, 7.1</i>)</p>	<p>Consistent. The City would register the City Hall administration building in the LEED-NC Silver program and seek LEED-NC Silver certification after construction. Refer to PDF GHG-7.</p>
<p>CE 6.2.1 Alternative Transportation Modes: Promote and encourage the use of alternative transportation modes, such as ridesharing, carpools, vanpools, public transit, bicycles, and walking; and provide facilities that support such alternate modes. (<i>Imp 16.8, 16.11</i>)</p>	<p>Consistent. Plans for the Civic Center would include bicycle racks and temporary storage rooms. The City also has existing programs to promote commuter carpooling and transit use by City staff. Refer to PDF GHG-2, and Mitigation Measure 4.8.10.</p>
<p>CE 6.2.2 Support Facilities for Alternative Modes: Require new development projects to provide facilities commensurate with development type and intensity to support alternative modes, such as preferential parking for carpools, bicycle lockers, showers, commuter information areas, rideshare vehicle loading areas, water transportation docks, and bus stop improvements. (<i>Imp 16.8, 16.11</i>)</p>	<p>Consistent. The proposed project would provide preferential parking for carpools, bicycle lockers, and would be located near an OCTA bus stop and the Newport Transportation Center. Refer to PDF GHG-2, and Mitigation Measure 4.8.10.</p>

GHG – greenhouse gas
OCTA = Orange County Transportation Authority
PDF = project design feature
PSU = potentially significant unavoidable

The California Environmental Protection Agency CAT and the ARB have developed several reports to achieve the Governor’s GHG targets that rely on voluntary actions of California businesses, local government, and community groups, and State incentive and regulatory programs. These include the CAT’s 2006 “*Report to Governor Schwarzenegger and the Legislature,*” ARB’s 2007 “*Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,*” and ARB’s “*Climate Change Proposed Scoping Plan: a Framework for Change.*” The reports identify strategies to reduce California’s emissions to the levels proposed in EO S-3-05 and AB 32 that are applicable to proposed project. The applicable strategies included in the project plans are contained in Table 4.8.H, which also summarizes the extent to which the project would comply with the strategies to help California reach the emission reduction targets.

Table 4.8.H: Project Compliance with Greenhouse Gas Emission Reduction Strategies in the Climate Change Proposed Scoping Plan: A Framework for Change

Strategy	Project Compliance
<i>Energy Efficiency Measures</i>	
<p>Energy Efficiency. Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).</p> <p>Renewables Portfolio Standard. Achieve a 33 percent renewable energy mix statewide.</p> <p>Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California’s new and existing inventory of buildings.</p>	<p>Consistent with Mitigation Incorporated. The proposed project would be required to comply with the updated Title 24 standards for building construction. In addition, the project would be required to comply with the requirements of Project Design Feature (PDFs) GHG-1 and GHG-2, identified below, including incorporation of energy-efficient building design features as required for Leadership in Environmental and Energy Design (LEED) New Construction (NC) Silver certification.</p> <p>Mitigation Measures 4.4.14 through 4.14.18, and 4.8.3 through 4.8.9 require implementation of energy efficiency measures. Inasmuch as no building upgrades are proposed for the existing City Hall building, which will continue to be used for government and other office use, the existing City Hall does not contribute to increased energy efficiency.</p>
<i>Water Conservation and Efficiency Measures</i>	
<p>Water Use Efficiency. Continue efficiency programs and use cleaner energy sources to move and treat water. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel consumed in the State are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.</p>	<p>Consistent with Mitigation Incorporated. The project would be required to comply with the requirements of Project Design Features (PDFs) GHG-1 and GHG-2, identified below, including measures to increase water use efficiency. Mitigation Measure 4.8.6 further reduces water consumption. Inasmuch as no building upgrades are proposed for the existing City Hall building, which will continue to be used for government or other office use, the existing City Hall does not contribute to increased water use efficiency.</p>
<i>Solid Waste Reduction Measures</i>	
<p>Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste. Increase waste diversion from landfills beyond the 50 percent mandate to provide for additional recovery of recyclable materials. Composting and commercial recycling could have substantial GHG reduction benefits. In the long term, zero-waste policies that would require manufacturers to design products to be fully recyclable may be necessary.</p>	<p>Consistent. Data available from the California Integrated Waste Management Board (CIWMB) indicates that Newport Beach has achieved a 60 percent waste diversion rate. The proposed project would be required to comply with Project Design Features (PDFs) GHG-1 and GHG-2, identified below, including increased solid waste diversion, composting, and recycling.</p>

Table 4.8.H: Project Compliance with Greenhouse Gas Emission Reduction Strategies in the Climate Change Proposed Scoping Plan: A Framework for Change

Strategy	Project Compliance
<i>Transportation and Motor Vehicle Measures</i>	
<p>Vehicle Climate Change Standards. AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.</p> <p>Light-Duty Vehicle Efficiency Measures. Implement additional measures that could reduce light-duty GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency.</p> <p>Adopt Heavy- and Medium-Duty Fuel and Engine Efficiency Measures. Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles.</p> <p>Low Carbon Fuel Standard. ARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020.</p>	<p>Neutral. The project does not involve the manufacture, sale, or purchase of vehicles. However, vehicles that operate within and access the project site would comply with applicable vehicle and fuel standards.</p>
<p>Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. Local governments will play a significant role in the regional planning process to reach passenger vehicle greenhouse gas emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces greenhouse gases associated with vehicle travel.</p>	<p>Neutral. Specific regional emission targets for transportation emissions do not directly apply to this project; regional greenhouse gas reduction target development is outside the scope of this project. Moreover, the site for this project was selected by the voters in Measure B, and as such there is limited discretion to select an alternative site to reduce vehicle miles traveled. That said, the project is sited adjacent to the Newport Transportation Center, a bus transfer station. The Center is located immediately north of the project site and is owned and operated by the Orange County Transportation Authority (OCTA). The location of this facility near the project site will facilitate access to the public resources on site by transit, and thus help to reduce vehicle miles traveled. Moreover, OCTA is considering a new bus stop at Avocado and Farallon Drive at the north end of the proposed City Hall. Bicycle facilities</p>

Table 4.8.H: Project Compliance with Greenhouse Gas Emission Reduction Strategies in the Climate Change Proposed Scoping Plan: A Framework for Change

Strategy	Project Compliance
	provided on site will also help reduce vehicle miles traveled to a small degree.
<p>Measures to Reduce High Global Warming Potential (GWP) Gases. ARB has identified Discrete Early Action measures to reduce GHG emissions from the refrigerants used in car air conditioners, semiconductor manufacturing, and consumer products. ARB has also identified potential reduction opportunities for future commercial and industrial refrigeration, changing the refrigerants used in auto air conditioning systems, and ensuring that existing car air conditioning systems do not leak.</p>	<p>Neutral. The project does not involve the manufacture or sale of semiconductors or consumer products. New products used or serviced within the project will comply with applicable ARB rules and regulations.</p>

Source: LSA Associates, Inc., 2009.

A summary of the project’s consistency with the State’s adopted policies and strategies is included in Tables 4.8.H and 4.8.I. The proposed project is, on balance, consistent with the applicable adopted policies and strategies. Commitment to LEED-NC Silver certification for the new City Hall administration building, Community Room, and Council Chambers and implementation of mitigation result in the incorporation of features and measures that promote energy conservation and alternative modes of transportation and reduce project emissions of GHG overall, consistent with adopted policies and strategies.

The strategies listed in Tables 4.8.G, 4.8.H, and 4.8.I are either project features, required mitigation measures, or requirements under local or State ordinances. In order to ensure that the proposed project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32, the Governor’s Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor, the mitigation measures listed in Section 4.8.8 shall be implemented. While a number of project design features and mitigation measures are set out below that will reduce this impact, the impact will remain significant.

Construction Emissions

No study quantitatively assesses all of the GHG emissions associated with each phase of the construction and use of an individual development project. That said, some reasonable estimates are possible. While the majority of energy consumption (and associated generation of GHG emissions) would be expected to occur during the project’s operation (typically, more than 80 percent of the total energy consumption takes place during the use of buildings),¹ some energy consumption and other activities occurring during project construction will also result in GHG emissions.

¹ United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

Table 4.8.I: Project Compliance with Other State Greenhouse Gas Reduction Strategies

California Air Resources Board (ARB)	
Vehicle Climate Standards Heavy-Duty Vehicle Emission Reduction Measures	Neutral. The vehicles that access the project will be in compliance with any vehicle standards that ARB proposes. Mitigation Measures 4.8.2 and 4.8.11 are incorporated to further reduce the emissions.
HFC Reduction Strategies	Consistent. The project will seek to achieve LEED EA Prerequisite 3, which requires zero net use of chlorofluorocarbon (CFC)-based refrigerants. In addition, the proposed project will implement a strategy that replaces high global warming potential (GWP) hydrofluorocarbon (HFC) refrigerants with low GWP refrigerants.
Energy Consumption – Title 24 Requirements	
Building Energy Efficiency Standards Appliance Energy Efficiency Standards	Consistent. The proposed project will comply with and exceed Title 24 standards by meeting the LEED-NC Silver certification. ENERGY STAR-rated appliances will also be required.
Executive Order (EO) S-20-04	
Green Building Initiative “Future construction and renovation projects larger than 10,000 square feet (sf) will meet LEED-NC Silver criteria in order to assure their energy and environmental performance”	Consistent. The project will be designed to qualify for LEED-NC Silver certification.
“All state owned buildings will reduce the volume of energy purchased from the grid, with a goal to reduce their consumption by at least 20% by 2015 (as compared to 2003 baseline) by taking energy efficiency and cost-effective measures.”	Consistent. The proposed buildings will be constructed to exceed Title 24 standards as part of the LEED-NC Silver certification design.
California Climate Action Team (CAT) Strategies	
Recommendations of the California Climate Action Team (CAT) to significantly reduce the greenhouse gas (GHG) emissions by incorporating Measures to Improve Transportation Energy Efficiency, Smart Land Use, and Intelligent Transportation	Consistent. The proposed project will not impede the implementation of CAT strategies and early action measures.
2008 Regional Transportation Plan (RTP), Southern California Association of Governments (SCAG)	
Two approaches are discussed in the RTP that strive to reduce GHG emissions and promote energy efficiency: <ul style="list-style-type: none"> • Reduction of vehicle miles traveled (VMT) 	Neutral. The proposed project does not directly reduce vehicle miles traveled (VMT) in the region. The project is sited adjacent to the Newport Transportation Center, a bus transfer station. The Center is located immediately north of the project site and is owned and operated by the Orange County Transportation Authority (OCTA). The location of this facility near the project site will facilitate access to the public resources on site by transit, and thus help to reduce vehicle miles traveled. Moreover, OCTA is considering a new bus stop at Avocado and Farallon Drive at the north end of the proposed Civic Center. Bicycle facilities provided on site will also help reduce vehicle miles traveled to a small degree.

Table 4.8.I: Project Compliance with Other State Greenhouse Gas Reduction Strategies

<ul style="list-style-type: none"> Use cleaner vehicles when traveling 	<p>Consistent. The proposed project will encourage Civic Center visitors to use “green cars” by offering preferential parking.</p>
<p>Zero Waste –High Recycling: Additional recycling beyond Title 24</p>	<p>Consistent. The City currently employs aggressive recycling strategies and will implement a Recycling Plan as a part of the LEED-NC Silver certification process.</p>
<p>Compliance with Green Building Initiative: Green Building EO, S-20-04, sets a goal of reducing energy use in public and private buildings by 20 percent by 2015 as compared to 2003 levels.</p>	<p>Consistent. The proposed project will incorporate energy-efficient design, and all new buildings will be LEED-NC Silver certified.</p>
<p>Appliance Energy Efficiency Standards in place and in Progress.</p>	<p>Consistent. Project mitigation requires ENERGY STAR-rated appliances.</p>

Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. Most of the equipment and vehicle engines require the combustion of fuel.

The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment. Short-term GHG emissions would occur from construction activities, consisting primarily of emissions from equipment exhaust.

The only GHG with well-studied emissions characteristics and published emissions factors for construction equipment is CO₂. As shown in Table 4.8.J, the peak daily CO₂ emissions associated with construction equipment exhaust for the proposed project would be highest during the mass grading phase of construction, at approximately 106,000 lbs/per day or 48 metric tons per day.

Table 4.8.J: Peak-Day Construction Emissions (lbs/day) by Phase¹

Construction Phase	CO ₂
Mass grading	106,000
Fine grading	3,200
Trenching	1,800
Paving	2,100
Building	6,100
Architectural coating	180

Source: LSA Associates, Inc., July 2009.

¹ It is assumed that there is no overlap of these construction phases.

CO₂ = carbon dioxide

lbs/day = pounds per day

PM₁₀ = particulate matter less than 10 microns in size

The project would be required to implement the construction exhaust control measures listed in Air Quality Section 4.4, including minimization of construction equipment idling and implementation of proper engine tuning and exhaust controls. Both of these measures would reduce GHG emissions during the construction period. Architectural coatings used in construction of the project may contain VOCs that are similar to ROGs and are part of O₃ precursors. However, there are no significant emissions of GHGs from architectural coatings.

Mitigation Measures 4.4.2–4.4.4, 4.8.1, and 4.8.2 will reduce construction-related GHG emissions; however, even with implementation of these mitigation measures, it is expected that project consumption of fuels and other energy resources during construction, especially due to the length of the construction period in this project, in combination with the energy consumption of other proposed projects throughout California, would substantially increase the consumption of fossil fuels that contribute to GHG emissions. Because of the brevity of the construction period, and the fact that construction activity is not an ongoing source of GHG emissions, such emissions in and of themselves would not generally be considered to represent a cumulatively considerable contribution to the cumulatively significant global impact of climate change. That said, the construction emissions in this project will contribute to the project's overall emissions, which have been determined to be represent a cumulatively considerable contribution to the cumulatively significant global impact of climate change.

Summary

While the proposed project is substantially consistent with federal, state, and local plans designed to reduce greenhouse gas emission, the project would emit more than 6,000 metric tons of CO₂e per year during project operations. As such, the project is considered to have a cumulatively considerable contribution to the cumulative GHG impact. The project would also emit GHGs during the construction period; however, these are not a substantial contributing factor to the overall significance determination due to the relatively short construction periods and the relative contribution to the project's overall lifetime emissions. That said, the construction emissions in this project will contribute to the project's overall emissions, which have been determined to be represent a cumulatively considerable contribution to the cumulatively significant global impact of climate change.

4.8.7 Level of Significance Prior to Mitigation

Prior to implementation of mitigation, the proposed project would result in a potentially significant cumulative impact related to activities that may impede attainment of the State's goal for reducing GHG emissions to 1990 levels by 2020. This impact would be primarily due to mobile source emissions, which would continue through the life of the project. The emissions related to on-site energy demands and other operational on-site direct and indirect emissions would be minimized because of the projects heightened energy efficiency for the proposed new buildings when compared to conventional building techniques. The project would also emit GHGs during the construction period; however, these are not a substantial contribution to the overall inventory of GHG in the environment due to the relatively short construction periods and the relative contribution to the project's overall lifetime emissions.

4.8.8 Project Design Features and Mitigation Measures

The following Project Design Feature (PDF) commitments identified in the air quality mitigation measures and additional GHG mitigation measures are intended to reduce GHG emissions from construction energy consumption and transportation sources.

PDF GHG-1

LEED-NC Silver. The City of Newport Beach (City) shall work with the project designers and engineers to identify United States Green Building Council's Leadership in Energy and Environmental Design-New Construction (LEED-NC) Silver credit design components to be incorporated into the construction plans for the proposed project, including both the City Hall administration building, Community Room, Council Chambers, and Emergency Operations Center (EOC). The City shall register the subject buildings in the LEED-NC Silver program prior to final design and shall seek LEED-NC Silver certification after construction.

PDF GHG -2

Energy Efficiency. The City of Newport Beach (City) shall seek ways to reduce waste and energy consumption and to increase the efficiency of its operations in order to minimize impacts to the environment and enhance the sustainability of its operations. Toward that end, the City has incorporated the following commitments into the project plans:

1. The City is committed to evaluating and implementing energy efficiency programs and procedures, including the use of solar photovoltaic panels on new structures where feasible, use of energy-efficient light fixtures, implementation of energy-saving devices and equipment, and energy-efficient design of new facilities.
2. The City will continue to implement existing waste reduction programs, including office recycling, source reduction, waste reduction and reuse, purchase of recycled content products, and source separation and recycling of materials, including composting of biodegradable materials.
3. The City is committed to achieving Leadership in Energy and Environmental Design-New Construction (LEED-NC) Silver certification for the new City Hall facility and Emergency Operations Center (EOC) (see Project Design Feature [PDF] GHG-1, above).

4. The City will conduct regular energy audits, and commissioning¹ during new construction and renovation, as appropriate, with implementation of follow-up improvements to reduce energy consumption for the new City Hall facility and the Emergency Operation Center (EOC).
5. The City will require contractors to use zero- or low-emission vehicles and equipment when possible.
6. The City will landscape the proposed project site with a combination of native, drought-tolerant, and ornamental plants (refer to PDF BIO 2).
7. The City will implement a comprehensive potable water conservation strategy for irrigation and water service within the City Hall facility and the Emergency Operations Center (EOC).
8. The City will continue to seek new opportunities to promote commuter carpooling and transit use, as well as alternative transportation for City employees and Civic Center visitors.

Mitigation measures to further reduce greenhouse gas emissions are listed below:

Mitigation Measure 4.8.1 Prior to issuance of a grading or building permit, the project plans and specifications shall include a statement that delivery of construction equipment and materials will be scheduled such that queuing of trucks on and off site shall be minimized. The requirement will be implemented by the contractor and verified by the City of Newport Beach Director of Planning, or designee.

Mitigation Measure 4.8.2 Prior to issuance of a grading or building permit, the project plans and specifications shall include a statement that, to the extent feasible, all diesel- and gasoline-powered construction equipment shall be replaced with equivalent electric equipment. The requirement will be implemented by the contractor and verified by the City of Newport Beach Director of Planning, or designee.

Mitigation Measure 4.8.3 Prior to issuance of a building permit, the project engineer shall demonstrate that the design of the proposed buildings or structures incorporates ENERGY STAR-rated, energy-efficient T-8 high-output fixtures, and/or compact fluorescent and other comparable energy-saving lighting fixtures. Documentation of compliance with

¹ Commissioning is a systematic process to help ensure building systems are designed, installed, tested, performed, and capable of being operated and maintained according to owner's operational needs. The commissioning process documents the quality of building system performance and facilitates improved building operation without requiring any major renovations.

this measure shall be provided by the project engineer to the State Architect. Installation of the identified design features or equipment will be confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of a certificate of occupancy.

Mitigation Measure 4.8.4

Prior to issuance of a building permit for a specific facility, the project engineer shall demonstrate that the design of the proposed buildings or structures incorporates enhanced insulation such that heat transfer and thermal bridging is minimized in structures that will be mechanically heated and/or cooled. Documentation of compliance with this measure shall be provided to the City of Newport Beach Director of Planning, or designee, for review and approval. Installation of the identified design features or equipment will be conducted by the contractor and confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of a certificate of occupancy.

Mitigation Measure 4.8.5

Prior to issuance of a certificate of occupancy, the City of Newport Beach Director of Planning, or designee, and the Project Engineer will document and verify, installation of the identified design features or equipment designed to limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption in structures that will be mechanically heated and/or cooled.

Mitigation Measure 4.8.6

Prior to issuance of a building permit, the project engineer shall demonstrate that the design of the proposed buildings or structures incorporates United States Environmental Policy Agency (EPA) WaterSense Program water-efficient products (bathroom sink faucets, low-flush urinals, dual-flush toilets, etc.). Documentation of compliance with this measure shall be provided to the City of Newport Beach Director of Planning, or designee, for review and approval. Installation of the identified design features or equipment will be confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of certificate of occupancy.

Mitigation Measure 4.8.7

Prior to issuance of a building permit, the project engineer shall demonstrate that the design of the proposed buildings or structures that will be mechanically heated and/or cooled incorporates space heating and cooling equipment that meets or exceeds ENERGY STAR-rated standards. Documentation of compliance with this measure shall be provided by the project engineer to the City of Newport Beach Director of Planning, or designee. Installation of the identified design features or equipment will be confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of a certificate of occupancy.

- Mitigation Measure 4.8.8** Prior to issuance of a building permit, the project engineer shall demonstrate that the proposed buildings or structures incorporate appliances that meet or exceed the ENERGY STAR-rated standards. Documentation of compliance with this measure shall be provided by the project engineer to the City of Newport Beach Director of Planning, or designee, for review and approval. Installation of the identified design features or equipment will be confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of a certificate of occupancy.
- Mitigation Measure 4.8.9** Prior to issuance of a building permit, the project engineer shall demonstrate that the design of proposed buildings or structures considered includes installation/operation of renewable electric generation systems. Documentation of compliance with this measure shall be provided by the project engineer to the City of Newport Beach Director of Planning, or designee, for review and approval. Installation of the identified design features or equipment will be confirmed by the City of Newport Beach Director of Planning, or designee, prior to issuance of a certificate of occupancy.
- Mitigation Measure 4.8.10** The City will ensure that construction plans for the new City Hall facility include bicycle racks and temporary storage lockers, as reflected in the building plans prior to the issuance of construction permits. City of Newport Beach Director of Planning, or designee, will verify compliance and confirm implementation during construction.
- Mitigation Measure 4.8.11** The City shall offer preferential parking for electric and hybrid vehicles at the new City Hall facility. City of Newport Beach Director of Planning, or designee, will verify compliance and confirm implementation during construction.

Implementation of some of the construction mitigation measures listed in Section 4.4, Air Quality, also reduce emissions of GHG, including the following:

- Mitigation Measure 4.4.2** Prior to issuance of a building permit, the City of Newport Beach (City) Director of Planning, or designee, shall verify that project plans and specifications include a statement that construction equipment shall be shut off when not in use, shall not idle for more than 15 minutes, and that vehicles greater than 10,000 pounds shall be shut off when not in use and shall not idle for more than 5 minutes. The statement in the plans and specifications shall be implemented by the contractor and verified in the field by City Building officials.

- Mitigation Measure 4.4.3** **Construction Equipment.** The City of Newport Beach Director of Planning, or designee, shall ensure that construction documents require the Construction Contractor to select the construction equipment used on site based on low-emission factors and high-energy efficiency. Prior to issuance of a grading permit, the City of Newport Beach Director of Planning, or designee, shall also verify that construction contracts include a statement that all construction equipment will be tuned and maintained in accordance with the manufacturer's specifications.
- Mitigation Measure 4.4.4** **Electric or Alternative-fuel Powered Equipment.** Prior to issuance of a Notice to Proceed, the City of Newport Beach Director of Planning, or designee, shall verify that construction contracts and/or grading plans include a statement that the Construction Contractor shall utilize electric or alternative-fuel powered equipment in lieu of gasoline or diesel powered engines where feasible.
- Mitigation Measure 4.4.5** **Equipment Shut-Off and Smog Season Hours.** Prior to issuance of a Notice to Proceed, the City of Newport Beach Director of Planning, or designee, shall verify that construction contracts and/or grading plans include a statement that work crews will shut off equipment when not in use. During smog season (May–October), the overall length of the construction period will be extended to minimize the occurrence of vehicles and equipment operating at the same time and thereby decreasing the size of the area prepared each day.
- Mitigation Measure 4.4.7** **Ridesharing and Transit Incentives.** Prior to issuance of a Notice to Proceed, the City of Newport Beach Director of Planning, or designee, shall verify that construction contracts and/or grading plans include a statement that the Construction Contractor shall support and encourage ridesharing and transit incentives for the construction crew.

4.8.9 Level of Significance after Mitigation

Implementation of LEED-NC Silver certification standards and mitigation measures described above would achieve improvements in facility operational energy efficiency compared to conventional construction techniques. The proposed project would strive to reduce GHG emissions by meeting and exceeding Title 24 standards and by achieving LEED-NC Silver Certification. The project would implement mitigation measures to further reduce energy consumption and vehicular emissions. The City will monitor the development of implementation requirements of AB 32, as issued by State agencies, and any subsequently adopted GHG emissions reduction procedures and technologies relevant to the proposed project.

The proposed project is consistent with and/or furthers the intent of numerous GHG reduction strategies and is consistent with the Climate Actions Program strategies and the City's General Plan goals, which are designed to reduce energy consumption and GHG emissions. These strategies are presented in Tables 4.8.G, 4.8.H, and 4.8.I. Compliance with the reduction strategies implemented by the City will help to achieve the statewide reduction of GHG to 1990 levels; however, this cannot assure that the project would not exceed Threshold 4.8.1 because project operations would result in more than 6,000 metric tons of CO₂e per year. Therefore the proposed project would result in a significant unavoidable project impact and result in a cumulatively considerable contribution to an unavoidable cumulative impact related to activities that may impede achievement of the State's goal for reducing GHG emissions to 1990 levels by 2020.

While the length and intensity of the construction period for this project would result in emissions that contribute to the project's significant impact, even with implementation of mitigation measures, the short-term construction-related emissions from this project would not in themselves be considered to present a cumulatively considerable contribution to the impact of global climate change or may impede achievement of the State's goal for reducing GHG emissions to 1990 levels by 2020.