

### 5.11 GREENHOUSE GAS EMISSIONS

This section evaluates the potential for implementation of the Proposed Project to impact or be impacted by global climate change. Although the Proposed Project's impacts are compared to the Subsequent Environmental Impact Report No. 332 (FSEIR No. 332) for the Adopted MLUP, impacts related to greenhouse gas (GHG) emissions were not studied in it since this issue was not identified as an environmental issue at the time of FSEIR No. 332 adoption in October 2005. On December 30, 2009, the Natural Resources Agency adopted the amendments to the CEQA Guidelines to address GHG emissions. The analysis in this section is based on air quality analysis completed by The Planning Center. The air quality model output sheets are included as Appendix C. The analysis in this section is based in part on the following:

- *CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, California Air Pollution Control Officers Association (CAPCOA), January 2008
- *Climate Change Scoping Plan*, California Air Resources Board, December 2008.
- *Compass Blueprint 2% Strategy Opportunity Areas Maps*, Southern California Association of Governments, 2008.
- *The California Environmental Quality Act – Addressing Global Warming Impacts at the Local Agency Level*, Office of the California Attorney General, 2008.

#### 5.11.1 Environmental Setting

##### Greenhouse Gases and Climate Change

Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The climate system is interactive, consisting of five major components: the atmosphere, the hydrosphere (ocean, rivers, and lakes), the cryosphere (sea ice, ice sheets, and glaciers), the land surface, and the biosphere (flora and fauna). The atmosphere is the most unstable and rapidly changing part of the system. It is made up of 78.1 percent nitrogen (N<sub>2</sub>), 20.9 percent oxygen (O<sub>2</sub>), and 0.93 percent argon (Ar). These gases have only limited interaction with the incoming solar radiation and do not interact with infrared (long-wave) radiation emitted by the Earth. However, there are a number of trace gases, such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>), that absorb and emit infrared radiation and therefore have an effect on climate. These are GHG, and while they comprise less than 0.1 percent of the total volume mixing ratio in dry air, they play an essential role in influencing climate (IPCC 2001).

Non-CO<sub>2</sub> GHG are those listed in the Kyoto Protocol<sup>1</sup> (CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons [HFC], perfluorocarbons [PFC], and sulfur hexafluoride [SF<sub>6</sub>]) and those listed under the Montreal Protocol and its Amendments<sup>2</sup> (chlorofluorocarbons [CFC], hydrochlorofluorocarbons [HCFC], and halons). Table 5.11-1 lists

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<sup>1</sup> Kyoto Protocol: Established by the United Nations Framework Convention on Climate Change (UNFCCC) and signed by more than 160 countries (excluding the United States) stating that they commit to reduce their GHG emissions by 55 percent or engage in emissions trading.

<sup>2</sup> Montreal Protocol and Amendments: International Treaty signed in 1987 and subsequently amended in 1990 and 1992. Stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (CFC, halons, carbon tetrachloride, and methyl chloroform) are to be phased out by 2000 (2005 for methyl chloroform).



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a selection of some of the GHG and their relative global warming potentials (GWP) compared to CO<sub>2</sub>.<sup>3</sup> Because GHG emissions take many years to leave the atmosphere (as measured by atmospheric lifetime), the GWP potential in Table 5.11-1 is based on a relative scale that compares warming potential of non-CO<sub>2</sub> GHG to CO<sub>2</sub> over a 100 year period. For example, CH<sub>4</sub> is 21 times more powerful a GHG than CO<sub>2</sub>. As shown in the Table below, fluorinated gases have a very high global warming potential relative to CO<sub>2</sub> and are therefore considered High Global Warming Potential gases, or gases that are strong/potent because of their potential to absorb infrared radiation. Although not included in this table, water vapor (H<sub>2</sub>O) is the strongest GHG, is also the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant (IPCC 2001). The major GHG are briefly described below the table.

**Table 5.11-1  
Greenhouse Gases and Their Relative Global Warming Potential Compared to CO<sub>2</sub>**

<i>GHG</i>	<i>Atmospheric Lifetime (years)</i>	<i>Global Warming Potential Relative to CO<sub>2</sub><sup>1</sup></i>
Carbon Dioxide (CO <sub>2</sub> )	50 to 200	1
Methane (CH <sub>4</sub> ) <sup>2</sup>	12 (±3)	21
Nitrous Oxide (N <sub>2</sub> O)	120	310
Hydrofluorocarbons:		
HFC-23	264	11,700
HFC-32	5.6	650
HFC-125	32.6	2,800
HFC-134a	14.6	1,300
HFC-143a	48.3	3,800
HFC-152a	1.5	140
HFC-227ea	36.5	2,900
HFC-236fa	209	6,300
HFC-4310mee	17.1	1,300
Perfluoromethane: CF <sub>4</sub>	50,000	6,500
Perfluoroethane: C <sub>2</sub> F <sub>6</sub>	10,000	9,200
Perfluorobutane: C <sub>4</sub> F <sub>10</sub>	2,600	7,000
Perfluoro-2-methylpentane: C <sub>6</sub> F <sub>14</sub>	3,200	7,400
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	23,900

Source: USEPA

<sup>1</sup> Based on 100-Year Time Horizon of the Global Warming Potential (GWP) of the air pollutant relative to CO<sub>2</sub>.

<sup>2</sup> The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO<sub>2</sub> is not included.

**Carbon dioxide (CO<sub>2</sub>)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also naturally removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

**Methane (CH<sub>4</sub>)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

<sup>3</sup> GWP is used to show the relative potential that different GHG have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

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**Nitrous oxide (N<sub>2</sub>O)** is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

**Fluorinated gases** are synthetic, strong greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential gases because they absorb substantially more infrared radiation and therefore significantly contribute to climate change.

- *Chlorofluorocarbons (CFCs)* are greenhouse gases covered under the 1987 Montreal Protocol and are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. Because these gases are ozone depleting, they are being replaced by other compounds that are also GHGs covered under the Kyoto Protocol.
- *Perfluorocarbons (PFCs)* are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF<sub>4</sub>] and perfluoroethane [C<sub>2</sub>F<sub>6</sub>]) were introduced as alternatives, along with HFCs, to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but have a high global warming potential.
- *Sulfur Hexafluoride (SF<sub>6</sub>)* is a colorless gas soluble in alcohol and ether and that is slightly soluble in water. SF<sub>6</sub> is a strong greenhouse gas used primarily as an insulator in electrical transmission and distribution systems.
- *Hydrochlorofluorocarbons (HCFCs)* contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they destroy stratospheric ozone less than CFCs. They have been introduced as temporary replacements for CFCs and are also greenhouse gases.
- *Hydrofluorocarbons (HFCs)* contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances and serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but are strong greenhouse gases. (USEPA 2008a).



### California's GHG Sources and Relative Contribution

Simply due to its total population and geographic size, California is the second largest emitter of GHG in the United States, surpassed only by Texas, and the tenth largest GHG emitter in the world (CEC 2005). However, because of more stringent air emission regulations, in 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO<sub>2</sub> emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services). In 2004, California produced 492 million metric tons (MMTons) of CO<sub>2</sub>-equivalent (CO<sub>2e</sub>) GHG emissions,<sup>4</sup> of which 81 percent were CO<sub>2</sub> from the combustion of fossil fuels, 2.8 percent were from other sources of CO<sub>2</sub>, 5.7 percent were from methane, and 6.8 percent were from N<sub>2</sub>O. The remaining 2.9 percent of GHG emissions were from High Global

<sup>4</sup> CO<sub>2</sub>-equivalence is used to show the relative potential that different GHG have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

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Warming Potential gases, which include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (CEC 2006).

CO<sub>2</sub> emissions from human activities make up 84 percent of the total GHG emissions. California's transportation sector is the single largest generator of GHG emissions, producing 40.7 percent of the state's total emissions. Electricity consumption is the second largest source, comprising 22.2 percent. While out-of-state electricity generation comprises 22 to 32 percent of California's total electricity supply, it contributes 39 to 57 percent of the GHG emissions associated with electricity consumption in the state. Industrial activities are California's third largest source of GHG emissions, comprising 20.5 percent of the state's total emissions. Other major sources of GHG emissions include mineral production, waste combustion, and forestry changes. Agriculture, forestry, commercial, and residential activities comprise the balance of California's greenhouse gas emissions (CEC 2006).

#### **Human Influence on Climate Change**

For approximately 1,000 years before the Industrial Revolution, the amount of GHG in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and climate change pollutants that are attributable to human activities. The amount of CO<sub>2</sub> has increased by more than 35 percent since preindustrial times, and has increased at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in climate change pollutants far exceed the naturally occurring extremes of the ice ages. Further, the global mean temperature is rising at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006).

Climate-change scenarios are affected by varying degrees of uncertainty (IPCC 2007). The Intergovernmental Panel on Climate Change's (IPCC) *2007 IPCC Fourth Assessment Report* projects that the range of global mean temperature increase from 1990 to 2100, under different climate-change scenarios, will range from 1.4 to 5.8 °C (2.5 to 10.4°F). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic timeframe but within a human lifetime.

#### **Potential Climate Change Impacts for California**

Climate change is not a local environmental impact; it is a global impact. Unlike criteria pollutants, CO<sub>2</sub> emissions cannot be attributed to a direct health effect. However, human-caused increases in GHG have been shown to be highly correlated with increases in the surface and ocean temperatures on Earth (IPCC 2007). What is not clear is the extent of the impact on environmental systems.

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. Likewise, there are varying degrees of uncertainty in environmental impact scenarios. Because of this uncertainty, the IPCC uses five different confidence levels to quantify climate change impacts on the environment: Very High Confidence (95 percent or greater), High Confidence (67 to 95 percent), Medium Confidence (33 to 67 percent), Low Confidence (5 to 33 percent), and Very Low Confidence (5 percent or less).

In California and western North America, 1) observations in the climate have showed a trend toward warmer winter and spring temperatures, 2) a smaller fraction of precipitation is falling as snow, 3) there is a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, 4) there is an

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advance snowmelt of 5 to 30 days earlier in the springs, and 5) there is a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). According to the California Climate Action Team (CAT), even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.11-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now unavoidable.

CAT and the California Environmental Protection Agency (Cal/EPA) use the results from the recent analysis of global climate change impacts for California under three IPCC scenarios: lower emissions (B1), medium-high emissions (A2), and high emissions (A1F1); each is associated with an increasing rise in average global surface temperatures. According to the California Energy Commission (CEC) in their 2006 report, *Our Changing Climate, Assessing the Risks to California*, global climate change risks to California include public health impacts (poor air quality made worse and more severe heat), water resources impacts (decreasing Sierra Nevada snow pack, challenges in securing adequate water supply, potential reduction in hydropower, and loss of winter recreation), agricultural impacts (increasing temperatures, increasing threats from pests and pathogens, expanded ranges of agricultural weeds, and declining productivity), coast sea level impacts (rising coastal sea levels, increasing coastal floods, and shrinking beaches), forest and biological resource impacts (increasing wildfires, increasing threats from pest and pathogens, declining forest productivity, and shifting vegetation and species distribution), and electricity impacts (increased energy demand).

Specific climate change impacts that could affect the City of Anaheim include health impacts from a reduction in air quality, water resources impacts from a reduction in water supply, and increased energy demand.

#### **Scientific Debate Regarding the Scope and Extent of Anthropogenic Global Warming**

As a matter of public policy, through the enactment of Assembly Bill 32 (AB 32) and other legislation, the State of California has declared that the continued rise in concentrations of GHG emissions pose a threat to the health and welfare of the people of the State. Thus, this EIR sets forth a comprehensive analysis consistent with the framework provided by state and regional authorities, of the proposed project's impacts with respect to climate change. Nevertheless, there continues to be significant debate among scientists on the cause and extent of anthropogenic global warming and whether California's commitments to reduce GHG emissions will have any measurable affect on global climate change trends.

Significant scientific debate continues to exist regarding the cause and extent of anthropogenic global warming.<sup>5</sup> During the past two years additional evidence and factual material has been disclosed and debated that calls into question the integrity of scientific methodologies of the IPCC – which has served as the primary basis for much of the proposed regulatory action throughout the world.<sup>6</sup> Thus, while the State of California has embarked upon a comprehensive regulatory program and has declared that climate change

<sup>5</sup> In 2008, 650 scientists from around the globe submitted a several hundred page report calling into question the claims made by the IPCC that global warming exists and is caused by humans (U.S. Senate Minority Report 2008).

<sup>6</sup> The factual material consists of the following: (1) the charge that the IPCC is a political organization and not a scientific organization (Singer 2008 and Tol 2007); (2) extensive criticism that the IPCC's Fourth Assessment Report lacked any sort of meaningful scientific peer review (Holland 2007); (3) the assertion that the Fourth Assessment Report contains numerous errors and unsubstantiated factual assertions such as the use of the "Hockey Stick" (Gray 2010 and Monckton 2008), leaked emails from the University of East Anglia (Delingpole 2009), various claims contained in the Fourth Assessment Report were false, including, but not limited to the claims that the Himalayan Glaciers would melt by 2035, that African crop production would be cut by 50 percent by 2020; and the claim that sea levels would rise based on melting ice having equal displacement with water, among others (Webster 2010, IPCC 2010, and Leake 2010).



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poses a significant threat to the health and welfare of the citizens of the State, it is nevertheless true that scientific debate exists regarding the cause and extent of anthropogenic global warming.

In addition, assuming that the State of California can achieve its greenhouse gas emissions reductions goals set forth in AB 32, it is unclear as to whether the achievement would have any effect on any global warming trends caused by fossil fuel combustion. While California Air Resources Board's (CARB) Scoping Plan outlines strategies to reduce GHG emissions by approximately 169.4 MMTons (CARB 2008), these savings are not nearly enough to compensate for the expected increase in emissions in developing countries during the same period alone. China has surpassed the United States as the world's largest GHG emitter and GHG levels are projected to increase by 75 percent to more than double existing levels.<sup>7</sup> India's emissions are projected to increase fourfold by 2030 (The Economist 2008).<sup>8</sup> Similarly, Brazil, the largest economy in South America, GHG emissions increased by more than 60 percent between 1990 and 2004, and are projected to continue to rise at a similar pace (International Energy Agency 2006). Both of those increases, however, are insignificant compared to the increases projected for China. Consequently, it is clear that similar steps to reduce emissions must be taken in developed and developing nations to reduce GHG emissions worldwide.

### Baseline GHG Inventory

An emissions inventory of existing conditions for the Platinum Triangle MLUP was conducted based on the existing commercial, office, and residential land uses and estimates of trips and vehicle miles traveled (VMT) compiled by Parsons Brinckerhoff, Inc. (2009), and is shown in Table 5.11-2. The emissions inventory assumes both residential and employment trips to be associated with land uses in the Platinum Triangle. Therefore, all the VMT generated by those trips are considered to be part of the City's GHG inventory even if part of the trip end is external to the City. In comparison, the Regional Target Advisory Committee for Senate Bill 375 (SB 375) is recommending that in scenarios where employment trips are split between jurisdictional boundaries, only 50 percent of the trip length be included as part of that region's GHG inventory. What this means is the vehicle trip may originate in the City of Los Angeles, but end in the Platinum Triangle (or vice-versa). The City considers this whole trip length and trip to be associated with the Proposed Project. Because the Platinum Triangle GHG inventory does not split trips associated with residential uses and trips associated with nonresidential uses, this correction is not included in the GHG emissions inventory and results in an overestimation of VMT and trips generated by the Platinum Triangle alone.

The existing GHG emissions were calculated using the URBEMIS2007 emissions model for area sources and EMFAC2007 for transportation sources. In addition, indirect GHG emissions for energy use, water, and waste disposal were included in the emissions inventory. GHG emissions for energy use were calculated using energy usage factors and emission rates from the US Energy Information Administration. GHG emissions from project-related water demand were calculated using southern California energy-intensity factors

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<sup>7</sup> A recent study conducted by economists at the University of California, Berkeley and UC San Diego estimated that China's CO<sub>2</sub> emissions are growing by as much as 11 percent annually and that a ton of CO<sub>2</sub> emitted from China comingles with a ton of carbon dioxide emitted from Southern California in approximately seventy two hours (Auffhammer and Carson 2008). A 2009 analysis of Chinese emissions by the French Institute for Sustainable Development and International Relations projects that even if the Chinese government reduces carbon emissions by about 40-45 percent per unit of gross domestic product, China will still have an approximate 75 percent increase in CO<sub>2</sub> emissions by 2020 (The Times of India 2009). A different study by the Climate Change Institute at Australian National University suggested that China's emissions may grow even more: doubling by 2020 (The Times of India 2009). China's increase in emissions alone could be three to four times higher than the combined cuts promised by the United States and the European Union (The Times of India 2009).

<sup>8</sup> According to projections from the Energy Information Administration (EIA), carbon emissions from Brazil alone are expected to increase from 216 MMTons in 1990 and 356 MMTons in 2005 to 541 MMTons in 2020, nearly double the amount of emissions which will be saved by the implementation of AB 32. During that period, India's emissions are projected to increase by about 1,253 MMTons (EIA 2008).

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obtained from the CEC, and GHG emissions from project-related waste disposal were calculated using the USEPA's Waste Reduction Model. Lifecycle emissions<sup>9</sup> are not included in this analysis because no information is available for the Proposed Project and therefore lifecycle GHG emissions would be speculative. Air quality modeling and details on the modeling assumptions are included as Appendix C.

**Table 5.11-2  
Existing GHG Emissions Inventory in the Platinum Triangle MLUP**

Source	GHG Emissions MTons/Year <sup>1</sup>	Percent of Total
Transportation Sector <sup>1</sup>	138,564	73%
Electricity Sector		
Purchased Energy <sup>2</sup>	36,758	19%
Water Demand and Treatment <sup>3</sup>	783	<1%
Total Energy Emissions	37,541	20%
Recycling and Waste <sup>4</sup>	3,868	2%
Area Sources <sup>1</sup>	11,032	6%
<b>Total</b>	<b>191,005 MTons</b>	<b>100%</b>
<b>Per Service Population (SP)<sup>5</sup></b>	<b>12.4 MTons/SP</b>	<b>NA</b>

Source: URBEMIS2007, Version 9.2.4.

MTons = metric tons. The emissions inventory does not include emissions from existing industrial land uses.

1 short ton (ton) equals 0.9071847 metric ton.

<sup>1</sup> URBEMIS2007, Version 9.2.4. Assumes CO<sub>2</sub> represents 99.6 percent of total CO<sub>2e</sub> emissions from gasoline while CH<sub>4</sub>, N<sub>2</sub>O, and Fluorinated Gases comprise the remaining percent (BAAQMD 2008).

<sup>2</sup> CO<sub>2e</sub> emissions calculated using energy usage factors and emission rates from the United States Department of Energy, EIA, and Southern California Edison. Based on the EIA 2003 Commercial Building Energy Consumption, December 2006, Table C14 and C20. Note: Does not take into account increase in appliance and building energy efficiency.

<sup>3</sup> Includes energy required for water conveyance, treatment, distribution, and wastewater treatment. Water use estimated from SCAQMD Water and Electricity Usage in Southern California. CO<sub>2e</sub> emissions calculated using energy usage factors and emission rates from the United States Department of Energy, Southern California Edison. Based on California Energy Commission, 2005, November. California's Water-Energy Relationship. CEC-700.2005-011-SF.

<sup>4</sup> CO<sub>2e</sub> emissions from waste generation are based on the Waste Reduction Model (WARM) created by the USEPA and the waste stream jurisdictional profile for the City of Anaheim (CIWMB)

<sup>5</sup> Service population includes people who live (residents) and work (employees) in the Platinum Triangle. As of June 2008, the Platinum Triangle had an estimated 585 residents and 14,822 employees for a service population of 15,407 people.



### Regulatory Setting

#### Regulation on an International Level

Currently, there is no international regulatory program regulating emissions from various nations. A brief summary of the state of international climate change regulation is set forth below. In 1992, 154 nations, including the United States, entered into the United Nations Framework Convention on Climate Change (UNFCCC), a nonbinding agreement under which industrialized countries pledged to work to reduce GHG emissions. Five years later, in 1997, the parties to the UNFCCC adopted the Kyoto Protocol, which set

<sup>9</sup> Lifecycle emissions are the GHG emissions from raw material production, manufacture, distribution, use, and disposal and include all intervening transportation emissions caused by the product's existence. Because the amount of materials consumed during the operation or construction over the lifetime of the Platinum Triangle MLUP is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of lifecycle emissions would be speculative. In addition, the Final Statement of Reasons for the CEQA guidelines states that there is no regulatory definition of lifecycle and lifecycle emissions could refer to emissions beyond those that could be considered indirect effects of a project. Therefore, references to lifecycle analyses were removed from the CEQA Guidelines.

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binding GHG reduction targets for 37 industrialized countries and the European Community, with the objective of reducing their collective omissions by 5 percent below 1990 levels during the “commitment period” of 2008-2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. Indeed, in 1995, the Senate passed the Byrd-Hagel Resolution by a 95-0 vote, stating the Senate’s directive that the United States should not enter into any protocol that did not set binding targets for developing, as well as industrialized, nations. It should be noted that many of the industrialized countries which ratified the Kyoto Protocol have not and/or are not expected to meet their Kyoto targets.<sup>10</sup> The Kyoto Protocol is set to expire in 2012. Formal negotiations to replace the protocol officially began in December 2007 at the UNFCCC Climate Change Conference in Bali, Indonesia. Whether a workable agreement can be reached, however, remains to be seen, as the United States continues to press for an agreement which requires firm commitments from developing nations, and countries like China and India continue to oppose binding targets (BBK News 2007).

#### **Regulation of GHG Emissions on a National Level**

The federal government has taken a number of steps toward addressing global climate change over the past 30 years, but thus far, such actions have been mostly policy oriented. In 1978, Congress enacted the National Climate Program Act, which required an investigation into climate change. In 1987, Congress enacted the Global Climate Protection Act for the purpose of establishing a national climate program that will assist the Nation and the world to understand and respond to natural and man-induced climate processes and their implications (15 USC § 2902.). The act required the establishment of various programs to further climate change research (15 USC § 2904(d)).

After a thorough examination of the scientific evidence and careful consideration of public comments, the EPA announced on December 7, 2009, two distinct findings regarding GHG emissions under Section 202(a) of the Clean Air Act. First, the EPA made an endangerment finding that current and projected concentrations of the six key greenhouse gases—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations. Second, the EPA made a finding that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHGs that threaten public health and welfare. EPA’s final findings respond to the 2007 US Supreme Court decision that GHG emissions could be regulated within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed earlier this year for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

Despite the fact that climate change has been on the Federal government’s radar for 30 years, to date, Congress has not enacted any legislation requiring economy-wide mandatory reductions in GHG emissions. Currently, the Federal government’s policy on climate change has three objectives: 1) Slowing the growth of emissions; 2) Strengthening science, technology and institutions; and 3) Enhancing international cooperation, which it is implementing through voluntary and incentive-based programs (USEPA 2010). While the newly-elected Obama Administration has stated its support for cap and trade legislation, thus far no new federal legislation has been adopted. Several different “cap-and-trade” proposals, which would require such reductions, have recently been introduced in Congress, but none of them have been passed by either branch of Congress, or have become law. All such plans would place caps on the total amount of GHG which can be emitted during future years, and allow emitters to buy and sell emission credits. However, such

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<sup>10</sup> Canada, which currently has emissions that are 30 percent above 1990 levels, announced in 2009 that it would not be able to meet its obligations under Kyoto (Environment Canada 2010). Likewise, Japan has not indicated that it will not comply with its targets, but as of 2005, its emissions were approximately 8 percent higher than in 1990 (Kestenbaum 2007).

plans vary widely on what caps they would place on emissions and how quickly such caps would come into effect, as well as how their specific mechanisms would work (Pre Center on Global Climate Change 2008).

### **Regulation of GHG Emissions on a State Level**

AB 32, the Global Warming Solutions Act, was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG. AB 32 follows the first tier of emissions reduction targets established in Executive Order S-3-05, signed on June 1, 2005. Executive Order S-3-05 requires the state's global warming emissions to be reduced to 1990 levels by the year 2020 and by 80 percent of 1990 levels by year 2050. Projected GHG emissions in California are estimated at 596 MMTons of CO<sub>2e</sub> by 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTons (471 million tons) of CO<sub>2e</sub> for the state. The 2020 target requires emissions reductions of 169 MMTons, approximately 30 percent of the projected emissions compared to business-as-usual (BAU) in year 2020 (i.e., 30 percent of 596 MMTons). CARB defines BAU in their Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical practice in 2002–2004.

In order to effectively implement the cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor global warming emissions levels for large stationary sources that generate more than 25,000 metric tons (MTons) per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012. The Climate Action Registry Reporting Online Tool was established through the Climate Action Registry to track GHG emissions. In June 2008, CARB released a draft of the *Climate Change Scoping Plan*, which was revised in October 2008. The final Scoping Plan was adopted by CARB on December 11, 2008. Key elements of CARB's GHG reduction plan are:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a mix of 33 percent for energy generation from renewable sources;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
- Creating target fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Table 5.11-3 shows the proposed reductions from regulations and programs outlined in the Scoping Plan. While local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services are estimated to result in a reduction of five MMTons of CO<sub>2e</sub>, which is approximately 3 percent of



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the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of today's levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer VMT. According to the supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 MMTons of CO<sub>2e</sub> (or approximately 1.2 percent of the GHG reduction target).

**Table 5.11-3  
Scoping Plan GHG Reduction Measures Toward 2020 Target**

<i>Recommended Reduction Measures</i>	<i>Reductions Counted toward 2020 Target of 169 MMTons CO<sub>2e</sub></i>	<i>Percentage of Statewide 2020 Target</i>
<b>Cap and Trade Program and Associated Measures</b>		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets <sup>1</sup>	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
<b>Total Cap and Trade Program Reductions</b>	<b>146.7</b>	<b>87%</b>
<b>Uncapped Sources/Sectors Measures</b>		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
<b>Total Uncapped Sources/Sectors Reductions</b>	<b>27.3</b>	<b>16%</b>
<b>Total Reductions Counted toward 2020 Target</b>	<b>174</b>	<b>100%</b>
<b>Other Recommended Measures – Not Counted toward 2020 Target</b>		
State Government Operations	1.0 to 2.0	1%
Local Government Operations	To Be Determined <sup>2</sup>	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
<b>Total Other Recommended Measures – Not Counted toward 2020 Target</b>	<b>42.8</b>	<b>NA</b>

Source: CARB, 2008.

<sup>1</sup> Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

<sup>2</sup> According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO<sub>2e</sub> (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

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In summary, current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32 and Executive Order S-01-07. AB 32 establishes a goal of reaching 1990 levels by 2020 and describes a process for achieving that goal. Executive Order S-03-05 sets a goal for the following for reduction of GHG emissions:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

#### **Regulation of GHG Emissions on a Regional Level**

In 2008, SB 375 was adopted to connect the GHG emissions reductions targets established in the Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles traveled and vehicle trips. Specifically, SB 375 requires CARB to establish GHG emissions reduction targets for each of the 17 regions in California managed by a Metropolitan Planning Organization (MPO). The Southern California Association of Governments (SCAG) is the MPO for the southern California region, which includes the counties of Los Angeles, Orange, San Bernardino County, Riverside, Ventura, and Riverside.

The GHG emission reduction targets for each region are required to be established no later than September 30, 2010. Once the GHG emissions reduction targets for each region have been established, SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) as part of its Regional Transportation Plan. While there is no deadline for adoption of the SCS, it is anticipated that the first plans would not be released until 2011, at the earliest. The SCS sets forth a development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). The SCS is meant to take individual jurisdictions growth strategies, that, when taken together, achieve the regional GHG emissions reduction targets. If the SCS is unable to achieve the regional GHG emissions reduction targets, then the MPO is required to prepare an Alternative Planning Strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measures.



#### **Regulation of GHG Emissions on a Local Level**

##### *City of Anaheim General Plan, Green Element*

The General Plan Update for the City of Anaheim was adopted in May 2004. The City of Anaheim General Plan, Green Element, while not specifically addressing GHG emissions or climate change, addresses topics concerning conservation of natural resources including vehicle emissions reduction; reducing vehicle work trips; expanding transit trips; sound land use planning; efficient, clean-burning public transit; energy conservation; and building performance standards (see also Section 5.4, Land Use and Planning).

##### *City of Anaheim Green Resolution, Green Connection, and Green Building Programs*

In 2006, the City Council adopted a Resolution, which sets out a series of goals for the City, grounded in the principles of environmental soundness and sustainable development. The City's Green Resolution includes a goal to reduce energy use by 20 percent and water use by 15 percent by 2015. Anaheim Public Utilities, through Anaheim's Green Connection Program, is exploring a variety of different ways to meet these green

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goals. For example, the City offers several incentive-based program through Anaheim Public Utilities.<sup>11</sup> The City's Green Building Programs promotes the following in the design and construction of new development and redevelopment:

- **Sustainable Sites.** Takes into consideration future needs including access to public transportation, parking capacity, accommodation for alternative fuel vehicles, protection or restoration of open space, storm water management, and prevention of the heat island effect and light pollution.
- **Water Efficiency.** Requires water-efficient landscapes, water-efficient equipment and appliances, and innovative wastewater technologies to reduce costs, help preserve water supplies and prevent pollution.
- **Energy Efficiency.** Encourages energy-efficiency measures such as use of daylighting, renewable energy, superior insulation, and high-efficiency appliances and equipment.
- **Cleaner Atmosphere.** Reduction of greenhouse gas and chlorofluorocarbons in heating, ventilation, and air conditions (HVAC) systems and refrigeration to preserve and protect the environment.
- **Wiser Use of Materials and Resources.** All materials used in construction should provide the best value in terms of the life of the product and future maintenance costs. At the same time, materials must be selected with environmental concerns in mind. Green builders consider not only the finished products they will use in construction, but also the methods of raw material acquisition, product manufacturing, packaging, transportation and use. Green building also means being conscious of waste management. Recycling and reusing materials when practical helps prevent overusing landfills.
- **Indoor Environmental Quality.** Green buildings provide good indoor air quality, lighting, acoustics and temperature control for the health and comfort of inhabitants. This requires the use of the most environmentally friendly building materials and innovative designs with special attention to ventilation, insulation, and HVAC systems.

#### 5.11.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

GCC-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

GCC-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

#### California Air Pollution Control Officers Association

In their January 2008 CEQA and Climate Change white paper, the California Air Pollution Control Officers Association identified a number of potential approaches for determining the significance of GHG emissions

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<sup>11</sup> A list of the City of Anaheim Public Utilities incentives for business efficiency can be found on the City's webpage at: <http://www.anaheim.net/article.asp?id=990>.

in CEQA documents. In this white paper, CAPCOA suggests making significance determinations on a case-by-case basis when no significance thresholds have been adopted.

### **Governor's Office of Planning and Research – SB 97**

OPR released a Technical Advisory for addressing climate change through CEQA in June 2008. In their guidance document, OPR recommends that each public agency develop its own consistent approach to performing a climate change analysis based on best available information. OPR states that compliance with CEQA for global climate change analyses entails three basic steps: 1) identify and quantify GHG emissions associated with vehicular traffic, energy consumption, water usage, and construction activities; 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. For projects where GHG emissions are considered significant, the California Attorney General has prepared a fact sheet listing various mitigation measures to reduce the project's contribution to global climate change impacts.

### **South Coast Air Quality Management District**

The issue of global climate change is, by definition, a cumulative environmental impact. In accordance with the South Coast Air Quality Management District (SCAQMD) methodology, any project that produces a significant regional air quality impact in an area adds to the cumulative impact. The SCAQMD is the local air district responsible for establishing thresholds for air quality. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, the SCAQMD has convened a GHG CEQA Significance Threshold Working Group. Currently the SCAQMD is in the process of establishing a threshold for GHG emissions. On December 5, 2008, the SCAQMD adopted a threshold of 10,000 MTons of CO<sub>2e</sub> of stationary (and not mobile) sources for industrial projects where they are designated as the Lead Agency under CEQA. The SCAQMD is currently proposing, but has not yet adopted, thresholds for development projects.



#### **5.11.3 Environmental Impacts**

Operational GHG emissions were calculated using the URBEMIS2007 emissions model for area sources and the EMFAC2007 model for transportation sources. In addition, an estimate of construction emissions was generated using the URBEMIS2007 model. The EMFAC2007 computer model includes an inventory of emission rates for vehicular sources. Transportation emission rates used the EMFAC2007 computer model based on trips and VMT from the traffic report prepared by Parsons Brinckerhoff, Inc. In addition, CO<sub>2e</sub> emissions for project-related energy use were calculated using energy usage factors and emission rates from the US Energy Information Administration (EIA). CO<sub>2e</sub> emissions from project-related water demand were calculated using Southern California energy-intensity factors obtained from the CEC and CO<sub>2e</sub> emissions from project-related waste disposal were calculated using the USEPA's Waste Reduction Model (WARM). Air quality modeling is included as Appendix C.

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

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**IMPACT 5.11-1: THE PROPOSED PROJECT WOULD GENERATE SUBSTANTIALLY MORE GREENHOUSE GAS EMISSIONS COMPARED TO THE ADOPTED MASTER LAND USE PLAN AND CUMULATIVELY CONTRIBUTE TO CLIMATE CHANGE IMPACTS IN CALIFORNIA. HOWEVER, THE PROPOSED PROJECT WOULD BE CONSISTENT STATEWIDE AND REGIONAL GREENHOUSE GAS REDUCTIONS GOALS. [THRESHOLDS GHG-1 AND GHG-2]**

**Impact Analysis:** The CEQA Guidelines were amended on December 30, 2009 to incorporate methodology and discussion for GHG emissions. Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact. The State of California, through its governor and its legislature, has established a comprehensive framework for the substantial reduction of GHG emissions over the next 40+ years. This will occur primarily through the implementation of AB 32 and SB 375, which will address GHG emissions on a statewide cumulative basis. As this framework was not available when the FSEIR No. 332 was published, it did not analyze impacts associated with GHG emissions.

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG 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 an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.<sup>12</sup>

In accordance with the OPR Technical Advisory and revisions to the CEQA Guidelines, the analysis below provides the conclusions on the project-specific impact towards the cumulative impact of global climate change. Annual GHG emissions from project-related mobile and stationary sources and for project-related indirect emissions from purchased energy and water were also calculated for construction and operation of the Proposed Project and evaluated for the potential to interfere with the State of California's ability to achieve GHG reduction goals and strategies, as identified in AB 32 through a consistency analysis with CARB's Scoping Plan.

#### **Project-Related GHG Emissions**

The Proposed Project is a regionally significant project pursuant to SCAG's Intergovernmental Review (IGR) criteria and the CEQA Guidelines. The emissions inventory assumes both residential and employment trips to be associated with land uses in the Platinum Triangle. Therefore, *all* the vehicle miles traveled (VMT) generated by those trips are considered to be part of the City's GHG inventory even if part of the trip end is external to the City. In comparison, the Regional Target Advisory Committee for SB 375 is recommending that in scenarios where employment trips are split between jurisdictional boundaries, only 50 percent of the

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<sup>12</sup> OPR recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG 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.

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trip length be included as part of that region's GHG inventory. What this means is the vehicle trip may originate in the City of Los Angeles, but end in the Platinum Triangle (or vice-versa). The City considers this whole trip length and trip to be associated with the Proposed Project. Because the Platinum Triangle GHG inventory does not split trips associated with residential uses and trips associated with nonresidential uses, this correction is not included in the GHG emissions inventory and results in an overestimation of VMT and trips generated by the Platinum Triangle alone.

The development contemplated by the Proposed Project would contribute to global climate change through direct emissions of GHG from on-site area sources, off-site energy production required for on-site activities and water use, and vehicle trips generated by the Proposed Project. Lifecycle emissions are not included in this analysis because no information is available for the Proposed Project and therefore lifecycle GHG emissions would be speculative.<sup>13</sup> Project-related GHG emissions from operation activities were calculated using the URBEMIS2007 and EMFACE2007 computer models, energy usage factors and emission rates from the EIA, and GHG emission rates from waste disposal from the USEPA.

For the operations phase, the project's GHG emissions are separated into emission sources for the applicable GHG emissions sectors established by CARB. Transportation Sector emissions are produced from vehicular travel to and from the project site. Electricity Sector sources are indirect GHG emissions from the energy (purchased energy and energy from water use) that is produced off-site.<sup>14</sup> In accordance with Appendix F of the CEQA Guidelines, these sources of GHG emissions are evaluated. Recycling and Waste Sector are emissions associated with waste disposal generated by the project. Area Sources Sector (Commercial and Residential Sector emissions sources) are owned or controlled by the project (e.g., natural gas combustion, boilers, furnaces) and produced on-site. Project-related construction activities would consume fuel and result in the generation of GHG emissions.

GHG emissions from operational activities associated with the Proposed Project at build-out year 2030 are shown in Table 5.11-4. In general, project-related Transportation Sector emissions represent the largest proportion of emissions associated with the Proposed Project. While development patterns can influence travel behavior and travel modes, these emissions are indirect sources of GHG emissions that are not directly controlled by future applicants for new development in the Platinum Triangle. The second largest source of emissions is from the Electricity Sector, followed by area sources associated with the Commercial and Residential Sector, construction activities, and Recycling and Waste. These direct sources of emissions can be controlled by new development by ensuring that structures are built efficiently to reduce demand on energy use, that nonpotable/recycled water is used where available to reduce demand of potable water use, and that recycling is available on-site to decrease the amount of waste sent to landfills.



<sup>13</sup> Lifecycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. Because of the programmatic nature of the Platinum Triangle MLUP development, evaluation and quantification of raw material usage and production are unknown.

<sup>14</sup> Potable water use consumes large amounts of energy associated with water conveyance, treatment, distribution, end use, and wastewater treatment.

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**Table 5.11-4  
2030 Business-as-Usual Annual GHG Emissions Inventory for the Platinum Triangle**

Source	CO <sub>2e</sub> Emissions Mtons Per Year (BAU Scenario)						Percent of Total (Proposed Project)
	Existing	Adopted MLUP	Increase from Existing (Adopted MLUP)	Proposed Project	Increase from Existing (Proposed Project)	Increase from Adopted MLUP (Proposed Project)	
Transportation Sector <sup>1</sup>	138,564	364,449	248,996	665,969	527,405	301,519	66%
Electricity Sector							
Water Demand and Treatment <sup>2</sup>	783	2,392	1,774	5,249	4,466	2,857	1%
Purchased Energy <sup>3</sup>	36,758	84,438	52,558	190,628	153,869	106,190	19%
<b>Total Energy Emissions</b>	<b>37,541</b>	<b>86,830</b>	<b>54,332</b>	<b>195,877</b>	<b>158,335</b>	<b>109,046</b>	<b>19%</b>
Recycling and Waste Sector <sup>4</sup>	3,868	10,987	7,847	27,441	23,572	16,454	3%
Area Sources Sector <sup>5</sup>	11,032	32,481	23,644	69,933	58,901	37,452	7%
Annual Average Construction <sup>6</sup>	—	20,268	22,342	48,394	48,394	28,126	5%
<b>Total</b>	<b>191,005</b>	<b>515,016</b>	<b>357,161</b>	<b>1,007,613</b>	<b>816,608</b>	<b>492,597</b>	<b>100%</b>
<b>Per Service Population (SP)<sup>5</sup></b>	<b>12.4 Mtons/SP</b>	<b>17.1 Mtons/SP</b>	<b>5.2 Mtons/SP</b>	<b>15.5 Mtons/SP</b>	<b>3.1 Mtons/SP</b>	<b>-1.6 Mtons/SP</b>	<b>NA</b>

The emissions inventory does not include emissions from existing industrial land uses.

<sup>1</sup> URBEMIS2007, Version 9.2.4. Assumes CO<sub>2</sub> represents 99.6 percent of total CO<sub>2e</sub> emissions from gasoline while CH<sub>4</sub>, N<sub>2</sub>O, and Fluorinated Gases comprise the remaining percent (BAAQMD 2008).

<sup>2</sup> Includes energy required for water conveyance, treatment, distribution, and wastewater treatment. Water use estimated from SCAQMD Water and Electricity Usage in Southern California. CO<sub>2e</sub> emissions calculated using energy usage factors and emission rates from the United States Department of Energy, Southern California Edison. Based on California Energy Commission. 2005, November. California's Water-Energy Relationship. CEC-700.2005-011-SF.

<sup>3</sup> CO<sub>2e</sub> emissions calculated using energy usage factors and emission rates from the United States Department of Energy, EIA, and Southern California Edison. Based on the EIA 2003 Commercial Building Energy Consumption, December 2006, Table C14 and C20. Note: Does not take into account increase in appliance and building energy efficiency.

<sup>4</sup> CO<sub>2e</sub> emissions from waste generation are based on the Waste Reduction Model (WARM) created by the USEPA and the waste stream jurisdictional profile for the City of Anaheim (CIWMB)

<sup>5</sup> Service population includes people who live (residents) and work (employees) in the Platinum Triangle. The Adopted MLUP generates 15,399 residents and 14,640 employees for a service population of 30,039 people. The Proposed Project would generate 23,364 residents and 41,500 employees for a service population of 64,864 people. As of June 2008, the Platinum Triangle had an estimated 585 residents and 14,822 employees for a service population of 15,407 people.

<sup>6</sup> URBEMIS2007, Version 9.2.4. Based on the default construction equipment mix and assumes CO<sub>2</sub> represents 99.7 percent of total from diesel CO<sub>2e</sub> while CH<sub>4</sub>, N<sub>2</sub>O, and fluorinated gases comprise the remaining percent (BAAQMD 2008). Does not include a reduction in GHG emissions from implementation of the low carbon fuel standard which would reduce the carbon content of fuel proposed by year 2020, thereby reducing GHG emissions from fuel from construction equipment by 10 percent.

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As shown in this table, the Proposed Project would generate an increase in 492,597 MTons of GHG emissions compared to the Adopted MLUP and 816,608 MTons from existing conditions. The emissions estimates do not take into account the GHG emission reductions associated with changes to the Building and Energy Efficiency standards, California Appliance Energy Efficiency regulations, California Renewable Energy Portfolio standard, California low carbon-content fuel legislation, Corporate Average Fuel Economy (CAFE) standards, and other early action measures in the Scoping Plan to reduce GHG emissions. Hence, the emissions inventory included in this table represents the Proposed Project's BAU emission scenario. Business as usual is defined as emission levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. The FSEIR No. 332 for the Adopted MLUP did not analyze potential impacts from GHG emissions. The Adopted MLUP would generate an increase of 357,161 MTons from existing conditions. Emissions generated by the Adopted MLUP and the Proposed Project would both be substantial and therefore potentially significantly contribute to climate change impacts in California. The Proposed Project would further increase GHG emissions by 492,597 MTons compared to the Adopted MLUP; however, per-capita emissions would decrease. GHG emissions associated with the Proposed Project would be substantially greater under the Proposed Project compared to the Adopted MLUP and therefore impacts are considered significant.

### **CARB Scoping Plan Consistency**

While California alone cannot stabilize the climate, the state's actions set an example and drive global progress toward reduction of GHG. If the industrialized world were to follow the emission reduction targets established by California, and industrializing nations reduced emissions according to the lower emissions path (lower emissions IPCC scenario B1), medium or higher warming ranges of global temperature increases might be avoided, along with the most severe consequences of global warming. In 2007 the CEC published *The Role of Land Use in Meeting California's Energy and Climate Change Goals*. In this publication, the CEC acknowledged that California's land use patterns shape energy use and the production of GHG. Transportation contributes a large percentage of the state's GHG emissions and research shows that increasing a community or development's density and accessibility to job centers are the two most significant factors for reducing vehicle miles traveled through design (CEC 2007). CARB adopted the Scoping Plan in December 2008. CARB's Scoping Plan identifies that reducing GHG emissions to 1990 levels means "cutting approximately 30 percent from business-as-usual emissions levels projected for 2020, or about 15 percent from today's levels." According to the Scoping Plan, a hard and declining cap will cover 85 percent of California GHG emissions reductions. The early actions and the percentage toward the GHG reduction goal of 169 MTons that they achieve were shown in Table 5.11-3. Consequently, the emissions inventory in Table 5.11-4 would be reduced as a result of the GHG emissions reduction under the cap-and-trade program.

In accordance with AB 32, CARB developed the Scoping Plan to outline the state's strategy to achieve 1990 level emissions by year 2020. To estimate the reductions necessary, CARB projected year statewide 2020 BAU GHG emissions (i.e., GHG emissions in the absence of statewide emission reduction measures). CARB identified that the state as a whole would be required to reduce GHG emissions by 30 percent from year 2020 BAU. Therefore, the Scoping Plan defines the future baseline emissions scenario to mean in the absence of the statewide emissions reduction strategy. In order to determine whether the project's GHG emissions are consistent with the overall goal of AB 32, emissions shown previously in Table 5.11-4 are compared to GHG emissions with implementation of the Scoping Plan GHG emissions reduction measures. Additionally, the Scoping Plan identified several early action measures to reduce GHG emissions in the State of California. These early action measures include:



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- **Green Building:** Implementation of newer, more energy-efficient California Building Standards within the California Building Code (CBC). The new 2008 Building and Energy Efficiency Standards are 15 percent more energy efficient than the 2005 standards.
- **Renewable Energy Portfolio:** Requiring that California use renewable energy to represent 33 percent of California's energy portfolio. Renewable energy currently comprises 12 percent of the state's energy portfolio.
- **Per-Capita Water Reduction:** Reducing per-capita water use by approximately 20 percent. The draft 20X2020 water conservation plan identifies strategies to reduce water use in the state. In addition, plumbing and landscaping codes amended with the new CBC result in a 50 percent reduction of water use for new commercial and residential plumbing fixtures.
- **Low Carbon Fuel Standard:** Adoption of a new Low Carbon Fuel Standard (LCFS). The LCFS requires the carbon content of fuels sold in California to be reduced by 10 percent by year 2020.
- **Pavley Fuel Efficiency Standards:** Adoption of higher fuel efficiency standards (Pavley Fuel Efficiency Standards). The United States Environmental Protection Agency granted the waiver to California to implement higher fuel efficiency standards on July 1, 2009. California's fuel efficiency standards require the average fleet fuel economy of cars to be 43 miles per gallon (mpg) by year 2020. This results in an increase in fuel efficiency of 42.8 percent from the current 23 mpg average fleet economy in California.

Table 5.11-5 shows the GHG emissions inventory at build-out of the Proposed Project with the associated GHG emissions reductions and the percent reduction from BAU. As described previously, to be consistent with GHG reduction targets of AB 32 for year 2020, the City would need to reduce GHG emissions by 30 percent from BAU by year 2020. As shown in this table, the statewide GHG emissions reduction measures identified in the Scoping Plan and that are being implemented over the next 10 years would reduce GHG emissions by 353,237 MTons, or 35 percent, from the BAU scenario. Because the GHG emissions reductions for transportation, buildings, energy, and other economic sectors would be implemented by year 2020, the percent reduction associated with the Scoping Plan for the project for 2030 would be similar for forecast year 2020 (see Appendix C). This is because no additional emissions control measures are assumed for years 2020 through years 2030 for the purpose of this analysis.

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**Table 5.11-5  
2030 Annual GHG Emissions Inventory for the Proposed Project with Scoping Plan  
Reductions**

Source	<i>CO<sub>2e</sub> Emissions MTONs Per Year</i>		Percent of Total
	<i>Proposed Project (BAU Scenario)</i>	<i>Proposed Project W/Scoping Plan Reductions</i>	
Transportation Sector <sup>1</sup>	665,969	380,934	58%
Electricity Sector			
Water Demand and Treatment <sup>2, 3</sup>	5,249	4,147	1%
Purchased Energy <sup>3</sup>	190,628	132,362	20%
Total Energy Emissions	195,877	136,509	21%
Recycling and Waste Sector	27,441	27,441	4%
Area Sources Sector <sup>3</sup>	69,933	61,098	9%
Annual Average Construction <sup>6</sup>	48,394	48,394	7%
<b>Total GHG Inventory</b>	<b>1,007,613</b>	<b>654,375</b>	<b>100%</b>
<b>Per Service Population<sup>4</sup></b>	<b>15.5 MTONs/SP</b>	<b>10.1 MTONs/SP</b>	<b>NA</b>
<b>Percent Decrease from BAU</b>		<b>35%</b>	
<b>Scoping Plan Reductions</b>		<b>353,237</b>	

MTONs = metric tons. The emissions inventory does not include emissions from existing industrial land uses.

<sup>1</sup> Based on a 42.8 percent increase in fuel efficiency in passenger vehicles from 2008 to 2020 in the CARB 2008 Technical Advisory. Pavley 2 would require an average fleet fuel economy of new cars of 42.5 mpg by 2020 compared to an existing average of 24.4 mpg (CARB 2008b).

<sup>2</sup> Based on an increase in renewable energy use from 12 percent to 33 percent by 2020. (CARB 2008a)

<sup>3</sup> Based on an increase in 15 percent energy efficiency from the 2005 to 2008 Building and Energy Efficiency Standards (Title 24, California Building Code).

<sup>4</sup> Service population includes people who live (residents) and work (employees) in the Platinum Triangle. The Adopted MLUP generates 15,399 residents and 14,640 employees for a service population of 30,039 people. The Proposed Project would generate 23,364 residents and 41,500 employees for a service population of 64,864 people.



Relative to Measure T-3 of the Scoping Plan, which is the measure encompassing the requirements of SB 375, local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces per capita greenhouse gases associated with vehicle travel, energy, water, and waste. SB 375 enhances existing processes by which governments coordinate with the regional planning agencies in order to demonstrate GHG emission reductions through integrated development patterns, improved transportation planning, and other transportation measures and policies. The Proposed Project would mix high- and medium-density housing units with office, retail, and entertainment uses within the vicinity of major transportation corridors, including State Route 22, Interstate 5, and State Route 57, and therefore would be considered consistent with intent of similar regional planning efforts focused on efficient land use that strive to integrate jobs centers and housing opportunities specifically to reduce VMT and therefore GHG emissions.

Regional GHG emissions reduction targets have not yet been established by CARB and the Sustainable Communities Strategy (SCS) element of the RTP that are required by SB 375 will not be adopted by the SCAG region until the 2012 RTP is adopted. At this time, the only regional growth document that has been incorporated into a regional growth policy is SCAG's Compass Blueprint. If the Compass Blueprint were to be fully implemented, VMT per household would be expected to decrease (SCAG 2009b). The Proposed Project includes land use features designed to reduce VMT within southern California and the SoCAB through development of the Proposed Project, including the ARTIC District. The ARTIC District replaces the existing institutional land use designation on the eastern project boundary with a mixed use land use designation. This designation would allow for a variety of uses in addition to ARTIC, which is envisioned as a major regional intermodal transit center proposed under a partnership between the City of Anaheim and the

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Orange County Transportation Authority. The regional intermodal transit center would link rail, ground, and transit services in Orange County and would serve as a gateway for high speed and conventional rail, bus, and automobile travelers. Development of ARTIC project and the ARTIC District would facilitate the use of transit by residents in the Platinum Triangle and the surrounding region and would, therefore, improve mobility in the southern California region and could reduce transportation derived CO<sub>2</sub> emissions in the air basin.

As shown in Table 5.11-5, full implementation of transportation and energy measures of CARB's Scoping Plan would reduce emissions by 35 percent, or 353,237 MTons of CO<sub>2e</sub> from BAU. Coupled with statewide measures to reduce GHG emissions from electric producers, vehicles, fuel, and the cap-and-trade program, the project would achieve GHG reductions consistent with the 30 percent reduction consistent with the GHG reduction goals of AB 32, as described in the statewide GHG emissions reduction strategy outlined in the Scoping Plan.

#### 5.11.4 Cumulative Impacts

As described under Impact 5.11-1, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Hence, GHG impacts are by nature a cumulative impact. Consequently, it is speculative to determine how an individual project's GHG emissions would impact California. Therefore, impacts identified under Impact 5.11-1 are not project-specific impacts to global warming, but the Proposed Project's contribution to this cumulative impact. Because the Proposed Project's GHG emissions were considered significant even with mitigation, the project's GHG emissions and contribution to global climate change impacts are considered cumulatively considerable and therefore significant for GHG emissions.

#### 5.11.5 Existing Regulations and Standard Conditions

- Building Energy Efficiency Standards (Title 24 California Code of Regulations)
- Appliance Energy Efficiency Standards (Title 20 California Code of Regulations)
- Motor Vehicle Standards (AB 1493)
- AB 32: California Global Warming Solutions Act
- Executive Order S-3-05: Greenhouse Gas Emission Reduction Targets
- Executive Order S-01-07: Low Carbon Fuel Standard Program
- City of Anaheim Municipal Code Chapter 10.18, Water Conservation Ordinance No. 6138 (adopted April 14, 2009).
- Assembly Bill 939 (Sher, Chapter 1095, Statutes of 1989).

#### 5.11.6 Level of Significance Before Mitigation

Without mitigation, the following impacts would be **potentially significant**:

- Impact 5.11-1 The Proposed Project would generate substantially more GHG Emissions compared to the Adopted MLUP and cumulatively contribute to climate change impacts in California. However, the project would be consistent statewide and regional GHG reductions goals.

**5.11.7 Mitigation Measures**

**Impact 5.11-1**

**Applicable Mitigation Measures from Other EIR Sections**

Below is a list of mitigation measures included in other environmental topical sections of this EIR that also would reduce GHG emissions associated with the project and are consistent with the California Attorney General's mitigation measures for energy efficiency, renewable energy and storage, water conservation and efficiency, solid waste, land use, transportation and motor vehicle, and agriculture and forestry measures. It should also be noted that the proposed project is a mixed-use infill project that is consistent with the Attorney General's recommended measures for land use. In addition, several of the mitigation measures incorporate several categories of the California Attorney General's recommended measures (i.e., energy efficiency and water efficiency measures are occasionally incorporated in the same mitigation measure).

*Solid Waste Measures*

2-3 Prior to approval of each grading plan (for Import/Export Plan) and prior to issuance of demolition permits (for Demolition Plans), the property owner/developer shall submit Demolition and Import/Export Plans **detailing construction and demolition (C&D) recycling and waste reduction measures to be implemented to recover C&D materials**. These plans shall include identification of off-site locations for materials export from the project and options for disposal of excess material. These options may include recycling of materials on-site or to an adjacent site, sale to a soil broker or contractor, sale to a project in the vicinity or transport to an environmentally cleared landfill, with attempts made to move it within Orange County. The property owner/developer shall offer recyclable building materials, such as asphalt or concrete for sale or removal by private firms or public agencies for use in construction of other projects if not all can be reused at the project site. (5.2-3)

10-18 **Prior to the final building and zoning inspections of each development, the** The property owner/developer shall submit project plans to the Streets and Sanitation Division of the Public Works Department for review and approval to ensure that the plans comply with AB 939, and the Solid Waste Reduction Act of 1989, and the County of Orange and City of Anaheim Integrated Waste Management Plans as administered by the City of Anaheim. Implementation of said plan shall commence upon occupancy and shall remain in full effect as required by the Street and Sanitation Division and may include, at its discretion, the following plan components: (5.11-8)

- Detailing the locations and design of on-site recycling facilities.
- ~~Providing on-site recycling receptacles to encourage recycling.~~
- Participating in the City of Anaheim's "Recycle Anaheim" program or other substitute program as may be developed by the City **or governing agency**.
- Facilitating cardboard recycling (especially in retail areas) by providing adequate space and centralized locations for collection and bailing.
- Providing trash compactors for nonrecyclable materials whenever feasible to reduce the total volume of solid waste and number of trips required for collection



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- Providing on-site recycling receptacles accessible to the public to encourage recycling for all businesses, employees, and patrons where feasible.
  - Prohibiting curbside pick-up.
  - Ensuring hazardous materials disposal complies with federal, state, and city regulations.
- 10-19 **Ongoing during project operations, the** The following practices shall be implemented, as feasible, by the property owner/developer: (5.11-9)
- Usage of recycled paper products for stationery, letterhead, and packaging.
  - Recovery of materials, such as aluminum and cardboard.
  - Collection of office paper for recycling.
  - Collection of glass, plastics, kitchen grease, laser printer toner cartridges, oil, batteries, and scrap metal for recycling or recovery.
- 10-20 **Prior to the approval of each grading plan (for import/export plan) and prior to issuance of demolition permits (for demolition plans), the** The property owner/developer shall submit a Demolition and Import/Export Plans, if determined to be necessary by the Public Works Department, Traffic Engineering Division, and /or Street and Sanitation Division. The plans shall include identification of off-site locations for material export from the project and options for disposal of excess material. These options may include recycling of materials on-site, sale to a broker or contractor, sale to a project in the vicinity or transport to an environmentally cleared landfill, with attempts made to move it within Orange County. The property owner/developer shall offer recyclable building materials, such as asphalt or concrete for sale or removal by private firms or public agencies for use in construction of other projects, if all cannot be reused on the project site. (5.11-10)

### Transportation and Motor Vehicle Measures

- 2-5 In accordance with the timing required by the Traffic and Transportation Manager, but no later than prior to the first final Building and Zoning inspection, the property owner/developer shall implement the following measures to reduce long-term operational CO, NO<sub>x</sub>, ROG, and PM<sub>10</sub> emissions: (5.2-5)
- Traffic lane improvements and signalization as outlined in the **Platinum Triangle Master Land Use Plan Draft Traffic Study Report by Parsons Brinckerhoff, August 2010, traffic study and Master Plan of Arterial Highways** shall be implemented as required by the Traffic and Transportation Manager.
  - The property owner/contractor shall place bus benches and/or shelters as required by the Traffic and Transportation Manager at locations along any site frontage routes as needed.
- 9-1 **Prior to the first final building and zoning inspection for each building with commercial, office, and/or institutional uses, the property owners/developer shall record a covenant on the property requiring that ongoing during project implementation, the** property

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owner/developer shall implement and administer a comprehensive Transportation Demand Management (TDM) program for all employees. **The form of the covenant shall be approved by the City Attorney's Office.** Objectives of the TDM program shall be: (5.10-2)

- Increase ridesharing and use of alternative transportation modes by guests.
- Provide a menu of commute alternatives for employees to reduce project-generated trips.
- Conduct an annual commuter survey to ascertain trip generation, trip origin, and Average Vehicle Ridership.

9-2

Prior to **the first** Final Building and Zoning inspection **for each building with commercial, office, or institutional uses, and ~~ongoing during project operation,~~** the property owner/developer shall provide **to the City of Anaheim Public Works Department for review and approval** a menu of TDM program strategies and elements for both existing and future employees' commute options, to include, but not be limited to, the **list below. The property owner/developer shall also record a covenant on the property requiring that the approved TDM strategies and elements be implemented ongoing during project operation. The form of the covenant shall be approved by the City Attorney's Office prior to recordation.** following: (5.10-2)

- On-site services such as the food, retail, and other services be provided.
- Ridesharing. Develop a commuter listing of all employee members for the purpose of providing a "matching" of employees with other employees who live in the same geographic areas and who could rideshare.
- Vanpooling. Develop a commuter listing of all employees for the purpose of matching numbers of employees who live in geographic proximity to one another and could comprise a vanpool or participate in the existing vanpool programs.
- Transit Pass. Southern California Rapid Transit District and Orange County Transportation Authority (including commute rail) passes be promoted through financial assistance and on-site sales to encourage employees to use the various transit and bus services from throughout the region.
- Shuttle Service. A commuter listing of all employees living in proximity to the project be generated, and a local shuttle program offered to encourage employees to travel to work by means other than the automobile. ~~Event shuttle service will be available for the guests.~~
- Bicycling. A Bicycling Program be developed to offer a bicycling alternative to employees. Secure bicycle racks, lockers, and showers be provided as part of this program, Maps of bicycle routes throughout the area be provided to inform potential bicyclists of these options.
- Guaranteed Ride Home Program. A program to provide employees who rideshare, or use transit or other means of commuting to work, with a prearranged ride home in a taxi, rental car, shuttle, or other vehicle, in the event of emergencies during the work shift.



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- Target Reduction of Longest Commute Trip. An incentive program for ridesharing and other alternative transportation modes to put highest priority on reduction of longest employee commute trips.
- Stagger work shifts.
- Develop a “compressed work week” program, which provides for fewer work days but longer daily shifts as an option for employees.
- Explore the possibility of a “telecommuting” program that would link some employees via electronic means (e.g., computer with modem).
- Develop a parking management program that provides incentives to those who rideshare or use transit means other than single-occupant auto to travel to work.
- Access. Preferential access to high occupancy vehicles and shuttles may be provided.
- Financial Incentive for Ridesharing and/or Public Transit. (Currently, federal law provides tax-free status for up to \$65 per month per employee contributions to employees who vanpool or use public transit including commuter rail and/or express bus pools.)
- Financial Incentive for Bicycling. Employees offered financial incentives for bicycling to work.
- Special “Premium” for the Participation and Promotion of Trip Reduction. Ticket/passes to special events, vacation, etc. be offered to employees who recruit other employees for vanpool, carpool, or other trip reduction programs.
- Design incentive programs for carpooling and other alternative transportation modes so as to put highest priority on reduction of longest commute trips.

**Every property owner and/or lessee shall designate an on-site contact who will be responsible for coordinating with the ATN and implementing all trip mitigation measures. The on-site coordinator shall be the one point of contact representing the project with the ATN. The TDM requirements shall be included in the lease or other agreement with all of the project participants.**

- 9-12 Prior to the first final building and zoning inspection, for each building with office and/or commercial uses, the property owner/developer shall submit proof to the Public Works, Transit Planning Division that the property owner/developer has entered into an agreement with the Anaheim Transportation Network (ATN) for the provision of a transit shuttle service between the project, the existing Metrolink Station and future Anaheim Regional Transportation Intermodal Center (ARTIC) as well as major activity centers in between. The agreement shall be recorded in the Official Records of the Office of the County Recorder, Orange County, California. The form of the agreement shall be approved by the City Attorney’s Office prior to recordation. The agreement shall provide for the following:
- a. A shuttle route plan, approved by the Public Works Department, Transit Planning Division and ATN, shall be attached and incorporated into the agreement. The plan shall include co-location of stops with Orange County Transportation Authority bus stop locations and other properties in

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- the Platinum Triangle where feasible and determined appropriate by the Public Works Transit Planning Division and ATN. The property owner/developer shall pay all costs associated with the preparation of the shuttle route plan.
- b. The property owner/developer shall provide the full cost associated with providing the shuttle, including, but not limited to, purchasing the shuttle vehicle and all costs associated with operating and marketing the shuttle route.
  - c. The agreement shall provide a mechanism for the property owner/developer to request fair share participation from other major activity centers to be served by this shuttle route. The mechanism shall be subject to the approval of the ATN.
  - d. The agreement shall set forth a schedule for commencement of operation of the shuttle service.
  - e. The agreement shall provide that the property owner/developer's obligations to fund the shuttle service may be cancelled only upon prior written approval from the Public Works Department, Transit Planning Division's once a new transit service has taken its place.
  - f. That to the extent permitted by law the terms of this agreement shall constitute covenants which shall run with the property for the benefit thereof, and the benefits of this agreement shall bind and inure to the benefit of the parties and all successors in interest to the parties hereto.
- 9-14 Prior to the approval of a Final Site Plan, the property owner/developer shall meet with the Traffic and Transportation Manager to determine whether a bus stop(s) is required to be placed adjacent to the property. If a bus stop(s) is required, it shall be placed in a location that least impacts traffic flow and may be designed as a bus turnout or a far side bus stop as required by the Traffic and Transportation Manager and per the approval of the Orange County Transportation Authority (OCTA).



### Energy Efficiency

- 2-6 Prior to issuance of a building permit, **the property owner/architect shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards to the Building Department that shows each new structure exceeds the applicable Building and Energy Efficiency Standards by a minimum of 10 percent. Plans shall show the following:**
- a) **Energy-efficient roofing systems, such as vegetated or “cool” roofs, that reduce roof temperatures significantly during the summer and therefore reduce the energy requirement for air conditioning. Examples of energy efficient building materials and suppliers can be found at <http://eetd.lbl.gov/CoolRoofs> or similar websites.**
  - b) **Cool pavement materials such as lighter-colored pavement materials, porous materials, or permeable or porous pavement, for all roadways and walkways not within the public right-of-way, to minimize the absorption of solar heat and subsequent transfer of heat to its surrounding environment. Examples of cool pavement materials are available at [http://www.epa.gov/heatisld/images/extra/level3\\_pavingproducts.html](http://www.epa.gov/heatisld/images/extra/level3_pavingproducts.html) or similar websites.**

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- c) **Energy saving devices that achieve the existing 2008 Appliance Energy Efficiency Standards, such as use of energy efficient appliances (e.g., EnergyStar® appliances) and use of sunlight-filtering window coatings or double-paned windows.**
- d) **Electrical vehicle charging stations for all commercial structures encompassing over 50,000 square feet.**
- e) **Shady trees strategically located within close proximity to the building structure to reduce heat load and resulting energy usage at residential, commercial, and office buildings.**

Implementation of energy conservation techniques (i.e., installation of energy saving devices, construction of electrical vehicle charging stations, use of sunlight filtering window coatings or double-paned windows, utilization of light-colored roofing materials as opposed to dark-colored roofing materials, and placement of shady trees next to habitable structures) shall be indicated on plans. (5.2-6)

10-21 **Prior to the issuance of each building permit, the** The property owner/developer shall submit plans showing that each structure will ~~comply with~~ **exceed** the State Energy Efficiency Standards for Nonresidential Buildings (Title 24, Part 6, Article 2, California Code of Regulations) **by a minimum of 10 percent** and will consult with the City of Anaheim Public Utilities Resource ~~Efficiency Department Business and Community Programs~~ Division. ~~in order to review Title 24 measures incorporated into the project design including energy efficient designs.~~ This consultation shall take place during project design **in order to review Title 24 measures that are** incorporated into the project design **energy efficient practices** efficiency and allow potential systems alternatives such as thermal energy storage air-conditioning, **lighting**, and building envelope options. Plans submitted for building permits shall show the proposed energy efficiencies and systems alternatives. (5.11-11)

10-22 **Prior to the issuance of each building permit, In order to conserve energy,** the property owner/developer shall **indicate on plans** implement energy-saving practices **that will be implemented with the project** in compliance with Title ~~10~~ **24**, which may include the following:

- High-efficiency air-conditioning with EMS (computer) control.
- Variable Air Volume (VAV) air distribution.
- Outside air (100 percent) economizer cycle.
- Staged compressors or variable speed drives to flow varying thermal loads.
- Isolated HVAC zone control by floors/separable activity areas.
- Specification of premium-efficiency electric motors (i.e., compressor motors, air-handling units, and fan-coil units).
- Use of occupancy sensors in appropriate spaces.
- Use of compact fluorescent lamps ~~in place of incandescent lamps.~~

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- **Use of cold cathode fluorescent lamps.**
- **Use of Energy Star exit lighting or exit signage.**
- Use of T-8 lamps and electronic ballasts where applications of standard fluorescent fixtures are identified.
- Use of **lighting power controllers in association with** metal-halide or high-pressure sodium (high intensity discharge) lamps for outdoor lighting and parking lots.
- **Use of skylights.**
- Consideration of thermal energy storage air conditioning for **spaces or hotel buildings, meeting facilities, theaters, or other intermittent use spaces or facilities** that may require air-conditioning during summer, day-peak periods.
- Consideration for participation in ~~Resource Efficiency's~~ **Advantage Services** Programs such as:
  - New construction design review, in which the City cost-shares engineering fees for up to \$10,000 for design of energy efficient buildings and systems.
  - ~~Energy Save for New Construction~~ – Cash incentives (\$150 **300** to \$400 per kW reduction in load) for efficiency that exceeds Title 24 requirements.
  - **Green Building Program – Offers accelerated plan approval, financial incentives, waived plan check fees and free technical assistance.**
  - ~~Thermal Energy Storage Feasibility Study~~ – Cost sharing of up to \$5,000 for the feasibility study of TES applied to new facilities. (5.11-12)
- Use of high efficiency toilets (1.28 gallons per flush (gpf) or less).
- Use of zero to low water use urinals (0.0 gpf to 0.25 gpf).
- Use of weather-based irrigation controllers for outdoor irrigation.
- Use of drought-tolerant and native plants in outdoor landscaping.

10-24 **Prior to the issuance of each building permit, the** The property owner/developer shall submit plans for review and approval which shall ensure that buildings ~~are in conformance with~~ **exceed** the State Energy ~~Conservation~~ **Efficiency** Standards for Nonresidential buildings (Title 24, Part 6, Article 2, California Administrative Code) **by a minimum of 10 percent.** (5.11-14)

#### Water Conservation and Efficiency

10-7 Prior to issuance of a building permit, submitted landscape plans shall demonstrate compliance with the City of Anaheim adopted Landscape Water Efficiency Guidelines. This ordinance is in compliance with the State of California **Model Water Efficient Landscape Ordinance (AB 1881)**~~Conservation in Landscaping Act (AB 325).~~

Among the measures to be implemented with the project are the following:

- Use of water-conserving landscape plant materials wherever feasible;



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- Use of vacuums and other equipment to reduce the use of water for wash down of exterior areas;
- Low-flow fittings, fixtures and equipment including low flush toilets and urinals;
- Use of self-closing valves for drinking fountains;
- Use of efficient irrigation systems such as drip irrigation and automatic systems which use moisture sensors;
- Infrared sensors on sinks, toilets and urinals;
- Low-flow shower heads in hotels;
- Infrared sensors on drinking fountains;
- Use of irrigation systems primarily at night, when evaporation rates are lowest;
- Water-efficient ice machines, dishwashers, clothes washers, and other water using appliances;
- Cooling tower recirculating system;
- Use of low-flow sprinkler heads in irrigation system;
- Use of waterway recirculation systems;
- Provide information to the public in conspicuous places regarding water conservation; and
- Use of reclaimed water for irrigation and washdown when it becomes available.

In conjunction with submittal of landscape and building plans, the applicant shall identify which of these measures have been incorporated into the plans. (5.11-1)

- 10-9 Prior to the issuance of the first building permit or grading permit, whichever occurs first, the property owner/developer shall indicate on plans installation of a separate irrigation meter when the total landscaped area exceeds 2,500 square feet. (City of Anaheim Water Conservation Measures) (5.11-3)
- 10-12 Prior to issuance of a building permit, submitted landscape plans for all residential, office and commercial landscaping shall demonstrate the use of drought tolerant plant materials pursuant to the publication entitled "Water Use Efficiency of Landscape Species" by the U.C. Cooperative Extension, August 2000.
- 10-13 Prior to issuance of a building permit or grading permit, whichever occurs first, the property owner/developer shall indicate on plans water efficient design features including, but not limited to (as applicable to the type of development at issue) waterless water heaters, waterless urinals, automatic on and off water facets, and water efficient appliances.

- 10-14 Prior to issuance of a building permit or grading permit, whichever occurs first, the property owner/developer shall indicate on plans installation of a separate irrigation lines for recycled water. All irrigation systems shall be designed so that they will function properly with recycled water.

#### **Additional Mitigation**

No additional mitigation measures are available.

#### **5.11.8 Level of Significance After Mitigation**

##### **Impact 5.11-1**

As described in Impact 5.11-1, build-out of the project would be consistent with the goals of the Scoping Plan and best management practices identified for development project to reduce VMT through integrating land use and transportation and would achieve GHG reductions consistent with the 30 percent reduction associated with CARB's Scoping Plan. In addition, the mitigation measures identified in Section 5.11.7 would reduce greenhouse gas emissions to the extent feasible. However, as shown in Table 5.11-6, implementation of the project would generate a substantial increase (463,371 MTons or 243 percent) in GHG emissions from existing conditions. Therefore, while the project would be consistent with GHG reduction goals of the Scoping Plan, GHG emissions generated by the project would be significant and unavoidable.



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**Table 5.11-6  
Comparison of Existing vs. Future GHG Emissions w/Scoping Plan Reductions**

Source	CO <sub>2e</sub> Emissions Mtons Per Year		Percent of Total
	Existing	Proposed Project W/Scoping Plan Reductions	
Transportation Sector <sup>1</sup>	138,564	380,934	58%
Electricity Sector			
Water Demand and Treatment <sup>2,3</sup>	783	4,147	1%
Purchased Energy <sup>3</sup>	36,758	132,362	20%
Total Energy Emissions	37,541	136,509	21%
Recycling and Waste Sector	3,868	27,441	4%
Area Sources Sector <sup>3</sup>	11,032	61,098	9%
Average Annual Construction	0	48,394	7%
<b>Total GHG Inventory</b>	<b>191,005</b>	<b>654,375</b>	<b>100%</b>
<b>Per Service Population<sup>4</sup></b>	<b>12.4 Mtons/SP</b>	<b>10.1 Mtons/SP</b>	
<b>Net Increase from Existing</b>		<b>463,371</b>	
<b>Percent Increase from Existing</b>		<b>243%</b>	

Mtons = metric tons. The emissions inventory does not include emissions from existing industrial land uses.

<sup>1</sup> Based on a 42.8 percent increase in fuel efficiency in passenger vehicles from 2008 to 2020 in the CARB 2008 Technical Advisory. Pavley 2 would require an average fleet fuel economy of new cars of 42.5 mpg by 2020 compared to an existing average of 24.4 mpg (CARB 2008b).

<sup>2</sup> Based on an increase in renewable energy use from 12 percent to 33 percent by 2020. (CARB 2008a)

<sup>3</sup> Based on an increase in 15 percent energy efficiency from the 2005 to 2008 Building and Energy Efficiency Standards (Title 24, California Building Code).

<sup>5</sup> Service population includes people who live (residents) and work (employees) in the Platinum Triangle. There were estimated to be 585 residents and 14,882 employees in the Platinum Triangle for a service population of 15,407 people. The Proposed Project would generate 23,364 residents and 41,500 employees for a service population of 64,864 people.