Greenhouse Gas Assessment For The

WILSON RESERVOIR

CITY OF SOUTH PASADENA

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1.0 Background Information

1.1 Project Description

The proposed Wilson Reservoir project would replace the existing water storage facility with a new and improved facility. The new facility would provide approximately 30% more capacity, and would include a new 1,200 square foot booster pump station including chlorination facility, an operation building, metering facility, and clearwell.

The project would include demolition of the existing pump station and concrete foundation and be replaced with a new pump station and related operation building. The bulk of construction time would involve demolition and excavation of the existing facility, some 24-hour concrete pour of the new foundation, and construction of the new pump station and operation building.

The Wilson Reservoir is located at 545 Adelyn Street in City of San Gabriel. The existing reservoir is owned and operated by the City of South Pasadena. The City of South Pasadena is the lead agency for the project. The site plan is illustrated in Exhibit 1.

This report analyzes the potential climate change impacts associated with this project. The energy consumed by this project will mainly be electricity but will be offset by the existing facility at the same location. 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 18th 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 stated in February 2007 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. According to the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) data, the average surface temperature of the Earth has increased by about 1.2 to 1.4 ºF in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 2005. [EPA, 2011, epa.gov/climatechange/basicinfo.html].

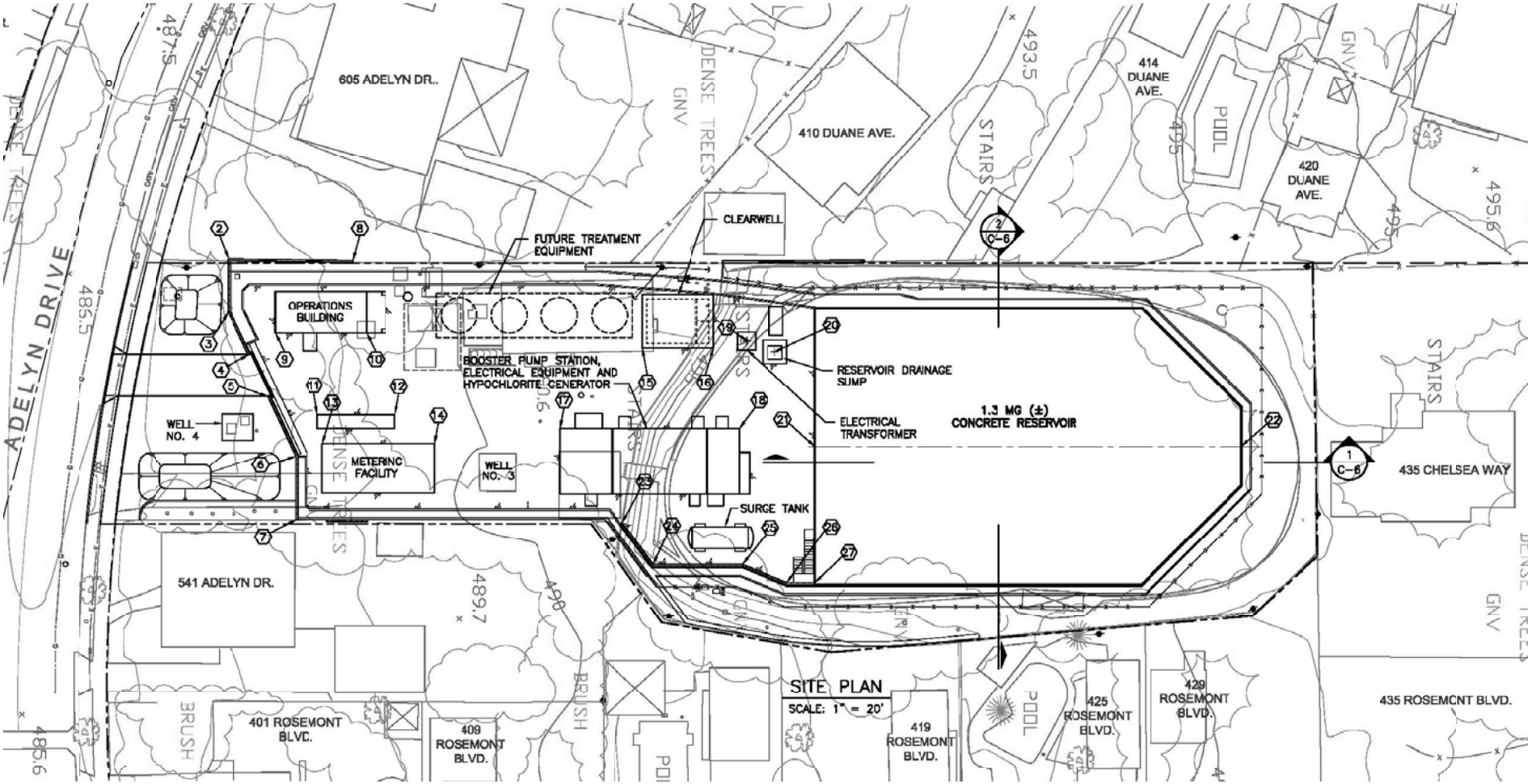

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Exhibit 1
Site Plan

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 7.2ºF 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].

Global GHG emissions are measured in million metric tons of carbon dioxide equivalent ("MMT CO_2EQ") 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_2)** 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_4)** 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_2O)** 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 (HRC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). 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_4)	6,500
PFC: Hexafluoroethane (C_2F_6)	9,200
Sulfur Hexafluoride (SF_6)	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 will 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_2 emissions for the world and for the top ten CO_2 producing countries is presented in Table 2.

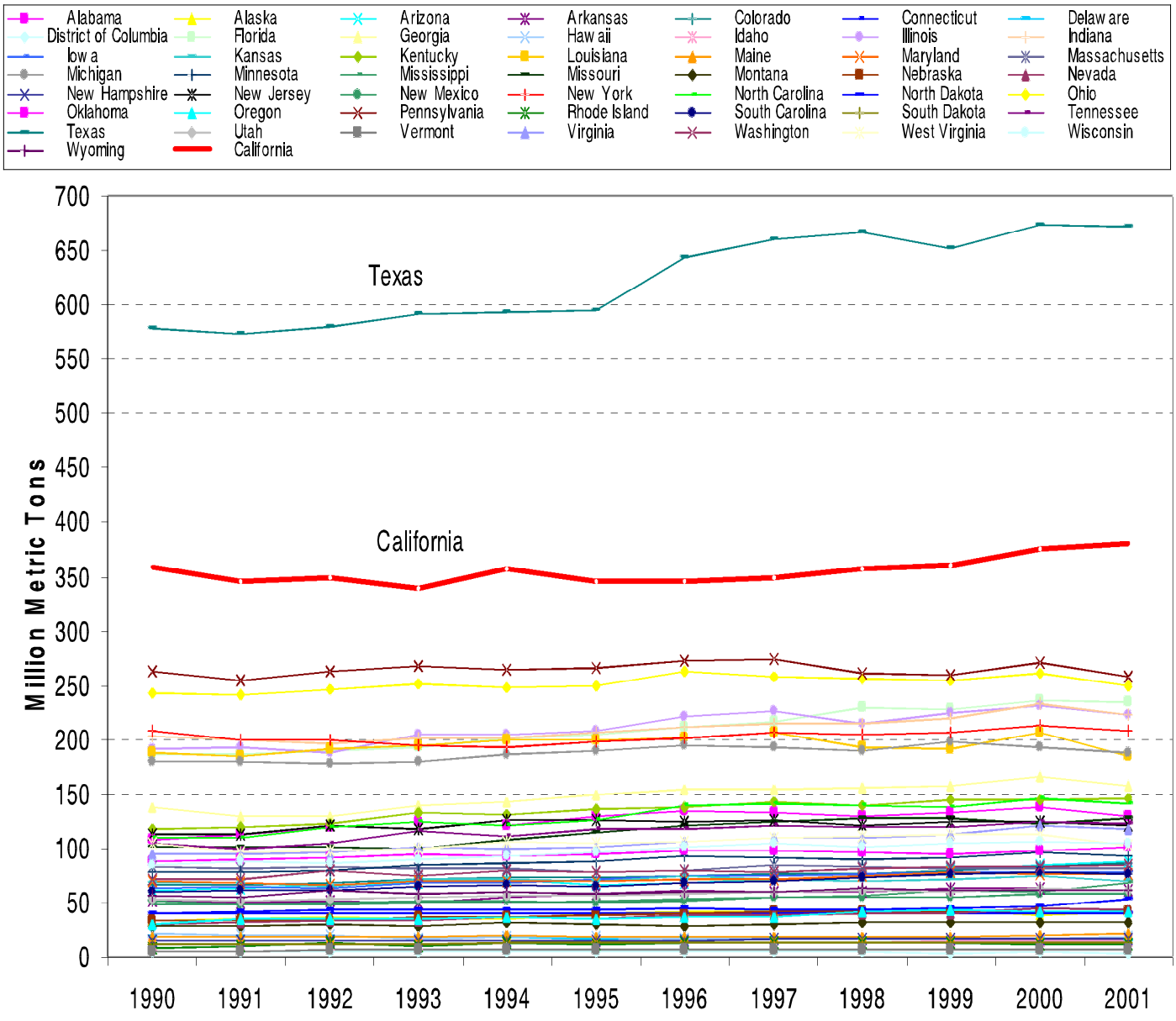
Table 2
Top Ten CO2 Producing Nations in 2007
(Emissions in Million Metric Tons (MMT) CO_2)

Country	Emissions	Percent of Global
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%
Remaining Countries	*10,010*	*33%*
Total Global	**30,114**	**100%**

Source: United Nations, 2011,
http://unstats.un.org/unsd/environment/air_co2_emissions.htm

Global CO_2 emissions totaled about 30,114 MMT CO_2 in 2007. China released the most CO_2 emissions. The United States was second and released 6,094 MMT CO_2 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. In 2001, the burning of fossil fuels produced over 81% of total GHG emissions. In relation to other states, California is the second highest producer of CO_2 by fossil fuels, as shown in Exhibit 2.



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

Exhibit 2
Fossil Fuel CO_2 Production by State

Sources of Greenhouse Gases in California

The California Energy Commission ("CEC") categorizes GHG generation by source into five 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.

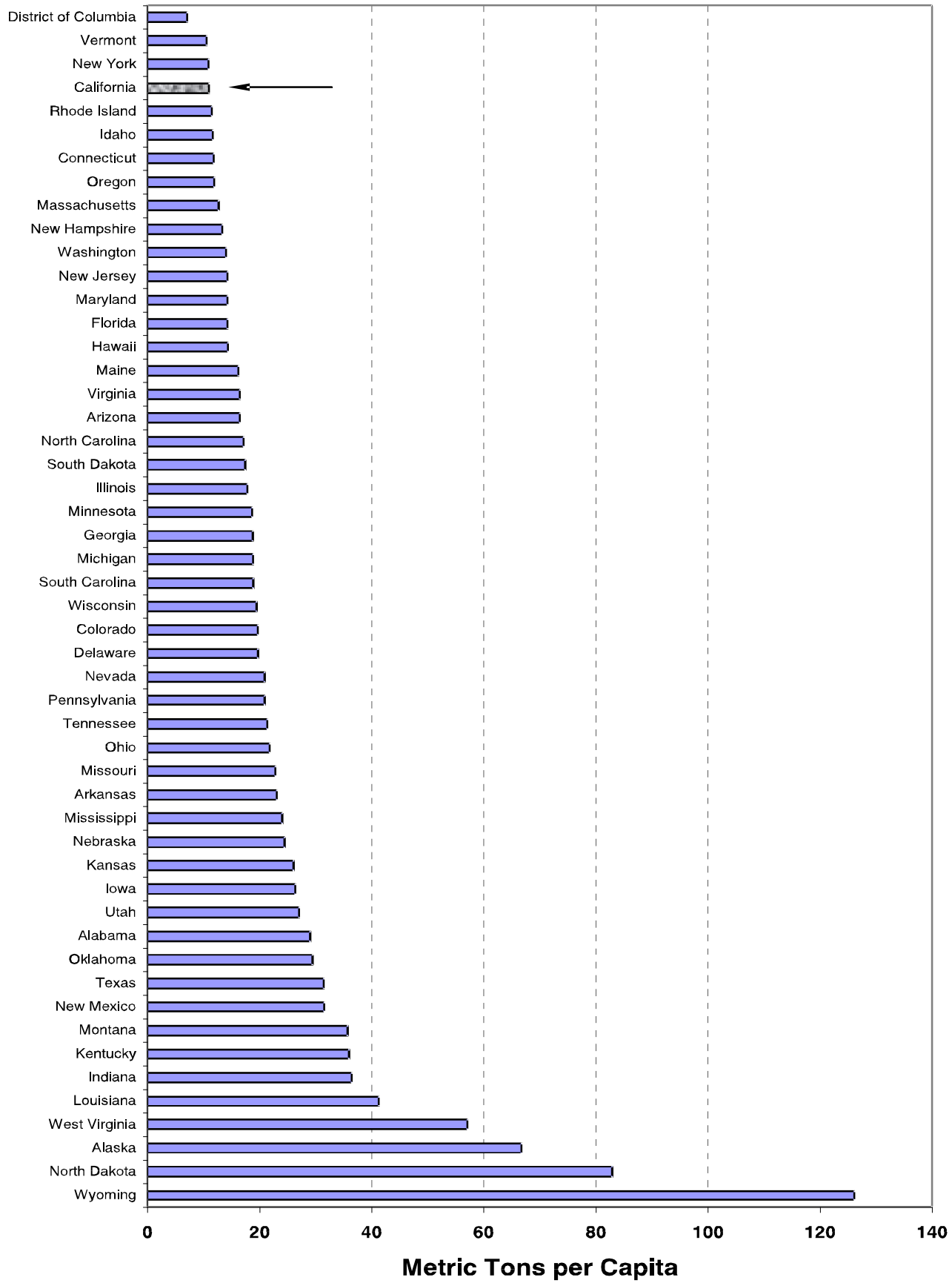
- **Agriculture and forestry** GHG emissions are composed mostly of nitrous oxide from agricultural soil management, CO_2 from forestry practice changes, methane from enteric fermentation, and methane and nitrous oxide from manure management.

- **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.

The amount of GHGs released from each of these categories in California from 2000 to 2008 is shown in Exhibit 3.



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

Exhibit 4 CO_2 Emissions From Fossil Fuels Per Capita (2001)

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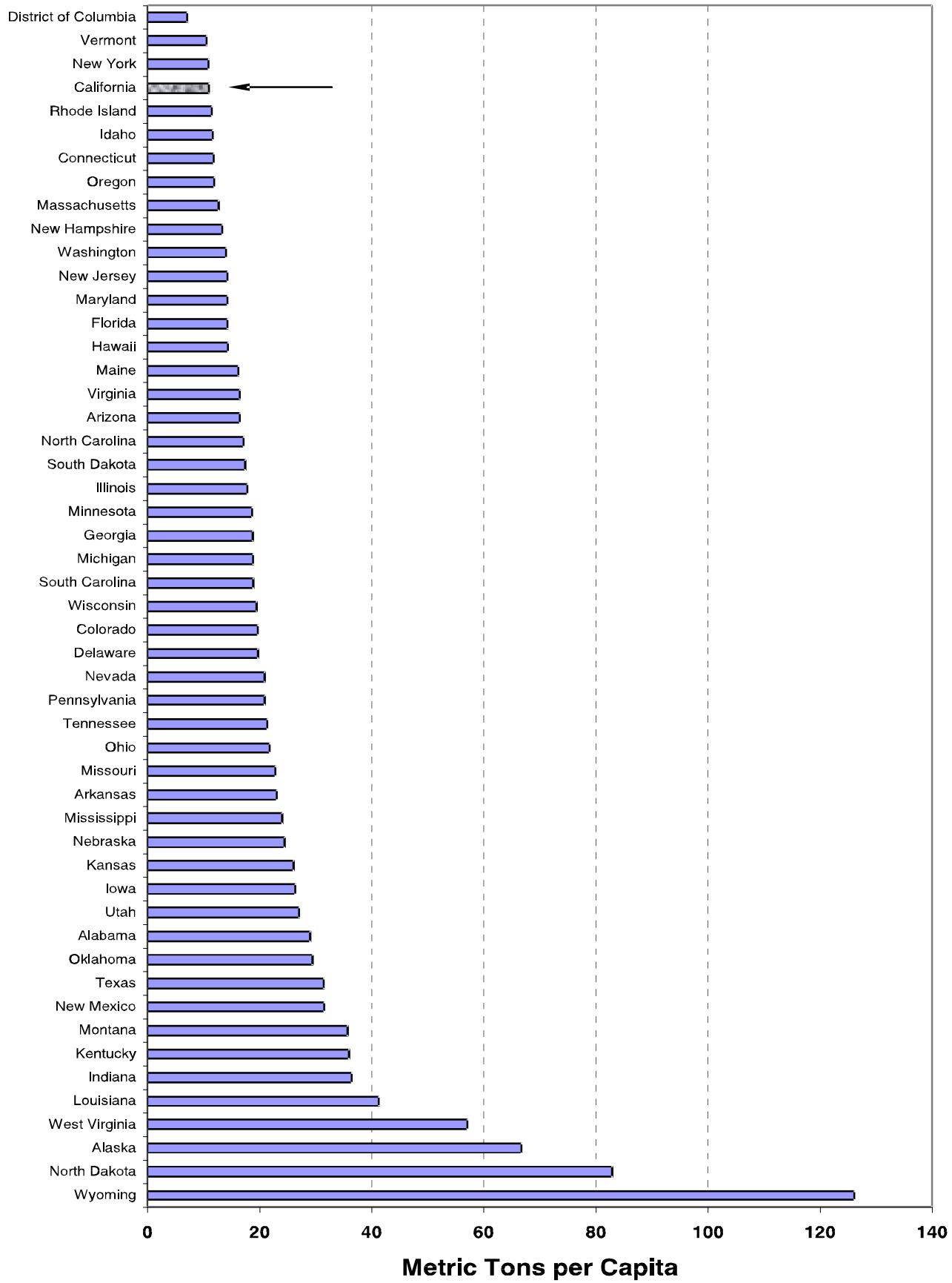
Examination of Exhibit 3 indicates that most of California's GHGs are emitted by transportation sources, such as automobiles, trucks, and airplanes. (The transportation sector is labeled as Passenger Vehicles, Heavy Duty Trucks, and Other Transportation in Exhibit 3.) Combustion of fossil fuels in the 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) (24%) and the industrial sector (23%). Residential and commercial activity accounted for approximately 9% of the emissions. The smallest GHG contributors are the waste and recycling sector and the agricultural and forestry sector, which accounted for about 1% and 6%, respectively.

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_2 production from fossil fuels in the United States. Wyoming produced the most CO_2 per capita, while the District of Columbia produced lowest.



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

Exhibit 4 CO_2 Emissions From Fossil Fuels Per Capita (2001)

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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 – CO2, CH4, N2O, HFCs, PFCs, and SF6.

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*.

California State Plans, Policies, Regulations, and Laws. In recent years, 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_2 in 1990. In December 2007, CARB finalized 1990 emissions at 427 million metric tons of CO_2. In the August 2007 draft report, CARB estimated California emitted approximately 480 million metric tons of CO_2 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_2 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.

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_2 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_4 (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 CO2 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. SR 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.

Energy Conservation Standards (2009). Energy Conservation Standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (Title 24, Part 6 of the California Code of Regulations [CCF]) with the standards going into effect in 2009. Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608), dated December 2006, were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of

Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. While these regulations are now often seen as "business as usual," they do exceed the standards imposed by any other state and reduce GHG emissions by reducing energy demand. On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24, California Code of Regulations). Part 11 established voluntary standards, some of which became mandatory in the 2010 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.

CEQA Guidelines. SB 97 required that the California Natural Resource Agency (CNRA) coordinate on the preparation of amendments to the CEQA Guidelines regarding feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions. Pursuant to SB 97, CNRA adopted CEQA Guidelines amendments on December 30, 2009. The amendments were approved by the Office of Administrative Law on February 16, 2010, and became effective on March 18, 2010.

With respect to the significance assessment, newly added CEQA Guidelines section 15064.4, subdivision (b), requires that the lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

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

The new CEQA Guidelines do not include or recommend any particular threshold of significance; instead, they leave that decision to the discretion of the lead agency. The new CEQA Guidelines also do not suggest or recommend the use of any specific GHG emission mitigation measures. Instead, newly added CEQA Guidelines provides that lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Mitigation measures may include the following, among others:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;

(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;

(4) Measures that sequester greenhouse gases;

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Among other things, CNRA noted in its Public Notice for these changes that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The Public Notice states: "While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable."

South Coast Air Quality Management District Guidance. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency. As to all other projects, where the SCAQMD is not the lead agency, the Board has, to date, adopted thresholds only for industrial (stationary source) projects. The SCAQMD has not yet adopted any significance thresholds for new residential/commercial development projects, but has over the last few years proposed several draft thresholds. To assist interested parties in assessing the significance of GHG emissions from new residential/commercial development projects under CEQA, SCAQMD staff has been working on developing thresholds together with the SCAQMD's GHG CEQA Significance Thresholds Working Group. To achieve its policy objective of capturing 90% of GHG emissions from new residential/commercial development projects and implementing a "fair share" approach to reducing emission increases from each new residential/commercial development sector, SCAQMD staff has proposed combining performance standards and screening thresholds. According to the presentation given at the September 28th, 2010 GHG CEQA Significance Working Group meeting, the last Working Group meeting prior to the date of this report, SCAQMD staff proposed a draft threshold for 2020 of 4.8 MT/SP/YR (metric tons of CO2EQ per service population per year) for mixed use developments. Since the goal of AB 32 is to return to 1990 GHG emission levels by 2020, the basis for this threshold is the statewide

emission inventory for 1990 based on "land use" related sectors divided by the statewide service population. The SCAQMD has also developed draft thresholds for commercial and residential projects, where it is not the lead. The draft recommends a 3,000 MTCO2EQ per year screening threshold. The SCAQMD's working group has not set a date for finalizing the recommendations.

City of South Pasadena Plans, Policies, Regulations, and Laws. The City of South Pasadena does not have any plans, policies, regulations, significance thresholds or laws addressing climate change at this time.

3.0 Significance Thresholds

California Air Resource Board Significance Thresholds: The CARB is the lead agency for implementing AB32. In October 2008, CARB published a Proposed Scoping Plan, in coordination with the Climate Action Team (CAT), to establish a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California. The measures in the Scoping Plan approved by the Board will be developed over the next two years and be in place by 2020. California is the fifteenth largest emitter of GHGs on the planet, representing about 2 percent of the worldwide emissions. According to climate scientists, California and the rest of the developed world will have to cut emissions by 80 percent from today's levels to stabilize the amount of CO_2 in the atmosphere and prevent the most severe effects of global climate change. This long-range goal is reflected in California Executive Order S-3-05 that requires an 80 percent reduction of greenhouse gases form 1990 levels by 2050. 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. On a per-capita basis, that means reducing our annual emissions of 14 tons of CO_2 equivalent for every man, woman and child in California down to about 10 tons per person by 2020.

Significant progress can be made toward the 2020 goal with existing technologies and improving the efficiency of energy use. Other solutions involve improving our state's infrastructure, transitioning to cleaner and more secure sources of energy, and adopting 21st century land use planning and development practices. Key elements of California's recommendations for reducing its greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standard;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and

- Creating targeted 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.

To meet the 1990 target established by AB 32, CARB recommends a de minimis (minimal importance) emission threshold of 0.1 MMT annual (100,000 MT per year) CO_2EQ per transportation source category. Source categories whose total aggregated emissions are below this level are not proposed for emission reduction requirements in the Scoping Plan but may contribute toward the target via other means. As each regulation to implement the Scoping Plan is developed, CARB and other agencies will consider more specific de minimis levels below which the regulatory requirements would not apply. These levels will consider the cost to comply, especially for small businesses, and other factors. Until approved thresholds and guidelines are adopted at the local and regional level, the proposed de minimis threshold of 100,000 $MTCO_2EQ$ per year for transportation sources will be utilized for transportation sources.

In addition to the Proposed Scoping Plan, CARB released the Preliminary Draft Staff Proposal (Staff Proposal) on October 24, 2008 with the objective of developing interim significant thresholds for commercial and residential projects. CARB has already proposed a threshold of 7,000 annual MT for industrial operational sources. However, the Staff Proposal has not yet developed thresholds applicable for residential and commercial sources. Therefore, criteria for determining threshold levels for residential and commercial sources have yet to be defined. Under CARB's Staff Proposal, recommended approaches for setting interim significant thresholds for GHG under the CEQA are underway. CARB staff proposes to define certain performance standards (e.g., for energy efficiency) by referencing or compiling lists from existing local, state or national standards. For some sub-sources of GHG emissions (e.g., construction, transportation, waste), CARB staff has not identified reference standards.

The Staff Proposal's Potential Performance Standards and Measures were released in December 2008. Inside the Staff Proposal, CARB's Potential Performance Standard and Measures included some construction measures. These guideline measures are:

- Provide alternative transportation mode options or incentives for workers to and from worksite on days that construction requires 200 or more workers; and
- Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris by weight (residential) or by weight in volume (commercial); and
- Use recycled materials for at least 20% of construction materials based on cost for building materials, based on volume for roadway, parking lot, sidewalk and curb material. Recycled materials may include salvaged, reused, and recycled content materials.

CARB's Staff Proposal has identified California Energy Commission's (CEC) Tier II Energy Efficiency goals as an appropriate performance standard for energy use. Under State Law, the CEC is required to establish eligibility criteria, conditions for incentives, and rating standards.

Thus, the CEC established energy efficiency standards for homes and commercial structures, and requires new buildings to exceed current building standards by meeting Tier Energy Efficiency goals. Currently, CEC's proposed guidelines for the solar energy incentive program recommend a Tier II goal for residential and commercial projects of a 30% reduction in building combined space heating, cooling, and water heating energy compared to the 2008 Title 24 standards.

Existing green building rating systems like LEED, GreenPoint Rated, the California Green Building Code, and others, contain examples of measures that are likely to result in substantial GHG emission reductions from residential and commercial projects. Performance standards that already exist and have been proven to be effective, at the local, state, national or international level, are preferable. For residential and commercial projects, staff has proposed that the GHG emissions of some projects that meet GHG performance standards might under some circumstances still be considered cumulatively considerable and therefore significant. However, criteria threshold for residential and commercial has yet to be developed.

SCAQMD's Significance Thresholds: In December 5, 2008, the South Coast Air Quality Management District (SCAQMD) adopted GHG significance threshold for Stationary Sources, Rules and Plans where the SCAQMD is lead agency. The threshold utilizes a tiered approach, with a screening significance threshold of 10,000 MTCO2EQ, if the project was not part of a general plan's GHG reduction plan. The SCAQMD has also developed draft thresholds for commercial and residential projects, where it is not the lead. The draft recommends a 3,000 MTCO2EQ per year screening threshold. The SCAQMD's working group has not set a date for finalizing the recommendations. The project is most closely related to the industrial and manufacturing facilities that the SCAQMD issues permits. Therefore, for this project a significance threshold of 10,000 MTCO2EQ per year will be used.

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 and other combustion sources (i.e., generators, worker vehicles, materials delivery, etc.). The GHG air pollutants emitted by construction equipment would primarily be carbon dioxide.

Typical emission rates for construction equipment were obtained from CalEEMod (California Emissions Estimator Model) which was released by the SCAQMD in 2011. 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 proposed project site is approximately 0.5 acres. The construction would primarily consist of demolition and excavation of the existing pump station and concrete foundation. Based on the construction trip schedule provided by the City, the demolition phase is anticipated to take 150 days. The next phase would involve some 24-hour concrete pour associated with the construction of the new concrete foundation, and would take approximately 10 days. Subsequently, a new pump station and operation building are constructed; this phase is projected to take approximately 150 days. It is projected that the construction of the project would start in early 2012 and take about 18 months to complete. At this time, the number and type of construction equipment is not known, and therefore, most of the construction equipment usage will be based on CalEEMod default assumptions.

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. 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_2 Emissions (Metric Tons Per Year)

	CO2	CH4	N2O	CO2EQ
Total Construction Emissions (Metric Tons)	712.66	0.07	0.00	714.25
Annualized Averaged Over 30 Years (Metric Tons Per Year)	23.8	0.0	0.0	23.8

MTCO2EQ = metric tons equivalent carbon dioxide (CO2).

5.0 Estimate of Project Greenhouse Gas Emissions

The primary sources of GHG emissions generated by the proposed project would be from electric consumption associated with the project operation. However, the project would generate minimal change in the amount of emissions compared to the existing facility.

Currently, there are three booster pumps on-site. According to the applicant, the existing facility consumed 3,963,001 KWH for calendar year 2010. The new facility would also house three booster pumps. The electrical consumption under the new project conditions is not known. However, the new booster pumps will be more efficient, and therefore, the electric consumption is anticipated to be no higher and most likely less than current usage. Therefore, changes to operational emissions between existing and proposed facility are expected to be minor. As a result, the emissions consumed for the proposed project was based on 2010 electricity consumption.

The California Emissions Model (CalEEMod) developed by the SCAQMD in conjunction with the ARB provides GHG emission rates for electrical generation. The results are presented in Table 4.

Table 4
Annual Project Emissions Consumption

	2013
Energy Consumption (kWh)	3,963,001
Emissions Generated (MTCO2EQ)	1,160
Annualized Construction	24
Total GHG Emissions (MTCO2EQ)	**1,184**

Table 4 shows that the project generates approximately 1,184 MTCO2EQ per year. However, the energy consumed by the project is mainly electricity generation, and will be offset by the existing facility at the same location. The project will not results in a significant increase in greenhouse gas emissions; there will be no adverse impact on climate change.

The project emissions are also below the 10,000 MTCO2EQ per year significance threshold used by the SCAQMD. Therefore, no significant climate change impacts are anticipated from the proposed project.

6.0 Mitigation Measures

No mitigation measures are required since the project will not result in any significant change in greenhouse gas emissions.

References

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U.S. Environmental Protection Agency, "The U.S. Inventory of Greenhouse Gas Emissions and Sinks: Fast Facts," April 2007.

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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

Wilson Reservoir Pump Station

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Light Industry	1.38	1000sqft
Other Asphalt Surfaces	10.18	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			33		

1.3 User Entered Comments

Project Characteristics -

Land Use - Estimated 1,375 sq.ft pump station and operation building.

Construction Phase - Construction is projected to start in 2012.
Based on construction trip generation schedule.
Demolition duration is 150 days.
Building construction duration is 150 days.

Off-road Equipment - Assumed 2 cement and mortar mixers , 2 construction equipment, 1 pump and 1 paving equipment for 24-hour concrete pour.

Trips and VMT - Based on Construction Trip Generation table from City of S. Pasadena.
Demolition - 82 haul round trips/day
24-hour concrete pour - 60 haul round trips/day
Building construction - 122 haul round trips/day

Demolition - Demolition involves 5,302 tons of debris.

Grading - Grading includes 1,917 cy of import, and 3,218 cy of export.

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					
2012	0.51	3.61	2.40	0.00	0.77	0.26	1.02	0.01	0.26	0.27	0.00	381.61	381.61	0.04	0.00	382.47
2013	0.57	2.94	2.28	0.00	1.13	0.22	1.35	0.00	0.22	0.22	0.00	331.05	331.05	0.03	0.00	331.78
Total	**1.08**	**6.55**	**4.68**	**0.00**	**1.90**	**0.48**	**2.37**	**0.01**	**0.48**	**0.49**	**0.00**	**712.66**	**712.66**	**0.07**	**0.00**	**714.25**

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
Year	tons/yr										MT/yr					
2012	0.32	1.87	2.49	0.00	0.73	0.13	0.86	0.01	0.13	0.14	0.00	381.61	381.61	0.04	0.00	382.47
2013	0.35	1.09	2.28	0.00	1.13	0.08	1.21	0.00	0.08	0.08	0.00	331.05	331.05	0.03	0.00	331.78
Total	**0.67**	**2.96**	**4.77**	**0.00**	**1.86**	**0.21**	**2.07**	**0.01**	**0.21**	**0.22**	**0.00**	**712.66**	**712.66**	**0.07**	**0.00**	**714.25**

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	0.06	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
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	5.48	5.48	0.00	0.00	5.52
Mobile	0.01	0.02	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	12.29	12.29	0.00	0.00	12.30
Waste						0.00	0.00		0.00	0.00	16.30	0.00	16.30	0.96	0.00	36.53
Water						0.00	0.00		0.00	0.00	0.00	25.78	25.78	0.21	0.01	31.88
Total	**0.07**	**0.02**	**0.08**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**16.30**	**43.55**	**59.85**	**1.17**	**0.01**	**86.23**

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	0.06	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

Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	5.48	5.48	0.00	0.00	5.52
Mobile	0.01	0.02	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	12.29	12.29	0.00	0.00	12.30
Waste						0.00	0.00		0.00	0.00	16.30	0.00	16.30	0.96	0.00	36.53
Water						0.00	0.00		0.00	0.00	0.00	25.78	25.78	0.21	0.01	31.88
Total	**0.07**	**0.02**	**0.08**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**16.30**	**43.55**	**59.85**	**1.17**	**0.01**	**86.23**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

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					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.16	1.11	0.73	0.00		0.09	0.09		0.09	0.09	0.00	100.41	100.41	0.01	0.00	100.68
Total	**0.16**	**1.11**	**0.73**	**0.00**	**0.06**	**0.09**	**0.15**	**0.01**	**0.09**	**0.10**	**0.00**	**100.41**	**100.41**	**0.01**	**0.00**	**100.68**

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	0.00	0.02	0.02	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.00	3.11	3.11	0.00	0.00	3.12
Vendor	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
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.45	8.45	0.00	0.00	8.46
Total	**0.01**	**0.03**	**0.08**	**0.00**	**0.14**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.00**	**11.56**	**11.56**	**0.00**	**0.00**	**11.58**

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					0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.13	0.84	0.71	0.00		0.06	0.06		0.06	0.06	0.00	100.41	100.41	0.01	0.00	100.68
Total	**0.13**	**0.84**	**0.71**	**0.00**	**0.02**	**0.06**	**0.08**	**0.00**	**0.06**	**0.06**	**0.00**	**100.41**	**100.41**	**0.01**	**0.00**	**100.68**

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	0.00	0.02	0.02	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.00	3.11	3.11	0.00	0.00	3.12
Vendor	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
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.45	8.45	0.00	0.00	8.46
Total	**0.01**	**0.03**	**0.08**	**0.00**	**0.14**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.00**	**11.56**	**11.56**	**0.00**	**0.00**	**11.58**

3.3 Site Preparation - 2012

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					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.20	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.08	19.08	0.00	0.00	19.13
Total	**0.03**	**0.20**	**0.13**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**19.08**	**19.08**	**0.00**	**0.00**	**19.13**

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	0.00	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
Vendor	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

Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.85
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.85**	**0.85**	**0.00**	**0.00**	**0.85**

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					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.17	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.08	19.08	0.00	0.00	19.13
Total	**0.02**	**0.17**	**0.13**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**19.08**	**19.08**	**0.00**	**0.00**	**19.13**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.85
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.85**	**0.85**	**0.00**	**0.00**	**0.85**

3.4 Grading - 2012

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					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.07	0.05	0.00		0.01	0.01		0.01	0.01	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.01**	**0.07**	**0.05**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

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	0.01	0.12	0.08	0.00	0.04	0.01	0.05	0.00	0.01	0.01	0.00	15.26	15.26	0.00	0.00	15.27
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.00	0.00	0.56
Total	**0.01**	**0.12**	**0.08**	**0.00**	**0.04**	**0.01**	**0.05**	**0.00**	**0.01**	**0.01**	**0.00**	**15.82**	**15.82**	**0.00**	**0.00**	**15.83**

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					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	6.69	6.69	0.00	0.00	6.71
Total	**0.01**	**0.06**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.69**	**6.69**	**0.00**	**0.00**	**6.71**

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	0.01	0.12	0.08	0.00	0.04	0.01	0.05	0.00	0.01	0.01	0.00	15.26	15.26	0.00	0.00	15.27
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.00	0.00	0.56
Total	**0.01**	**0.12**	**0.08**	**0.00**	**0.04**	**0.01**	**0.05**	**0.00**	**0.01**	**0.01**	**0.00**	**15.82**	**15.82**	**0.00**	**0.00**	**15.83**

3.5 24-hour concrete pour - 2012

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	0.06	0.54	0.21	0.00		0.02	0.02		0.02	0.02	0.00	66.95	66.95	0.00	0.00	67.04
Total	**0.06**	**0.54**	**0.21**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**66.95**	**66.95**	**0.00**	**0.00**	**67.04**

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	0.00	0.02	0.01	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	2.28	2.28	0.00	0.00	2.28
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.00	0.00	0.75
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.85
Total	**0.00**	**0.03**	**0.02**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3.88**	**3.88**	**0.00**	**0.00**	**3.88**

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	0.02	0.04	0.32	0.00		0.00	0.00		0.00	0.00	0.00	66.95	66.95	0.00	0.00	67.04
Total	**0.02**	**0.04**	**0.32**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**66.95**	**66.95**	**0.00**	**0.00**	**67.04**

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	0.00	0.02	0.01	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	2.28	2.28	0.00	0.00	2.28
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.00	0.00	0.75
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.85
Total	**0.00**	**0.03**	**0.02**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**3.88**	**3.88**	**0.00**	**0.00**	**3.88**

3.6 Paving - 2012

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	0.02	0.11	0.07	0.00		0.01	0.01		0.01	0.01	0.00	9.58	9.58	0.00	0.00	9.61
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.11**	**0.07**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**9.58**	**9.58**	**0.00**	**0.00**	**9.61**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.52	0.00	0.00	1.52
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.52**	**1.52**	**0.00**	**0.00**	**1.52**

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	0.02	0.10	0.07	0.00		0.01	0.01		0.01	0.01	0.00	9.58	9.58	0.00	0.00	9.61
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.10**	**0.07**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**9.58**	**9.58**	**0.00**	**0.00**	**9.61**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.52	0.00	0.00	1.52
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.52**	**1.52**	**0.00**	**0.00**	**1.52**

3.7 Building Construction - 2012

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	0.19	1.31	0.90	0.00		0.11	0.11		0.11	0.11	0.00	126.75	126.75	0.02	0.00	127.08
Total	**0.19**	**1.31**	**0.90**	**0.00**		**0.11**	**0.11**		**0.11**	**0.11**	**0.00**	**126.75**	**126.75**	**0.02**	**0.00**	**127.08**

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	0.00	0.01	0.01	0.00	0.41	0.00	0.41	0.00	0.00	0.00	0.00	1.42	1.42	0.00	0.00	1.42
Vendor	0.01	0.06	0.04	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.04
Worker	0.01	0.01	0.07	0.00	0.07	0.00	0.08	0.00	0.00	0.00	0.00	9.07	9.07	0.00	0.00	9.09
Total	**0.02**	**0.08**	**0.12**	**0.00**	**0.50**	**0.00**	**0.51**	**0.00**	**0.00**	**0.00**	**0.00**	**18.53**	**18.53**	**0.00**	**0.00**	**18.55**

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	0.09	0.42	0.90	0.00		0.03	0.03		0.03	0.03	0.00	126.75	126.75	0.02	0.00	127.08
Total	**0.09**	**0.42**	**0.90**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**126.75**	**126.75**	**0.02**	**0.00**	**127.08**

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	0.00	0.01	0.01	0.00	0.41	0.00	0.41	0.00	0.00	0.00	0.00	1.42	1.42	0.00	0.00	1.42
Vendor	0.01	0.06	0.04	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	8.04	8.04	0.00	0.00	8.04
Worker	0.01	0.01	0.07	0.00	0.07	0.00	0.08	0.00	0.00	0.00	0.00	9.07	9.07	0.00	0.00	9.09
Total	**0.02**	**0.08**	**0.12**	**0.00**	**0.50**	**0.00**	**0.51**	**0.00**	**0.00**	**0.00**	**0.00**	**18.53**	**18.53**	**0.00**	**0.00**	**18.55**

3.7 Building Construction - 2013

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	0.40	2.74	2.02	0.00		0.21	0.21		0.21	0.21	0.00	286.55	286.55	0.03	0.00	287.24
Total	**0.40**	**2.74**	**2.02**	**0.00**		**0.21**	**0.21**		**0.21**	**0.21**	**0.00**	**286.55**	**286.55**	**0.03**	**0.00**	**287.24**

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	0.00	0.02	0.01	0.00	0.92	0.00	0.92	0.00	0.00	0.00	0.00	3.22	3.22	0.00	0.00	3.23
Vendor	0.01	0.12	0.09	0.00	0.04	0.00	0.04	0.00	0.00	0.01	0.00	18.22	18.22	0.00	0.00	18.24
Worker	0.01	0.01	0.14	0.00	0.17	0.00	0.17	0.00	0.00	0.00	0.00	20.12	20.12	0.00	0.00	20.14
Total	**0.02**	**0.15**	**0.24**	**0.00**	**1.13**	**0.00**	**1.13**	**0.00**	**0.00**	**0.01**	**0.00**	**41.56**	**41.56**	**0.00**	**0.00**	**41.61**

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	0.18	0.89	2.02	0.00		0.07	0.07		0.07	0.07	0.00	286.55	286.55	0.03	0.00	287.24
Total	**0.18**	**0.89**	**2.02**	**0.00**		**0.07**	**0.07**		**0.07**	**0.07**	**0.00**	**286.55**	**286.55**	**0.03**	**0.00**	**287.24**

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	0.00	0.02	0.01	0.00	0.92	0.00	0.92	0.00	0.00	0.00	0.00	3.22	3.22	0.00	0.00	3.23
Vendor	0.01	0.12	0.09	0.00	0.04	0.00	0.04	0.00	0.00	0.01	0.00	18.22	18.22	0.00	0.00	18.24
Worker	0.01	0.01	0.14	0.00	0.17	0.00	0.17	0.00	0.00	0.00	0.00	20.12	20.12	0.00	0.00	20.14
Total	**0.02**	**0.15**	**0.24**	**0.00**	**1.13**	**0.00**	**1.13**	**0.00**	**0.00**	**0.01**	**0.00**	**41.56**	**41.56**	**0.00**	**0.00**	**41.61**

3.8 Architectural Coating - 2013

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	0.13					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.81	2.81	0.00	0.00	2.81
Total	**0.14**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.81**	**2.81**	**0.00**	**0.00**	**2.81**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.00	0.00	0.12
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.12**	**0.12**	**0.00**	**0.00**	**0.12**

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	0.13					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.81	2.81	0.00	0.00	2.81
Total	**0.14**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.81**	**2.81**	**0.00**	**0.00**	**2.81**

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	0.00	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
Vendor	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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.00	0.00	0.12
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.12**	**0.12**	**0.00**	**0.00**	**0.12**

4.0 Mobile Detail

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	0.01	0.02	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	12.29	12.29	0.00	0.00	12.30
Unmitigated	0.01	0.02	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	12.29	12.29	0.00	0.00	12.30
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	9.62	1.82	0.94	24,511	24,511
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	9.62	1.82	0.94	24,511	24,511

4.3 Trip Type Information

	Miles			Trip %		
Land Use	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
General Light Industry	8.90	13.30	7.40	59.00	28.00	13.00
Other Asphalt Surfaces	8.90	13.30	7.40	0.00	0.00	0.00

5.0 Energy Detail

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						0.00	0.00		0.00	0.00	0.00	3.86	3.86	0.00	0.00	3.88
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	3.86	3.86	0.00	0.00	3.88
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.63
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.63
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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	tons/yr										MT/yr					
General Light Industry	30387.5	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.63
Other Asphalt Surfaces	0	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
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**1.62**	**1.62**	**0.00**	**0.00**	**1.63**

Mitigated

	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	tons/yr										MT/yr					
General Light Industry	30387.5	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.63
Other Asphalt Surfaces	0	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
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**1.62**	**1.62**	**0.00**	**0.00**	**1.63**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Light Industry	13268.8					3.86	0.00	0.00	3.88
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Total						**3.86**	**0.00**	**0.00**	**3.88**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
General Light Industry	13268.8					3.86	0.00	0.00	3.88
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Total						**3.86**	**0.00**	**0.00**	**3.88**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	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	0.06	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
Unmitigated	0.06	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
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	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	0.01					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.04					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**0.05**	**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**

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	0.01					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.04					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**0.05**	**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**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					25.78	0.21	0.01	31.88
Unmitigated					25.78	0.21	0.01	31.88
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Light Industry	6.78538 / 0					25.78	0.21	0.01	31.88
Other Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Total						**25.78**	**0.21**	**0.01**	**31.88**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
General Light Industry	6.78538 / 0					25.78	0.21	0.01	31.88
Other Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Total						**25.78**	**0.21**	**0.01**	**31.88**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					16.30	0.96	0.00	36.53
Unmitigated					16.30	0.96	0.00	36.53
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e

Land Use	tons	tons/yr				MT/yr			
General Light Industry	80.29					16.30	0.96	0.00	36.53
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Total						**16.30**	**0.96**	**0.00**	**36.53**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
General Light Industry	80.29					16.30	0.96	0.00	36.53
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Total						**16.30**	**0.96**	**0.00**	**36.53**

9.0 Vegetation

Energy Consumption for Wilson Reservoir

Calendar year 2010 consumption was 3,963,001 KWH.

Year	2,010	Future			
PTP Booster Pumps	-	-	kWh/Yr.	Pump station	1320 sf
AEP Bypass Pumps	-	-	kWh/Yr.	Operation bldg	55 sf
Total Annual	**3,963,001**	**-**	kWh/Yr.		**1375 sf**
Total Daily	10,858	-	kWh/Day		

GHG Emissions for Wilson Reservoir

	********2010 ********			
	CO2	**CH4**	**N2O**	
Emission Factors	641.260	0.029	0.011	CalEEMod for SCE
Emissions	2,541,314	115	44	
Emissions (MT)	1,153.05	0.05	0.02	
GWP	1	21	310	
Emissions CO2EQ	1,153	1	6	
Total MTCO2EQ/YR	**1,160**			
Construction Emissions	714			
30 yr Annualized EQ Constr	24			
Total MTCO2EQ/YR	**1,184**			

	2,010
Energy Consumption (kWh)	3,963,001
GHG Emissions Generated (MTCO2EQ)	1,160
Annualized Costruction:	24
GHG Emissions Saved (MTCO2EQ)	
GHG Emission Savings (MTCO2EQ)	**1,184**