

Greenhouse Gas Assessment  
For The  
**LATITUDE 2 CONDOMINIUMS**  
CITY OF ESCONDIDO

Prepared For:  
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February 13, 2015  
Project #560401-0200

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## 1.0 Background Information

### 1.1 Project Description

The project is located within the City of Escondido in the County of San Diego. The project will consist of 112 condominiums and associated amenities on approximately 3.45 acres. The project site plan is illustrated in Exhibit 1.

This report analyzes the potential climate change impacts associated with this project. Both the greenhouse gas emissions generated by construction and operation of the project are assessed.

### 1.2 Greenhouse Gases and Climate Change

**Impact of Climate Change.** The Earth's climate has always been in the process of changing, due to many different natural factors. These factors have included changes in the Earth's orbit, volcanic eruptions, and varying amounts of energy released from the sun. Differences such as these have caused fluctuations in the temperature of the climate, ranging from ice ages to long periods of warmth. However, since the late 18<sup>th</sup> century, humans have had an increasing impact of the rate of climate change, beginning with the Industrial Revolution.

Many human activities have augmented the amount of "greenhouse gases" ("GHGs") being released into our atmosphere, specifically the burning of fossil fuels, such as coal and oil, and deforestation. The gases increase the efficiency of the greenhouse effect, which is the process of trapping and recycling energy (in the form of heat) that the Earth emits naturally, resulting in higher temperatures worldwide. The Intergovernmental Panel on Climate Change (IPCC) stated in 2014 that warming is unequivocal, expressing very high confidence (expressed as a nine out of ten chance of being correct) that the net effect of human activities since 1750 has been one of warming. By 2100 and without additional mitigation, the global surface temperature will increase 6.7°F to 8.6°F compared to pre-industrial levels.

This process of heating is often referred to as 'global warming,' although the National Academy of Sciences prefers the terms 'climate change' as an umbrella phrase which includes global warming as well as other environmental changes, in addition to the increasing temperatures. Some of these effects include changes to rainfall, wind, and current weather patterns, as well as snow and ice cover, and sea level.



If greenhouse gases continue to increase, climate models predict that the average temperature at the Earth's surface could increase from 3.2 to 7.2°F above 1990 levels by the end of this century. The degree of change is influenced by the assumed amount of GHG emissions, and how quickly atmospheric GHG levels are stabilized. At this point, however, the climate change models are not capable of predicting local impacts, but rather, can only predict global trends. [EPA, 2011, [epa.gov/climatechange/basicinfo.html](http://epa.gov/climatechange/basicinfo.html)].

Global GHG emissions are measured in million metric tons of carbon dioxide equivalent (“MMT CO<sub>2</sub>EQ”) units. A metric ton is approximately 2,205 lbs. Some GHGs emitted into the atmosphere are naturally occurring, while others are caused solely by human activities. The principal GHGs that enter the atmosphere because of human activities are:

- **Carbon dioxide (CO<sub>2</sub>)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), agriculture, irrigation, and deforestation, as well as the manufacturing of cement.
- **Methane (CH<sub>4</sub>)** is emitted through the production and transportation of coal, natural gas, and oil, as well as from livestock. Other agricultural activities influence methane emissions as well as the decay of waste in landfills.
- **Nitrous oxide (N<sub>2</sub>O)** is released most often during the burning of fuel at high temperatures. This greenhouse gas is caused mostly by motor vehicles, which also include non-road vehicles, such as those used for agriculture.
- **Fluorinated Gases** are emitted primarily from industrial sources, which often include hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>). Though they are often released in smaller quantities, they are referred to as High Global Warming Potential Gases because of their ability to cause global warming. Fluorinated gases are often used as substitutes for ozone depleting substances.

These gases have different potentials for trapping heat in the atmosphere, called global warming potential (“GWP”). For example, one pound of methane has 21 times more heat capturing potential than one pound of carbon dioxide. When dealing with an array of emissions, the gases are converted to carbon dioxide equivalents for comparison purposes. The GWPs for common greenhouse gases are shown in Table 1.

**Table 1 Global Warming Potentials (GWP)**

Gas	Global Warming Potential
Carbon Dioxide	1
Methane	21
Nitrous Oxide	310
HFC-23	11,700
HFC-134a	1,300
HFC-152a	140
PFC: Tetrafluoromethane (CF <sub>4</sub> )	6,500
PFC: Hexafluoroethane (C <sub>2</sub> F <sub>6</sub> )	9,200
Sulfur Hexafluoride (SF <sub>6</sub> )	23,900

Source: EPA 2011. "Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009," February 15, 2011.

**Impact of Climate Change on California and Human Health.** The long-term environmental impacts of global warming may include sea level rise that could cause devastating erosion and flooding of coastal cities and villages, as well as more intense hurricanes and typhoons worldwide. In the United States, Chicago is projected to experience 25 percent more frequent heat waves and Los Angeles a four-to-eight-fold increase in heat wave days by the end of the century (IPCC, 2007: Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge).

Locally, global warming could cause changing weather patterns with increased storm and drought severity in California. Changes to local and regional ecosystems include the potential loss of species and a significant reduction in winter snow pack (e.g., estimates include a 30 to 90% reduction in snow pack in the Sierra Nevada mountain range). Current data suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. The California Climate Change Center (2006) predicted that California could witness the following events:

- Temperature rises between 3 and 10.5 °F
- 6 to 20 inches or more increase in sea level
- 2 to 4 times as many heat-wave days in major urban centers
- 2 to 6 times as many heat-related deaths in major urban centers
- 1 to 1.5 times more critically dry years
- 10 to 55% increase in the risk of wildfires

An increase in the frequency of extreme events may result in more event-related deaths, injuries, infectious diseases, and stress-related disorders. Particular segments of the population such as those with heart problems, asthma, the elderly, the very young and the homeless can be especially vulnerable to extreme heat. Also, climate change may increase the risk of some infectious diseases; particularly those diseases that appear in warm areas and are spread by

mosquitoes and other insects. These "vector-borne" diseases include malaria, dengue fever, yellow fever, and encephalitis. Also, algal blooms could occur more frequently as temperatures warm — particularly in areas with polluted waters — in which case diseases (such as cholera) that tend to accompany algal blooms could become more frequent.

**Adaptation Impact.** Adaptation refers to potential climate change impacts on the project. Global warming is already having a profound impact on water resources. Climate change already altered the weather patterns and water supply in California leading to increased water shortages (i.e., a dwindling snowpack, bigger flood flows, rising sea levels, longer and harsher droughts). Water supplies are also at risk from rising sea levels. Risks may include degradation of California's estuaries, wetlands, and groundwater aquifers which would threaten the quality and reliability of the major California fresh water supply (Climate Change Adaptation Strategies for California's Water, State of California Department of Water Resources, October 2008).

Higher temperatures will also likely increase electricity demand due to higher air conditioning use. Even if the population remained unchanged, toward the end of the century annual electricity demand could increase by as much as 20 percent if temperatures rise into the higher warming range. (Implementing aggressive efficiency measures could lower this estimate).

Higher temperatures may require that the project consume more electricity for cooling. Additionally, more water may be needed for the landscaping. However, sea level rise will not impact the project because it is so far and high relative to the ocean.

Adaptation includes the responses to the changing climate and policies to minimize the predicted impacts (e.g., building better coastal defenses to sea level rise). Adaptation is not included in this report. It should be note that adaptation is not mitigation. Mitigation includes intervention or policies to reduce GHG emissions or to enhance the sinks of GHGs.

### 1.3 Emission Inventories

To put perspective on the emissions generated by a project and to better understand the sources of GHGs, it is important to look at emission inventories. The United Nations has taken the lead in quantifying GHG emissions and compiling the literature on climate change. The United Nations estimate for CO<sub>2</sub> emissions for the world and for the top ten CO<sub>2</sub> producing countries is presented in Table 2.

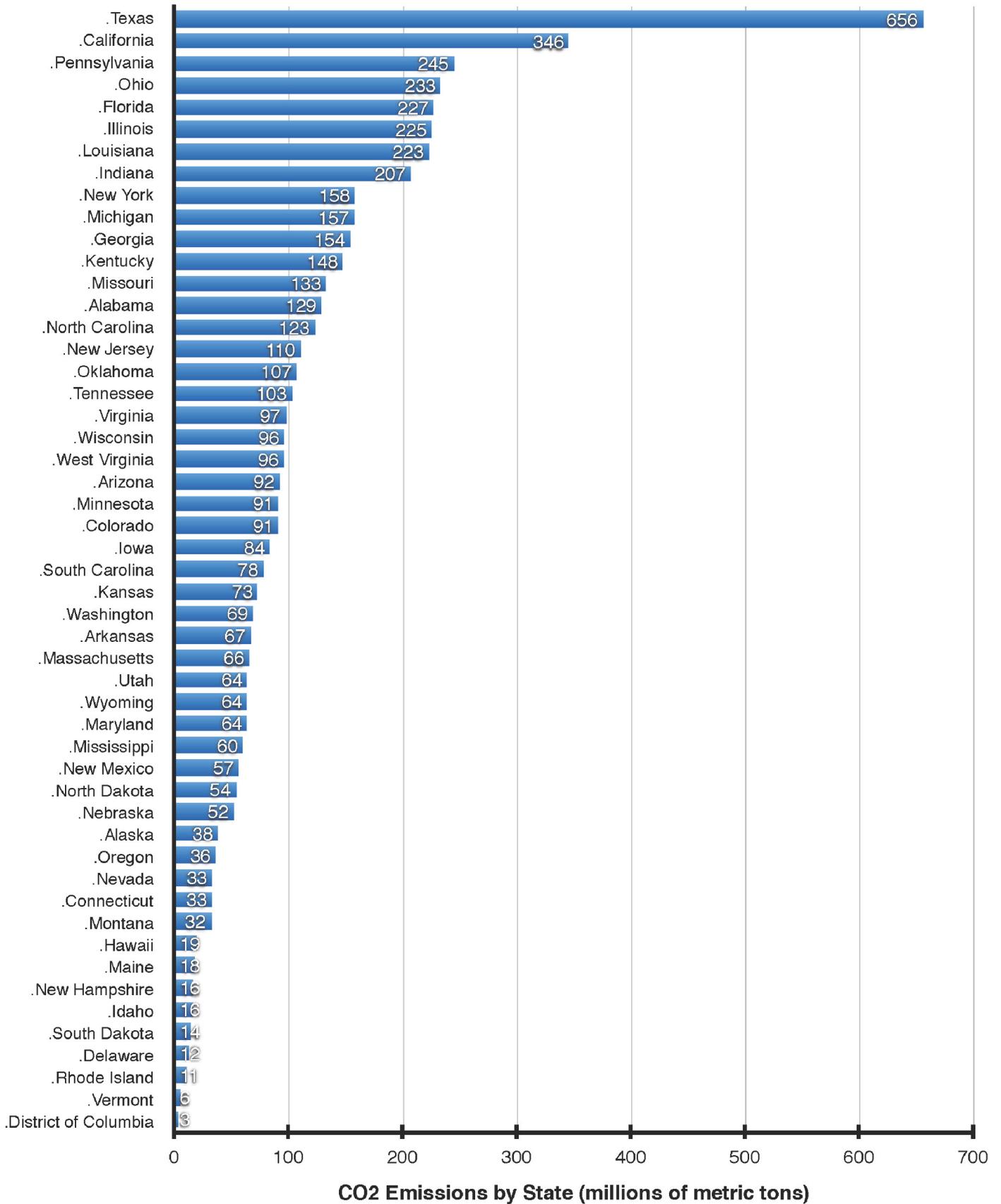
**Table 2 Top Ten CO<sub>2</sub> Producing Nations in 2007  
 (Emissions in Million Metric Tons (MMT) CO<sub>2</sub>)**

<b>Country</b>	<b>Emissions</b>	<b>Percent of Global</b>
1. China	6,538	22%
2. United States	6,094	20%
3. India	1,610	5%
4. Russian Federation	1,580	5%
5. Japan	1,304	4%
6. Germany	841	3%
7. Canada	590	2%
8. United Kingdom	546	2%
9. Korea, Republic of	503	2%
10. Iran (Islamic Republic of)	496	2%
<i>Remaining Countries</i>	<i>10,010</i>	<i>33%</i>
<b>Total Global</b>	<b>30,114</b>	<b>100%</b>

Source: United Nations, 2011,  
[http://unstats.un.org/unsd/environment/air\\_co2\\_emissions.htm](http://unstats.un.org/unsd/environment/air_co2_emissions.htm)

Global CO<sub>2</sub> emissions totaled about 30,114 MMT CO<sub>2</sub> in 2007. China released the most CO<sub>2</sub> emissions. The United States was second and released 6,094 MMT CO<sub>2</sub> in 2007, which is approximately 20% of the earth's total emissions. The data in Table 2 emphasize the major role that the United States and China play in climate change with the emissions of the two countries accounting for 42% of the emissions.

Within the United States, California has the second highest level of GHG production with Texas having the highest (Exhibit 2). In 2011, Texas produced 656 metric tons of CO<sub>2</sub> emissions followed by California at 346, and Pennsylvania with 245.



*Exhibit 2*  
**CO2 Emissions by State**

## Sources of Greenhouse Gases in California

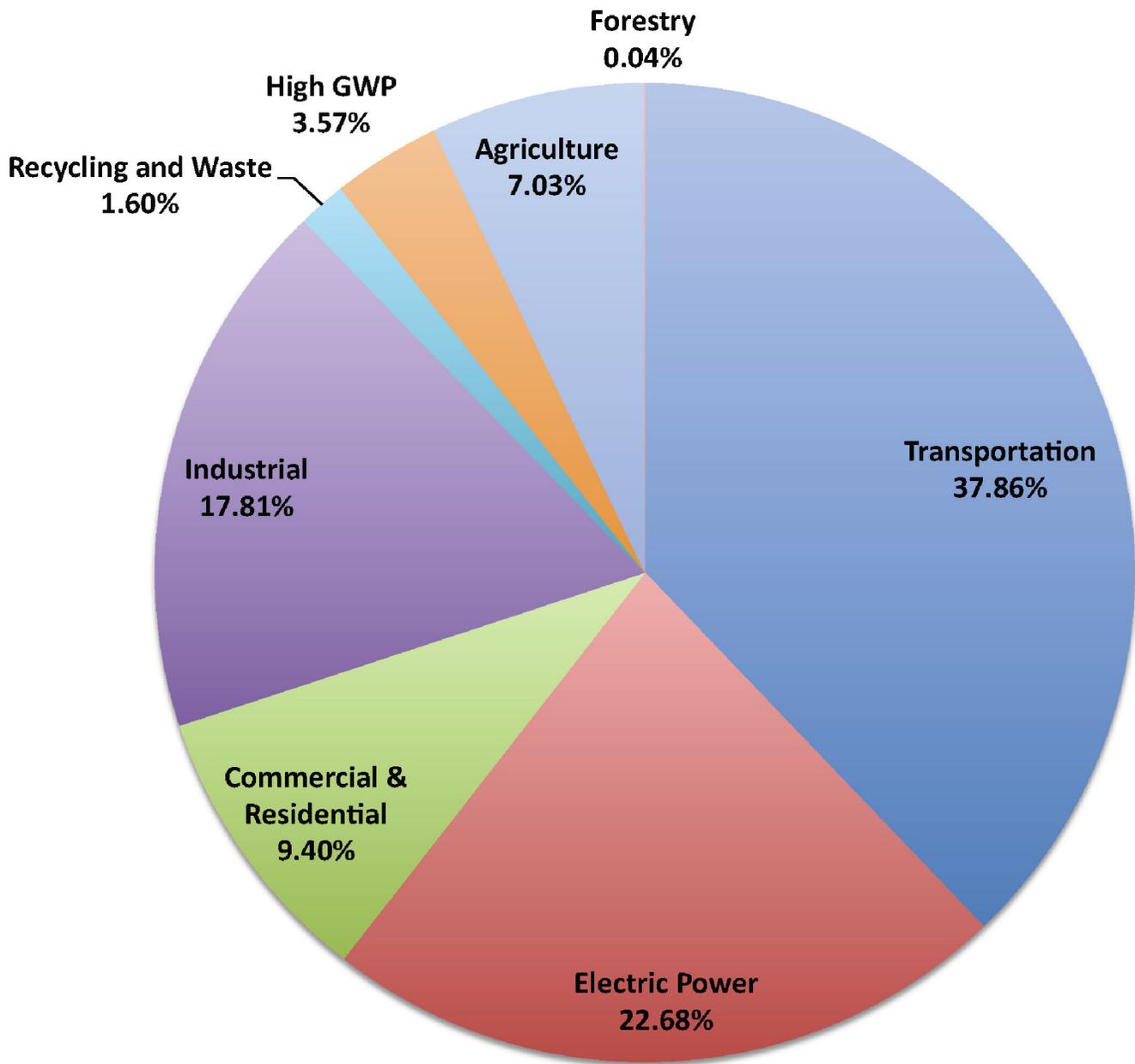
The California Energy Commission (“CEC”) categorizes GHG generation by source into eight broad categories. The categories are:

- **Transportation** includes the combustion of gasoline and diesel in automobiles and trucks. Transportation also includes jet fuel consumption and bunker fuel for ships.
- **Agriculture** GHG emissions are composed mostly of nitrous oxide from agricultural soil management, methane from enteric fermentation, and methane and nitrous oxide from manure management.
- **Commercial and residential** uses generate GHG emissions primarily from the combustion of natural gas for space and water heating.
- **Industrial** GHG emissions are produced from many industrial activities. Major contributors include oil and natural gas extraction; crude oil refining; food processing; stone, clay, glass, and cement manufacturing; chemical manufacturing; and cement production. Wastewater treatment plants are also significant contributors to this category.
- **Electric generation** includes both emissions from power plants in California as well as power plants located outside of the state that supply electricity to the state.
- **Recycling and waste** includes primarily landfills.
- **High (GWP) emissions** consist of ozone depleting substance substitutes and electricity grid SF6 losses.
- **Forestry** emissions are due to wildfires.

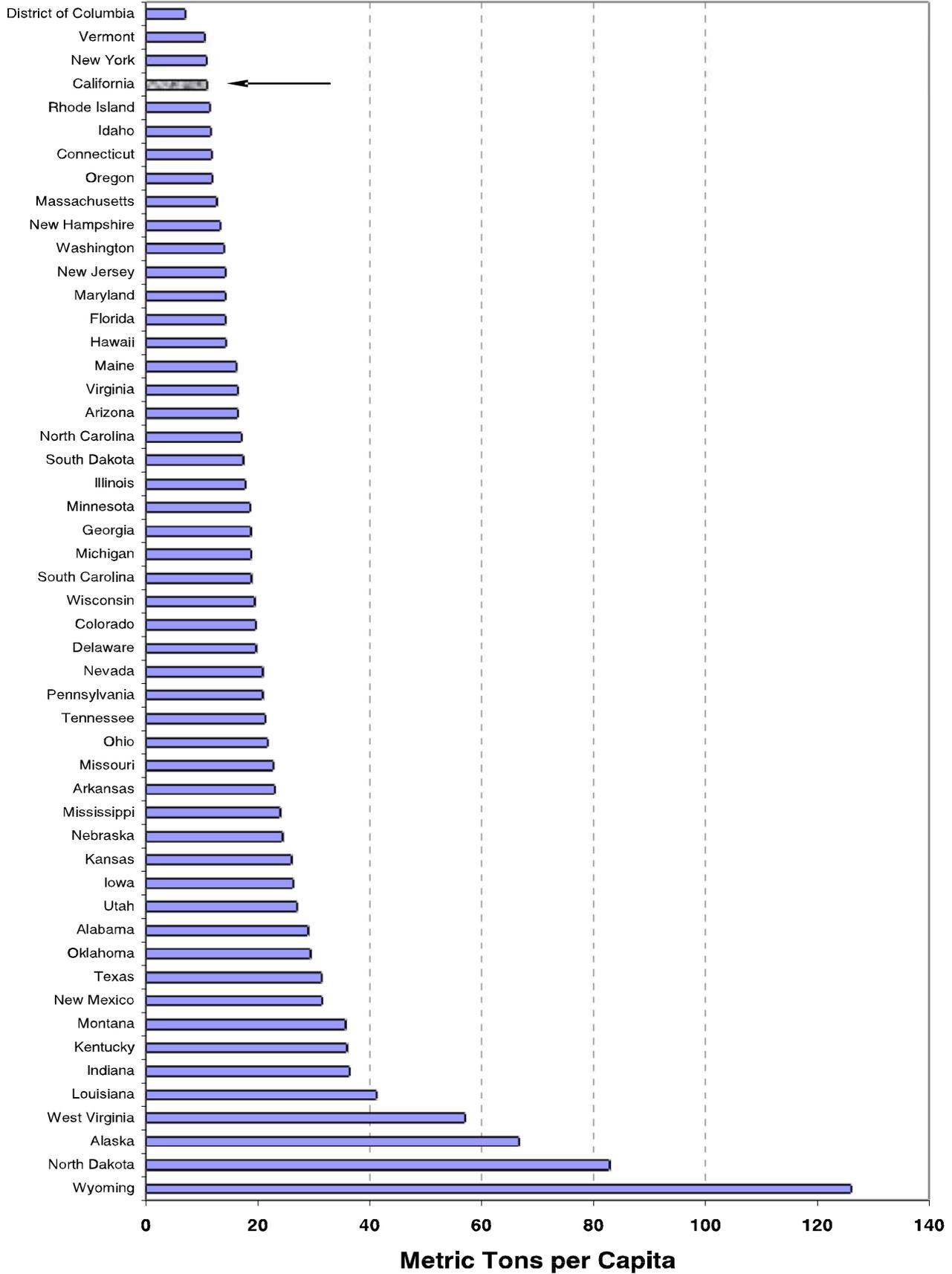
The relative amount of GHGs released from each of these categories in California in 2009 is shown in Exhibit 3 (source: “California Greenhouse Gas Inventory for 2000-2009 by Category as Defined in the Scoping Plan,” California Environmental Protection Agency, October 26, 2011).

Examination of Exhibit 3 indicates that most of California’s GHGs are emitted by transportation sources, such as automobiles, trucks, and airplanes. Combustion of fossil fuels in the transportation sector contributed approximately 38% of the California GHG. This category was followed by the electric power sector (including both in-state and out-of-state sources) (23%) and the industrial sector (18%). Residential and commercial activity accounted for approximately 9% of the emissions.

While California has the second highest rate of GHG production in the nation, it should also be noted that California has one of the lowest per capita rates of GHG emissions, as shown in Exhibit 4. According to Exhibit 4, California had the fourth lowest per capita rate of CO<sub>2</sub> production from fossil fuels in the United States. Wyoming produced the most CO<sub>2</sub> per capita, while the District of Columbia produced lowest.



*Exhibit 3*  
**California Greenhouse Emissions**



Source: California Energy Commission, "Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004," December 2006

# Exhibit 4 CO<sub>2</sub> Emissions From Fossil Fuels Per Capita (2001)

## 2.0 Regulatory Framework

**Federal Plans, Policies, Regulations, and Laws.** The federal government began studying the phenomenon of global warming as early as 1978 with the National Climate Protection Act, 92 Stat. 601, which required the President to establish a program to “assist the Nation and the world to understand and respond to natural and man-induced climate processes and their implications.” The 1987 Global Climate Protection Act, Title XI of Pub. L. 100-204, directed the U.S. EPA to propose a “coordinated national policy on global climate change,” and ordered the Secretary of State to work “through the channels of multilateral diplomacy” to coordinate efforts to address global warming. Further, in 1992, the United States ratified a nonbinding agreement among 154 nations to reduce atmospheric GHGs.

More recently, in *Massachusetts v. EPA* (April 2, 2007), the United State Supreme Court held that GHGs fall within the Clean Air Act’s definition of an “air pollutant,” and directed the EPA to consider whether GHGs are causing climate change. If so, the EPA must regulate GHG emissions from automobiles under the Clean Air Act.

While EPA has not finalized a regulation, it did issue a proposed rule on April 17, 2009. The rule declared that GHGs endanger human health and is the first step to regulation through the federal Clean Air Act. If it becomes final, the EPA would define air pollution to include the six key GHGs – CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>.

In addition, Congress has increased the corporate average fuel economy (CAFE) of the U.S. automotive fleet. In December 2007, President Bush signed a bill raising the minimum average miles per gallon for cars, sport utility vehicles, and light trucks to 35 miles per gallon by 2020. This increase in CAFE standard will create a substantial reduction in GHG emissions from automobiles, which is the largest single emitting GHG sector in California.

As of this writing, however, there are no adopted federal plans, policies, regulations or laws setting a mandatory limit on GHG emissions. Further, the EPA has not finalized its evaluation in the wake of *Massachusetts v. EPA*.

In June 2013, President Obama outlined a Climate Action Plan. The Administration announced new efficiency standards, permitted renewable energy projects on public lands, and proposed carbon pollution standards for new and existing power plants. Alongside state, tribal, local, and private sector partners, the Administration is taking steps to make communities more resilient to the effects of severe weather and is working with other countries to reduce emissions of greenhouse gases internationally. Since the speech, the administration has put forward policies that when fully realized will:

- Cut nearly 3 billion tons of carbon pollution between 2020 and 2025, an amount equivalent to taking more than 600 million cars off the road for a year;
- Enable the development of 8,100 megawatts of wind, solar, and geothermal energy, enough to power nearly 2 million homes;
- Train more than 50,000 workers to enter the solar industry;
- Save consumers more than \$60 billion on their energy bills through 2030; and

- Improve the energy efficiency of more than 1 billion square feet of city buildings, schools, multifamily housing complexes, and business across the country, an area the size of 17,000 football fields.

**California State Plans, Policies, Regulations, and Laws.** In the past year, California has distinguished itself as a national leader in efforts to address global climate change by enacting several major pieces of legislation, engaging in multi-national and multi-state collaborative efforts, and preparing a wealth of information on the impacts associated with global climate change.

In November 2008, the Governor issued Executive Order S-13-08 directing state agencies to plan for sea level rise and other climate change impacts. There are four key actions in the Executive Order: (1) initiation of a climate change adaptation strategy that will assess the state's expected climate change impacts where the state is most vulnerable, with recommendations by early 2009; (2) an expert panel on sea level rise will inform state planning and development efforts; (3) interim guidance to state agencies on planning for sea level rise in coastal and floodplain areas for new projects; and (4) initiation of a report on critical existing and planned infrastructure projects vulnerable to sea level rise. (<http://gov.ca.gov/executive-order/11036/>)

Pursuant to AB 32, the California Air Resources Board ("CARB") has adopted a number of relevant policies and directives. In December 2008, the Scoping Plan was adopted. The Plan is a central requirement of the statute. In addition, it has adopted a number of protocols for industry and government sectors, including one for local government (<http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>). (See also, the Local Government Toolkit (<http://www.coolcalifornia.org/local-government>)).

In response to SB 97, the Office of Planning and Research ("OPR") issued a Technical Advisory on CEQA and Climate Change in June 2008. The Advisory provides an outline of what should be included in a GHG analysis under CEQA (<http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>). In January 2009, OPR issued draft amendments to the CEQA Guidelines that address GHGs. Among the amendments are the following:

- Determining the Significance of Impacts from Greenhouse Gas Emissions (Guidelines § 15064.4);
- Thresholds of Significance (Guidelines □ 15064.7(c));
- Discussion of Cumulative Impacts (Guidelines □ 15130(a)(1)(B) and Guidelines § 15130(f));
- Tiering and Streamlining the Analysis of Greenhouse Gas Emissions (Guidelines § 15183.5);

*Assembly Bill 32, the California Global Warming Solutions Act of 2006 (Health and Safety Code § 38500 et seq.).* In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. In general, AB 32 directs the California Air Resources Board ("CARB") to do the following:

- On or before June 30, 2007, CARB shall publish a list of discrete early action measures for reducing GHG emissions that can be implemented by January 1, 2010;
- By January 1, 2008, establish the statewide GHG emissions cap for 2020, based on CARB's calculation of statewide GHG emissions in 1990 (an approximately 25 percent reduction in existing statewide GHG emissions);
- Also by January 1, 2008, adopt mandatory reporting rules for GHG emissions sources that "contribute the most to statewide emissions" (Health & Safety Code § 38530);
- By January 1, 2009, adopt a scoping plan that indicates how GHG emission reductions will be achieved from significant GHG sources through regulations, market mechanisms, and other strategies;
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020; and
- On January 1, 2012, CARB's GHG emissions regulations become operative.
- On January 1, 2020, achieve 1990 levels of GHG emissions.

In a December 2006 report, CARB estimated that California emitted between 425 and 468 million metric tons of CO<sub>2</sub> in 1990. In December 2007, CARB finalized 1990 emissions at 427 million metric tons of CO<sub>2</sub>. In the August 2007 draft report, CARB estimated California emitted approximately 480 million metric tons of CO<sub>2</sub> in 2004. Based on the U.S. Census Bureau California 2007 population of 36,553,215, this would result in about 13 metric tons of CO<sub>2</sub> per capita.

AB 32 takes into account the relative contribution of each source or source category to protect adverse impacts on small businesses and others by requiring CARB to recommend a *de minimis* (minimal importance) threshold of GHG emissions below which emissions reduction requirements would not apply. AB 32 also allows the Governor to adjust the deadlines mentioned above for individual regulations or the entire state to the earliest feasible date in the event of extraordinary circumstances, catastrophic events, or threat of significant economic harm.

The First Update to the AB Scoping Plan was approved by the Board on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines ARB's climate change priorities for the next five years, and also sets the groundwork to

reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

*CARB "Early Action Measures" (June 30, 2007).* On June 21, 2007, CARB approved its early action measures to address climate change, as required by AB 32. The three measures include: (1) a low carbon fuel standard, which will reduce the carbon-intensity in California fuels, thereby reducing total CO<sub>2</sub> emissions; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance through the restriction of "do-it-yourself" automotive refrigerants; and (3) increased CH<sub>4</sub> (methane) capture from landfills through the required implementation of state-of-the-art capture technologies.

*CARB Mandatory Reporting Regulations (December 2008).* Under AB 32, CARB propounded regulations to govern mandatory greenhouse gas emissions reporting for certain sectors of the economy, most dealing with approximately 94 percent of the industrial and commercial stationary sources of emissions. Regulated entities include electricity generating facilities, electricity retail providers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons of CO<sub>2</sub> from stationary source combustion.

*Senate Bill 97 (2007).* By July 1, 2009, the Governor's Office of Planning and Research (OPR) is directed to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by the California Environmental Quality Act. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010. OPR is required to periodically update these guidelines as CARB implements AB 32. In addition, SB 97 states that the failure to include a discussion of greenhouse gas emissions in any CEQA document for a project funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006 shall not be a cause of action under CEQA. This last provision will be repealed on January 1, 2010.

*Executive Order S-01-07 (2007).* Executive Order S-01-07 calls for a reduction in the carbon intensity of California's transportation fuels by at least 10 percent by 2020. As noted above, the low-carbon fuel standard ("LCFS") was adopted by CARB as one of its three "early action measures" on June 21, 2007.

*Senate Bill 1368 (2006) (Public Utilities Code §§ 8340-41).* SB 1368 required the California Public Utilities Commission ("PUC") to establish a "GHG emission performance standard" by February 1, 2007, for all electricity providers under its jurisdiction, including the state's three largest privately owned utilities. Pub. Res. Code § 8341(d)(1). These utilities provide approximately 30 percent of the state's electric power. After the PUC acted, the CEC adopted a performance standard "consistent with" the PUC performance standard and applied it to local publicly-owned utilities on May 23, 2007 (over one month ahead of its June 30, 2007 deadline). Cal. Pub. Res. Code § 8341(e)(1). However, the California Office of Administrative Law

(“OAL”) found four alleged flaws in the CEC’s rulemaking. The CEC overcame these alleged flaws and adopted reformulating regulations in August 2007.

*Senate Bill 107 (2006).* Senate Bill 107 (“SB 107”) requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison and San Diego Gas and Electric, to generate 20 percent of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017.

*Senate Bill 375 (September 2008).* In September 2008, SB 375 was signed by Governor Schwarzenegger. SB 375 is a comprehensive global warming bill that helps to achieve the goals of AB32. To help establish these targets, the CARB assigned a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting greenhouse gas emission reduction targets. SB 375 also provides incentive – relief from certain CEQA requirements for development projects that are consistent with regional plans that achieve the targets. SB 375 requires CARB to develop, in collaboration with the Metropolitan Planning Organization (MPO), passenger vehicle greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010. The MPO is required to include and adopt, in their regional transportation plan, a sustainable community strategy that will meet the region’s target provided by CARB.

*Western Regional Climate Action Initiative (Arizona, California, New Mexico, Oregon, Utah, Washington)(2007).* Acknowledging that the western states already experience a hotter, drier climate, the Governors of the foregoing states have committed to three time-sensitive actions: (1) by August 26, 2007, to set a regional goal to reduce emissions from the states collectively, consistent with state-by state goals; (2) by August 26, 2008, to develop “a design for a regional market-based multi-sector mechanism, such as a load-based cap and trade program, to achieve the regional GHG reduction goal;” and (3) to participate in a multi-state GHG registry “to enable tracking, management, and crediting for entities that reduce GHG emissions, consistent with state GHG reporting mechanisms and requirements.”

*Executive Order S-3-05 (June 1, 2005).* Executive Order S-3-05 calls for a reduction in GHG emissions to 2000 levels by 2010; 1990 levels by 2020; and for an 80 percent reduction in GHG emissions below 1990 levels by 2050. It also directs the California Environmental Protection Agency (“CalEPA”) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy.

*California’s Renewable Energy Portfolio Standard Program (2005).* In 2002, California established its Renewable Energy Portfolio Standard Program, which originally included a goal of increasing the percentage of renewable energy in the state’s electricity mix to 20 percent by 2017. The state’s most recent 2005 Energy Action Plan raises the renewable energy goal from 20 percent by 2017, to 33 percent by 2020.

*Title 24, Part 6, California Code of Regulations (2005).* In 2005, California adopted new energy efficiency standards for residential and nonresidential buildings in order to reduce California’s energy consumption. This program has been partially responsible for keeping California’s per capita energy use approximately flat over the past 30 years.

*Assembly Bill 1493 (2002) (Health and Safety Code § 43018.5).* Assembly Bill 1493 (“AB 1493”) required CARB to develop and adopt the nation’s first GHG emission standards for automobiles. Not only have litigants challenged their legality in federal court, but also USEPA denied California’s request for a Clean Air Act waiver to implement its regulations. As of this writing, California and other states that seek to adopt California’s greenhouse gas emissions standards for automobiles are challenging USEPA’s denial in federal court.

*Climate Action Registry (2001).* California Senate Bills 1771 and 527 created the structure of the California Climate Action Registry (“Registry”), and former Governor Gray Davis signed the final version of the Registry’s enabling legislation into law on October 13, 2001. These bills establish the Registry as a non-profit entity to help companies and organizations establish GHG emissions baselines against which future GHG emission reduction requirements could be applied. Using any year from 1990 forward as a base year, participants can record their annual GHG emissions with the Registry. In return for this voluntary action, the State of California promises to offer its “best efforts” to ensure that participants receive consideration for their early action if they are subject to any future state, federal, or international emissions regulatory scheme.

**City of Escondido Plans, Policies, Regulations, and Laws.** The City of Escondido has been very active in reducing GHG emissions and planning for future reductions. The City’s standards and policies are contained in three documents:

*“City of Escondido, Greenhouse Gas Emissions, Adopted CEQA Thresholds and Screening Tables,” adopted December 4, 2013, Resolution 2013-153*

*“City of Escondido, Adopted Climate Action Plan,” adopted December 4, 2013, Resolution 2013-153*

*“Escondido Municipal Code, Article 47 Environmental Quality, Division 1 Regulations, Section 33-924 Coordination of CEQA, quality of life standards, and growth management provisions, Subsection 7.”*

The Escondido Climate Action Plan developed a baseline of the City’s GHG emissions, projects how the GHG emissions will grow, and includes strategies to reduce emissions to a level consistent with California’s emissions reduction target. The basic emission goal is to reduce emissions attributable to Escondido to levels at or below 1990 GHG emissions by year 2020 consistent with the target reductions of AB32.

The Escondido Climate Action Plan includes reducing 26,807 Metric Tons of Carbon Dioxide Equivalents (MT CO<sub>2</sub>e) per year from new development by 2020 as compared to the 2020 unmitigated conditions. Mitigation of GHG emissions impacts through the Development Review Process (DRP) provides one of the most substantial reduction strategies for reducing community-wide emissions associated with new development. The DRP procedures for evaluating GHG impacts and determining significance for CEQA purposes are streamlined by (1) applying an emissions level that is determined to be less than significant for small projects, and (2) utilizing Screening Tables to mitigate project GHG emissions that exceed the threshold level.

The Escondido Municipal Code provides the specific significance thresholds and refers back to the E-CAP the methods for complying with these thresholds. Subsection 7 of Section 33-924 states:

*(7) Greenhouse gas (GHG) emissions. In situations where a negative declaration is otherwise appropriate, the following incremental GHG emissions are generally not considered significant:*

*(A) Projects that do not generate more than two thousand five hundred (2,500) metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>e) greenhouse gas (GHG) emissions, or*

*(B) Projects generating more than two thousand five hundred (2,500) MT CO<sub>2</sub>e that have achieved one hundred (100) points implementing reduction measures outlined in the Escondido Climate Action Plan (E-CAP) screening tables, adopted by separate resolution, or*

*(C) Projects generating more than two thousand five hundred (2,500) MT CO<sub>2</sub>e that demonstrate through a project specific analysis quantifying GHG emissions that through mitigation and design features, the project reduces GHG emissions consistent with the E-CAP.*

These GHG significance thresholds will be used to determine the significance of the project.

### **3.0 Significance Thresholds**

As stated above, the significance thresholds contained in the Escondido Municipal Code will be used to evaluate the project. The most significant threshold is that if the project generates less than 2,500 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>EQ) per year the project is not considered to significant.

### **4.0 Short Term Construction Emissions**

Temporary impacts will result from construction activities. The primary source of GHG emissions generated by construction activities is from use of diesel-powered construction equipment. Typical emission rates for construction equipment were obtained from CalEEMod (California Emissions Estimator Model) which was released by the SCAQMD in 2013. CalEEMod is a computer program that can be used to estimate emissions including operation (vehicle and area) sources, as well as construction projects associated with land development projects in California.

The project will involve site preparation, grading, and construction of the residences. Paving and painting will also be part of the construction effort and will also generate some GHG. It is anticipated that the construction of the project would start in 2015 and be complete in 13 to 15 months. The air quality report for this project assumed all paints would have a VOC content of 75 g/l or less (a required air quality mitigation measure).

Using CalEEMod, the emissions from construction for the proposed project were calculated and are presented in Table 3. These emissions represent the total level of emissions based on the

construction schedule. According to the SCAQMD’s CEQA Handbook (Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #5, August 27, 2008), construction emissions are amortized over the life of the project, defined by SCAQMD as 30 years, and are added to the annual operation emissions. Although this recommendation was initially proposed by the SCAQMD, it has informally been adopted by other municipalities outside the area. Thus, the project’s annualized construction emissions will be added to the operation emissions and compared to the applicable GHG significance threshold. Worksheets showing the specific data used to calculate the construction emissions are presented in the appendix.

**Table 3 Construction CO<sub>2</sub> Emissions (Metric Tons Per Year)**

	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> EQ
Total Construction Emissions (Metric Tons)	525.05	0.10	0.00	527.08
Averaged Over 30 Years (Metric Tons Per Year)	17.50	0.00	0.00	17.57

MTCO<sub>2</sub>EQ = metric tons equivalent carbon dioxide (CO<sub>2</sub>).

## 5.0 Estimate of Project Greenhouse Gas Emissions

The primary sources of GHG emissions generated by the proposed project will be from the motor vehicles associated with the project. Roughly 2/3 of the operational emissions are from motor vehicles. Roughly 1/5 of the emissions are from energy consumption. The total project emissions with the annualized construction emissions are projected to be 1,250 MTCO<sub>2</sub>EQ per year. The results are presented in Table 4. A complete breakdown of the emissions is provided in the Appendix.

**Table 4 Annual Project Emissions (Metric Tons)**

	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> EQ
Annual Operational Emissions	1,210.81	0.90	0.01	1,232.61
Annualized Construction Emissions	17.50	0.00	0.00	17.57
<b>Total Annual Emissions</b>	<b>1,228.31</b>	<b>0.91</b>	<b>0.01</b>	<b>1,250.18</b>

Table 4 shows that the GHG emissions for the project will be about 1,250 MTCO<sub>2</sub>EQ per year. This is about half of the City’s screening threshold of 2,500 MTCO<sub>2</sub>EQ per year. The project

emissions are below Escondido's threshold of 2,500 MTCO<sub>2</sub>EQ per year, and therefore, no significant climate change impacts are anticipated.

## **6.0 Mitigation Measures**

No mitigation measures are required since the project will result in in greenhouse gas emissions below the City of Escondido thresholds.

## 7.0 References

- California Energy Commission, “Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004,” December 2006.
- California Environmental Protection Agency, “California Greenhouse Gas Inventory for 2000-2009 by Category as Defined in the Scoping Plan,” October 26, 2011.
- Citizens and the Environmental Committee of Laguna Beach, “City of Laguna Beach Climate Protection Action Plan,” April 2009.
- Edmund G. Brown, Jr., Attorney General, State of California, “Comments on Draft Environmental Impact Report for Coyote Canyon Specific Plan,” June 19, 2007.
- State of California, “Climate Change Portal,” <http://www.climatechange.ca.gov/index.html>.
- United Nations Statistics Division, “Environment Indicators: Greenhouse Gas Emissions,” [http://unstats.un.org/unsd/ENVIRONMENT/air\\_greenhouse\\_emissions.htm](http://unstats.un.org/unsd/ENVIRONMENT/air_greenhouse_emissions.htm).
- United Nations Framework Convention on Climate Change, “National Greenhouse Gas Inventory Data for the Period 1990–2006 and Status of Reporting,” November 17, 2008.
- United Nations Framework Convention on Climate Change, “Sixth compilation and synthesis of initial national communications from Parties not included in Annex I to the Convention”, October 25, 2005.
- U.S. Environmental Protection Agency, “The U.S. Inventory of Greenhouse Gas Emissions and Sinks: Fast Facts,” April 2007.
- U.S. Environmental Protection Agency, “Climate Change,” <http://epa.gov/climatechange/index.html>.
- U.S. Environmental Protection Agency, “AP 42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources,” <http://www.epa.gov/ttn/chief/ap42/>.
- U.S. Environmental Protection Agency, “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2005,” April 15, 2007.
- California Air Resource Board, “Climate Change Proposed Scoping Plan”, October 2008.
- California Air Resource Board, “Staff Proposal-Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the CEQA”, December 2008.
- California Air Resource Board, “Preliminary Draft Staff Proposal- Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the CEQA”, October 24, 2008.
- SCAQMD, Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, December 5, 2008
- State of California Department of Water Resources (DWR), Climate Change Adaptation Strategies for California’s Water, October 2008

# Appendix

**Latitude 2 With Mitigation**  
**San Diego County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	209.00	Space	1.88	83,600.00	0
Condo/Townhouse High Rise	112.00	Dwelling Unit	1.75	112,000.00	320

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.6	<b>Precipitation Freq (Days)</b>	40
<b>Climate Zone</b>	13			<b>Operational Year</b>	2017
<b>Utility Company</b>	San Diego Gas & Electric				
<b>CO2 Intensity (lb/MW hr)</b>	720.49	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - Default schedule consistent with developers estimate of 13 to 15 months for construction.

Architectural Coating - Volatility rate reduced for mitigation.

Woodstoves - No fireplaces in project

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	75.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	75.00

tblArchitecturalCoating	EF_Residential_Exterior	250.00	75.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	75.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	61.60	0.00
tblFireplaces	NumberNoFireplace	11.20	112.00
tblFireplaces	NumberWood	39.20	0.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015											0.0000	167.5081	167.5081	0.0348	0.0000	168.2383
2016											0.0000	357.5398	357.5398	0.0619	0.0000	358.8403
<b>Total</b>											<b>0.0000</b>	<b>525.0479</b>	<b>525.0479</b>	<b>0.0967</b>	<b>0.0000</b>	<b>527.0786</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Year	tons/yr										MT/yr					
2015											0.0000	167.5080	167.5080	0.0348	0.0000	168.2381
2016											0.0000	357.5395	357.5395	0.0619	0.0000	358.8400
<b>Total</b>											<b>0.0000</b>	<b>525.0475</b>	<b>525.0475</b>	<b>0.0967</b>	<b>0.0000</b>	<b>527.0782</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	1.3622	1.3622	1.3700e-003	0.0000	1.3910
Energy											0.0000	265.1112	265.1112	8.9300e-003	3.0300e-003	266.2389
Mobile											0.0000	883.8088	883.8088	0.0368	0.0000	884.5824
Waste											10.4581	0.0000	10.4581	0.6181	0.0000	23.4373
Water											2.3151	47.7560	50.0711	0.2397	6.0100e-003	56.9687
<b>Total</b>											<b>12.7732</b>	<b>1,198.0381</b>	<b>1,210.8113</b>	<b>0.9049</b>	<b>9.0400e-003</b>	<b>1,232.6182</b>

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	1.3622	1.3622	1.3700e-003	0.0000	1.3910
Energy											0.0000	265.1112	265.1112	8.9300e-003	3.0300e-003	266.2389
Mobile											0.0000	883.8088	883.8088	0.0368	0.0000	884.5824
Waste											10.4581	0.0000	10.4581	0.6181	0.0000	23.4373
Water											2.3151	47.7560	50.0711	0.2397	6.0000e-003	56.9650
<b>Total</b>											<b>12.7732</b>	<b>1,198.0381</b>	<b>1,210.8113</b>	<b>0.9049</b>	<b>9.0300e-003</b>	<b>1,232.6145</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.11</b>	<b>0.00</b>

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2015	9/28/2015	5	20	
2	Site Preparation	Site Preparation	9/29/2015	10/5/2015	5	5	
3	Grading	Grading	10/6/2015	10/15/2015	5	8	
4	Building Construction	Building Construction	10/16/2015	9/1/2016	5	230	
5	Paving	Paving	9/2/2016	9/27/2016	5	18	
6	Architectural Coating	Architectural Coating	9/28/2016	10/21/2016	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 226,800; Residential Outdoor: 75,600; Non-Residential Indoor: 3,762; Non-Residential Outdoor: 1,254 (Architectural Coating –

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT



Worker												0.0000	1.1616	1.1616	6.0000e-005	0.0000	1.1630
<b>Total</b>												<b>0.0000</b>	<b>1.1616</b>	<b>1.1616</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>1.1630</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	37.4412	37.4412	0.0102	0.0000	37.6544
<b>Total</b>											<b>0.0000</b>	<b>37.4412</b>	<b>37.4412</b>	<b>0.0102</b>	<b>0.0000</b>	<b>37.6544</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.1616	1.1616	6.0000e-005	0.0000	1.1630
<b>Total</b>											<b>0.0000</b>	<b>1.1616</b>	<b>1.1616</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>1.1630</b>

**3.3 Site Preparation - 2015**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	9.3253	9.3253	2.7800e-003	0.0000	9.3837
<b>Total</b>											<b>0.0000</b>	<b>9.3253</b>	<b>9.3253</b>	<b>2.7800e-003</b>	<b>0.0000</b>	<b>9.3837</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3485	0.3485	2.0000e-005	0.0000	0.3489
<b>Total</b>											<b>0.0000</b>	<b>0.3485</b>	<b>0.3485</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3489</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	9.3253	9.3253	2.7800e-003	0.0000	9.3837
<b>Total</b>											<b>0.0000</b>	<b>9.3253</b>	<b>9.3253</b>	<b>2.7800e-003</b>	<b>0.0000</b>	<b>9.3837</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.3485	0.3485	2.0000e-005	0.0000	0.3489
<b>Total</b>											<b>0.0000</b>	<b>0.3485</b>	<b>0.3485</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.3489</b>

**3.4 Grading - 2015**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	11.3544	11.3544	3.3900e-003	0.0000	11.4256

<b>Total</b>												0.0000	11.3544	11.3544	3.3900e-003	0.0000	11.4256
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**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.4647	0.4647	3.0000e-005	0.0000	0.4652
<b>Total</b>											<b>0.0000</b>	<b>0.4647</b>	<b>0.4647</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.4652</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	11.3544	11.3544	3.3900e-003	0.0000	11.4256
<b>Total</b>											<b>0.0000</b>	<b>11.3544</b>	<b>11.3544</b>	<b>3.3900e-003</b>	<b>0.0000</b>	<b>11.4256</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.4647	0.4647	3.0000e-005	0.0000	0.4652
<b>Total</b>											<b>0.0000</b>	<b>0.4647</b>	<b>0.4647</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.4652</b>

**3.5 Building Construction - 2015**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	67.0984	67.0984	0.0168	0.0000	67.4520
<b>Total</b>											<b>0.0000</b>	<b>67.0984</b>	<b>67.0984</b>	<b>0.0168</b>	<b>0.0000</b>	<b>67.4520</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling												0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor												0.0000	15.6099	15.6099	1.4000e-004	0.0000	15.6127
Worker												0.0000	24.7041	24.7041	1.3700e-003	0.0000	24.7328
<b>Total</b>												<b>0.0000</b>	<b>40.3140</b>	<b>40.3140</b>	<b>1.5100e-003</b>	<b>0.0000</b>	<b>40.3455</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	67.0984	67.0984	0.0168	0.0000	67.4519
<b>Total</b>											<b>0.0000</b>	<b>67.0984</b>	<b>67.0984</b>	<b>0.0168</b>	<b>0.0000</b>	<b>67.4519</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	15.6099	15.6099	1.4000e-004	0.0000	15.6127
Worker											0.0000	24.7041	24.7041	1.3700e-003	0.0000	24.7328

Total												0.0000	40.3140	40.3140	1.5100e-003	0.0000	40.3455
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### 3.5 Building Construction - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	211.8844	211.8844	0.0526	0.0000	212.9880
<b>Total</b>											<b>0.0000</b>	<b>211.8844</b>	<b>211.8844</b>	<b>0.0526</b>	<b>0.0000</b>	<b>212.9880</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	49.0824	49.0824	3.8000e-004	0.0000	49.0905
Worker											0.0000	75.8520	75.8520	4.0100e-003	0.0000	75.9362
<b>Total</b>											<b>0.0000</b>	<b>124.9344</b>	<b>124.9344</b>	<b>4.3900e-003</b>	<b>0.0000</b>	<b>125.0266</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	211.8841	211.8841	0.0526	0.0000	212.9877
<b>Total</b>											<b>0.0000</b>	<b>211.8841</b>	<b>211.8841</b>	<b>0.0526</b>	<b>0.0000</b>	<b>212.9877</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	49.0824	49.0824	3.8000e-004	0.0000	49.0905
Worker											0.0000	75.8520	75.8520	4.0100e-003	0.0000	75.9362
<b>Total</b>											<b>0.0000</b>	<b>124.9344</b>	<b>124.9344</b>	<b>4.3900e-003</b>	<b>0.0000</b>	<b>125.0266</b>

**3.6 Paving - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road												0.0000	15.5310	15.5310	4.5600e-003	0.0000	15.6268
Paving												0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>												<b>0.0000</b>	<b>15.5310</b>	<b>15.5310</b>	<b>4.5600e-003</b>	<b>0.0000</b>	<b>15.6268</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.3452	1.3452	7.0000e-005	0.0000	1.3467
<b>Total</b>											<b>0.0000</b>	<b>1.3452</b>	<b>1.3452</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.3467</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	15.5310	15.5310	4.5600e-003	0.0000	15.6268
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>											<b>0.0000</b>	<b>15.5310</b>	<b>15.5310</b>	<b>4.5600e-003</b>	<b>0.0000</b>	<b>15.6268</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.3452	1.3452	7.0000e-005	0.0000	1.3467
<b>Total</b>											<b>0.0000</b>	<b>1.3452</b>	<b>1.3452</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>1.3467</b>

**3.7 Architectural Coating - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2.2979	2.2979	2.7000e-004	0.0000	2.3036
<b>Total</b>											<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>2.3036</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.5469	1.5469	8.0000e-005	0.0000	1.5487
<b>Total</b>											<b>0.0000</b>	<b>1.5469</b>	<b>1.5469</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>1.5487</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2.2979	2.2979	2.7000e-004	0.0000	2.3036
<b>Total</b>											<b>0.0000</b>	<b>2.2979</b>	<b>2.2979</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>2.3036</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor												0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker												0.0000	1.5469	1.5469	8.0000e-005	0.0000	1.5487
<b>Total</b>												<b>0.0000</b>	<b>1.5469</b>	<b>1.5469</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>1.5487</b>

#### 4.0 Operational Detail - Mobile

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	883.8088	883.8088	0.0368	0.0000	884.5824
Unmitigated											0.0000	883.8088	883.8088	0.0368	0.0000	884.5824

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	738.08	801.92	679.84	2,109,727	2,109,727
Parking Lot	0.00	0.00	0.00		
<b>Total</b>	<b>738.08</b>	<b>801.92</b>	<b>679.84</b>	<b>2,109,727</b>	<b>2,109,727</b>

#### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510423	0.073380	0.192408	0.132453	0.036550	0.005219	0.012745	0.022253	0.001862	0.002079	0.006550	0.000609	0.003468

## 5.0 Energy Detail

### 4.4 Fleet Mix

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	182.6856	182.6856	7.3500e-003	1.5200e-003	183.3116
Electricity Unmitigated											0.0000	182.6856	182.6856	7.3500e-003	1.5200e-003	183.3116
NaturalGas Mitigated											0.0000	82.4256	82.4256	1.5800e-003	1.5100e-003	82.9272
NaturalGas Unmitigated											0.0000	82.4256	82.4256	1.5800e-003	1.5100e-003	82.9272

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Condo/Townhouse High Rise	1.5446e+006												0.0000	82.4256	82.4256	1.5800e-003	1.5100e-003	82.9272
Parking Lot	0												0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>													<b>0.0000</b>	<b>82.4256</b>	<b>82.4256</b>	<b>1.5800e-003</b>	<b>1.5100e-003</b>	<b>82.9272</b>

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse High Rise	1.5446e+006											0.0000	82.4256	82.4256	1.5800e-003	1.5100e-003	82.9272
<b>Total</b>												<b>0.0000</b>	<b>82.4256</b>	<b>82.4256</b>	<b>1.5800e-003</b>	<b>1.5100e-003</b>	<b>82.9272</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	485430	158.6429	6.3900e-003	1.3200e-003	159.1866
Parking Lot	73568	24.0427	9.7000e-004	2.0000e-004	24.1251
<b>Total</b>		<b>182.6856</b>	<b>7.3600e-003</b>	<b>1.5200e-003</b>	<b>183.3116</b>



SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.3622	1.3622	1.3700e-003	0.0000	1.3910
<b>Total</b>											<b>0.0000</b>	<b>1.3622</b>	<b>1.3622</b>	<b>1.3700e-003</b>	<b>0.0000</b>	<b>1.3910</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
	Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	1.3622	1.3622	1.3700e-003	0.0000	1.3910
<b>Total</b>											<b>0.0000</b>	<b>1.3622</b>	<b>1.3622</b>	<b>1.3700e-003</b>	<b>0.0000</b>	<b>1.3910</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	50.0711	0.2397	6.0000e-003	56.9650
Unmitigated	50.0711	0.2397	6.0100e-003	56.9687

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	7.29725 / 4.60044	50.0711	0.2397	6.0100e-003	56.9687
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>50.0711</b>	<b>0.2397</b>	<b>6.0100e-003</b>	<b>56.9687</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	7.29725 / 4.60044	50.0711	0.2397	6.0000e-003	56.9650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>50.0711</b>	<b>0.2397</b>	<b>6.0000e-003</b>	<b>56.9650</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.4581	0.6181	0.0000	23.4373
Unmitigated	10.4581	0.6181	0.0000	23.4373

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	51.52	10.4581	0.6181	0.0000	23.4373
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>10.4581</b>	<b>0.6181</b>	<b>0.0000</b>	<b>23.4373</b>

#### Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	51.52	10.4581	0.6181	0.0000	23.4373
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>10.4581</b>	<b>0.6181</b>	<b>0.0000</b>	<b>23.4373</b>

### 9.0 Operational Offroad

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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### 10.0 Vegetation

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