Global Climate Change Evaluation

for the

9th and Palm Project
Imperial Beach, California

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Table of Contents

1.0 INTRODUCTION 1

1.1 General Principles and Existing Conditions 1

1.2 Sources and Global Warming Potentials of GHG 3

1.3 Regulatory Framework 6

1.3.1 National and International Efforts 6

1.3.2 State Regulations and Standards 8

1.3.2 Local Regulations and Standards 13

2.0 POTENTIAL CLIMATE CHANGE IMPACTS TO PROJECT SITE 14

2.1 Existing Conditions 14

2.2 Typical Adverse Effects 14

3.0 CLIMATE CHANGE SIGNIFICANCE CRITERIA 17

4.0 GREENHOUSE GAS INVENTORY 20

4.1 Existing Conditions 20

4.2 Construction Greenhouse Gas Emissions 22

4.3 Operational Greenhouse Gas Emissions 23

4.3.1 Energy Use 23

4.3.2 Water Usage 24

4.3.3 Vehicle Emissions 24

4.3.4 Solid Waste 24

4.3.5 Operational Emissions Summary 24

5.0 SUMMARY OF PROJECT DESIGN FEATURES, IMPACTS, AND MITIGATION MEASURES 26

6.0 CONCLUSIONS 30

7.0 REFERENCES 31

Appendix A Greenhouse Gas Emission Calculations

List of Acronyms

APCD	Air Pollution Control District
AB	Assembly Bill
AB 32	Assembly Bill 32, Global Warming Solutions Act of 2006
ARB	Air Resources Board
ASTM	American Society of Testing and Materials
CAPCOA	California Air Pollution Control Officers Association
CAT	Climate Action Team
CCAP	Center for Clean Air Policy
CCAR	California Climate Action Registry
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EV	Electric Vehicles
GCC	Global Climate Change
GHG	Greenhouse Gas
GGEP	Greenhouse Gas Emissions Policy
GGRP	Greenhouse Gas Reduction Plan
GP	General Plan
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
MMT	Million Metric Tons
MW	Megawatts
N_2O	Nitrous Oxide
NOx	Oxides of Nitrogen
OPR	State Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particulate Matter
ROG	Reactive Organic Gas
RPS	Renewable Portfolio Standards
S-3-05	Executive Order S-3-05
SB	Senate Bill
SDCGHGI	San Diego County Greenhouse Gas Inventory
SRI	Solar Reflective Index
THC	Total Hydrocarbon
UNFCCC	United Nations Framework Convention on Climate Change

URBEMIS	Urban Emissions Model
USBGC	U.S. Green Building Council
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

This report presents an assessment of potential air quality impacts associated with the 9th and Palm Project in the City of Imperial Beach. The evaluation addresses the potential for greenhouse gas emissions during construction and after full buildout of the project.

The proposed 9th and Palm Project is a redevelopment of an existing commercial site within the City of Imperial Beach. The project includes a mix of commercial-retail uses including a market, specialty retail, food service, fast food with a drive thru and a drug store. Existing on the Project site currently are several commercial uses including a drive-thru bank, a market, and specialty retail. The project is designed to allow for the redevelopment of the site at a future date to be coordinated and planned in such a way as to be complementary to the surrounding community.

This Global Climate Change analysis includes an evaluation of existing conditions in the project vicinity, an assessment of potential greenhouse gas emissions associated with project construction and operations, and project design features and other regulatory actions that will reduce greenhouse gas emissions.

1.1 General Principles and Existing Conditions

Global climate change (GCC) refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Gases that trap heat in the atmosphere are often called greenhouse gases, analogous to a greenhouse. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without these natural GHGs, the Earth's temperature would be about 61º Fahrenheit cooler (California Environmental Protection Agency 2006). Emissions from human

activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere.

GHGs have been at the center of a widely contested political, economic, and scientific debate surrounding GCC. Although the conceptual existence of GCC is generally accepted, the extent to which GHGs contribute to it remains a source of debate. The State of California has been at the forefront of developing solutions to address GCC. GCC refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. GCC may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land.

Global climate change attributable to anthropogenic (human) emissions of GHGs (mainly CO_2, CH_4 and N_2O) is currently one of the most important and widely debated scientific, economic and political issues in the United States. Historical records indicate that global climate changes have occurred in the past due to natural phenomena (such as during previous ice ages). Some data indicate that the current global conditions differ from past climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 3.6º Fahrenheit (2º Celsius), which is assumed to be necessary to avoid dangerous climate change (Association of Environmental Professionals 2007).

State law defines greenhouse gases as any of the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) (California Health and Safety Code Section 38505(g).) CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity.

1.2 Sources and Global Warming Potentials of GHG

The State of California GHG Inventory performed by the California Air Resources Board (ARB), compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2004, and is summarized in Table 1. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the Intergovernmental Panel on Climate Change (IPCC). The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation.

Table 1
State of California GHG Emissions by Sector

Sector	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2008 Emissions ($MMTCO_2e$)	Percent of Total 2008 Emissions
Agriculture	23.4	5%	28.06	6%
Commercial	14.4	3%	14.68	3%
Electricity Generation	110.6	26%	116.35	25%
Forestry (excluding sinks)	0.2	<1%	0.19	<1%
Industrial	103.0	24%	92.66	20%
Residential	29.7	7%	28.45	6%
Transportation	150.7	35%	174.99	37%
Recycling and Waste			6.71	1%
High GWP Gases			15.65	3%
Forestry Sinks	(6.7)		(3.98)	

When accounting for GHGs, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT).

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. Table 2 presents the GWP and atmospheric lifetimes of common GHGs.

Table 2
Global Warming Potentials and Atmospheric Lifetimes of GHGs

GHG	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (Years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12 ± 3
Nitrous Oxide	N_2O	310	120
Sulfur Hexafluoride	SF_6	23,900	3,200

Human-caused sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. Concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid.

Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

In addition to the State of California GHG Inventory, a more specific regional GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (University of San Diego 2008). This San Diego County Greenhouse Gas Inventory

(SDCGHGI) is a detailed inventory that takes into account the unique characteristics of the region in calculating emissions. The SDCGHGI calculated GHG emissions for 1990, 2006, and projected 2020 emissions. Based on this inventory and the emission projections for the region, the study found that emissions of GHGs must be reduced by 33 percent below business as usual in order for San Diego County to achieve 1990 emission levels by the year 2020. "Business as usual", or forecasted emissions, is defined as the emissions that would occur in the absence of AB 32's mandated reductions. Construction of buildings using Title 24 building standards or the County's 2006 building code would create "business as usual" emissions.

Areas where feasible reductions can occur and the strategies for achieving those reductions are outlined in the SDCGHGI. A summary of the various sectors that contribute GHG emissions in San Diego County for the year 2006 is provided in Table 3. Total GHGs in San Diego County are estimated at 34 $MMTCO_2e$.

Table 3
San Diego County 2006 GHG Emissions by Category

Sector	Total Emissions ($MMTCO_2e$)	Percent of Total Emissions
On-Road Transportation	16	46%
Electricity	9	25%
Natural Gas Consumption	3	9%
Civil Aviation	1.7	5%
Industrial Processes & Products	1.6	5%
Other Fuels/Other	1.1	4%
Off-Road Equipment & Vehicles	1.3	4%
Waste	0.7	2%
Agriculture/Forestry/Land Use	0.7	2%
Rail	0.3	1%
Water-Born Navigation	0.13	0.4%

The sources of GHG emissions, GWP, and atmospheric lifetime of GHGs are all important variables to be considered in the process of calculating CO_2e for discretionary land use projects that require a climate change analysis.

1.3 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. GHG emissions and the regulation of GHGs is a relatively new component of air quality.

1.3.1 National and International Efforts

GCC is being addressed at both the international and federal levels. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In October 1993, President Clinton announced his Climate Change Action Plan (CCAP), which had a goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of GCC. Recently, the United States Supreme Court declared in the court case of Massachusetts et al. vs. the Environmental Protection Agency et al., 549 C.S. 497 (2007) that the EPA does have the ability to regulate GHG emissions. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs.

Endangerment Finding. On April 17, 2009, EPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

> **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.
>
> **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The endangerment findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.

Mandatory GHG Reporting Rule. On March 10, 2009, in response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), EPA proposed a rule that requires mandatory reporting of greenhouse gas (GHG) emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed, and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. The rule will collect accurate and comprehensive emissions data to inform future policy decisions.

EPA is requiring suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA. The gases covered by the proposed rule are carbon

dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and other fluorinated gases including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

Corporate Average Fuel Economy Standards. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the United States. In 2007, as part of the Energy and Security Act of 2007, CAFE standards were increased for new light-duty vehicles to 35 miles per gallon by 2020. In May 2009, President Obama announced plans to increase CAFE standards to require light-duty vehicles to meet an average fuel economy of 35.5 miles per gallon by 2016.

1.3.2 State Regulations and Standards

The following subsections describe regulations and standards that have been adopted by the State of California to address GCC issues.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, Governor Schwartzenegger signed California AB 32, the global warming bill, into law. AB 32 directs the ARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.
- 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, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG

emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.

- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 required that by January 1, 2008, ARB determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. ARB adopted its Scoping Plan in December 2008, which provided estimates of the 1990 GHG emissions level and identified sectors for the reduction of GHG emissions. The ARB has estimated that the 1990 GHG emissions level was 427 MMT net CO_2e (ARB 2007a). The ARB estimates that a reduction of 173 MMT net CO_2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels (ARB 2007a). This amounts to a 15 percent reduction from today's levels, and a 30 percent reduction from projected business-as-usual levels in 2020 (ARB 2008a).

Senate Bill 97. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs OPR to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

The Governor's Office of Planning and Research (OPR) published a technical advisory on CEQA and Climate Change on June 19, 2008. The guidance did not include a suggested threshold. The OPR does recommend that CEQA analyses include the following components:

- Identify greenhouse gas emissions
- Determine Significance
- Mitigate Impacts

In April, the OPR published its proposed revisions to CEQA to address GHG emissions. The amendments to CEQA indicate the following:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

On July 3, the California Natural Resources Agency published proposed amendment of regulations based on OPR's proposed revisions to CEQA to address GHG emissions. On that date, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Having reviewed and considered all comments received, on December 30, 2009, the

Natural Resources Agency adopted the proposed amendments to the state CEQA guidelines in the California Code of Regulations. These amendments became final on March 18, 2010.

Executive Order S-3-05. Executive Order S-3-05, signed by Governor Schwartzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions by 2050. Executive Order S-3-05 also calls for the California EPA (CalEPA) to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

Executive Order S-21-09. Executive Order S-21-09 was enacted by the Governor on September 15, 2009. Executive Order S-21-09 requires that the ARB, under its AB 32 authority, adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target as established in Executive Order S-14-08. Under Executive Order S-21-09, the ARB will work with the Public Utilities Commission and California Energy Commission to encourage the creation and use of renewable energy sources, and will regulate all California utilities. The ARB will also consult with the Independent System Operator and other load balancing authorities on the impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of the Executive Order. The order requires the ARB to establish highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

California Code of Regulations Title 24. Although not originally intended to reduce greenhouse gas emissions, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The GHG emission inventory was based on Title 24 standards as of October 2005; however, Title 24 has been updated as of 2008 and standards are

set to be phased in beginning in January 2010. The new Title 24 standards are anticipated to increase energy efficiency by 15%, thereby reducing GHG emissions from energy use by 15% (Eden 2009). Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions.

State Standards Addressing Vehicular Emissions. California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by ARB would apply to 2009 and later model year vehicles. ARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030 (AEP 2007). Once implemented, emissions from new light-duty vehicles are expected to be reduced in San Diego County by 21 percent by 2020. The ARB has adopted amendments to the "Pavley" regulations that reduce greenhouse gas (GHG) emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016. ARB's September amendments will cement California's enforcement of the Pavley rule starting in 2009 while providing vehicle manufacturers with new compliance flexibility. The amendments will also prepare California to harmonize its rules with the federal rules for passenger vehicles.

Executive Order S-01-07 was enacted by the Governor on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. It is assumed that the effects of the LCFS would be a 10% reduction in GHG emissions from fuel use by 2020. On April 23, 2009, ARB adopted regulations to implement the LCFS.

Senate Bill 375. Senate Bill 375 requires that regions within the state which have a metropolitan planning organization must adopt a sustainable communities strategy as part of their regional

transportation plans. The strategy must be designed to achieve certain goals for the reduction of GHG emissions. The bill finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 provides that new CEQA provisions be enacted to "encourage developers to submit applications and local governments to make land use decisions that will help the state achieve its goals under AB 32," and that "current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives."

1.3.2 Local Regulations and Standards

To date, the City of Imperial Beach has not adopted specific requirements to address state and federal efforts to reduce GHG emissions.

2.0 POTENTIAL CLIMATE CHANGE IMPACTS TO PROJECT SITE

2.1 Existing Conditions

The site is currently developed, with approximately 70,000 of mixed uses. Existing uses on the project site include a drive-thru bank, supermarket, food service uses, and specialty retail. The site as it exists is a source of GHG emissions.

2.2 Typical Adverse Effects

The Climate Scenarios Report (CCCC 2006), uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century. Three warming ranges were identified: Lower warming range (3.0 to 5.5 degrees Fahrenheit (ºF)); medium warming range (5.5 to 8.0 ºF); and higher warming range (8.0 to 10.5 ºF). The Climate Scenarios Report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

Public Health. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to O_3 formation are projected to increase by 25 to 35 percent under the lower warming range and 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as is predicted in some scenarios, it may become impossible to meet local air quality standards. An increase in wildfires could also occur, and the corresponding increase in the release of pollutants including $PM_{2.5}$ could further compromise air quality. The Climate Scenarios Report indicates that large wildfires could become up to 55 percent more frequent of GHG emissions are not significantly reduced.

Potential health effects from GCC may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects.

Water Resources. A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. The State's water resources are also at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers.

Agriculture. Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture would also impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases.

Ecosystems/Habitats. Continued global warming will likely shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming is also likely to increase the populations of and types of pests. Continued global warming would also affect natural ecosystems and biological habitats throughout the State.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State.

Rising Sea Levels. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats.

Sea levels rose approximately 7 inches during the last century (IPCC 2007) and the State of California predicts an additional rise of 10 to 17 inches by 2050 and a rise of 31–69 inches by 2100, depending on the future levels of GHG emissions (State of California 2010). If this occurs, resultant effects could include increased coastal flooding. Sea level rise adaptation strategies include strategies that involve construction of hard structures as barriers, such as seawalls and levees; soft structure strategies such as wetland enhancement, detention basins, and other natural strategies; accommodation strategies that include grade elevations, elevated structures, and other building design options; and withdrawal strategies that limit development to areas unaffected by sea level rise.

Compliance with IBMC Section 15.50.160, Flood Hazard Reduction Standards, would require development within coastal high hazard areas to be elevated above the base flood level and be adequately anchored to resist flotation, collapse, and lateral movement as detailed in the regulatory setting section. The 9th and Palm Project is not within the coastal high hazard area, and is therefore not subject to the standards. It is not anticipated that the levels of sea level rise predicted for the area would affect the project.

3.0 CLIMATE CHANGE SIGNIFICANCE CRITERIA

According to the California Natural Resources Agency[1], "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis." According to Appendix G of the CEQA Guidelines, the following criteria may be considered to establish the significance of GCC emissions:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

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

(2) Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

[1] California Natural Resources Agency, Initial Statement of Reasons for Regulatory Action, Proposed Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gases Pursuant to SB 97. July 2009.

(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; and

(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.

The City of Imperial Beach has not adopted quantitative thresholds for the evaluation of GHG impacts. Some other lead agencies and organizations within the state have proposed and adopted specific guidance on GHG significance thresholds.

The California Air Pollution Control Officers Association proposed a a screening threshold of 900 metric tons of CO_2e to evaluate whether a project requires further analysis. Projects with emissions above the 900 metric ton threshold are required to evaluate whether emissions can be reduced below "business as usual" levels.

The City of San Diego has adopted a threshold based on the ARB's Scoping Plan. Based on the ARB's analysis that statewide 2020 business as usual GHG emissions would be 596 MMTCO_2e and that 1990 emissions were 427 MMTCO_2e, local lead agencies have estimated that a reduction of 28.3% below business as usual is required to achieve the AB 32 reduction mandate (ARB 2010). According to the ARB (ARB 2010), "ARB staff estimated 2020 business-as-usual GHG emissions, which represent the emissions that would be expected to occur in the absence of any GHG reductions actions. ARB staff estimates the statewide 2020 business-as-usual greenhouse gas emissions will be 596 MMTCO_2E. Emission reductions from the recommended measures in the Scoping Plan total 169 MMTCO_2E, allowing California to attain the 2020 emissions limit of 427 MMTCO_2E.

The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors. For the purposes of the Scoping Plan, ARB used three-year average emissions, by sector, for 2002-2004 to forecast

emissions to 2020. At the time the Scoping Plan process was initiated, 2004 was the most recent year for which actual data were available."

According to the ARB (ARB 2010), "Growth factors are sector-specific and are derived from several sources, including the energy demand models generated by California Energy Commission (CEC) for their 2007 Integrated Energy Policy Report (IEPR), business economic growth data developed for ARB's criteria pollutant forecast system (CEFS), population growth data from the California Department of Finance, and projections of vehicle miles traveled from ARB's on-road mobile source emissions model, EMFAC2007. For the electricity and other energy sectors, ARB consulted with CEC to select the most appropriate growth factor."

The BAAQMD has adopted a 2020 service population metric of 6.6 MT CO_2e per service population per year (BAAQMD 2010). This threshold is based on a "gap-based approach", which identifies the additional amount of emission reductions needed statewide from land use-driven emissions to meet the GHG reduction goals. The SCAQMD Working Group has proposed several possible thresholds for analysis of general and area plan impacts, including a 2020 service population metric of 6.6 MT CO_2e/SP/yr (SCAQMD 2009), which is consistent with the significance threshold for general plans adopted by the BAAQMD. This threshold is appropriate for general and area plans rather than for individual projects, and is therefore not proposed as a significance threshold for the 9th and Palm Project.

A reduction from business as usual of 28.3% is therefore used in this analysis to evaluate significance of global climate change impacts.

4.0 GREENHOUSE GAS INVENTORY

GHG emissions associated with the 9th and Palm Project were estimated separately for five categories of emissions: (1) construction; (2) energy use, including electricity and natural gas usage; (3) water consumption; (4) solid waste handling; and (5) transportation. The analysis includes a baseline estimate assuming Title 24-compliant buildings, which is considered business as usual for the Project. Emissions were estimated based on emission factors from the California Climate Action Registry General Reporting Protocol (CCAP 2009). This inventory presents emissions based on "business as usual" assumptions.

4.1 Existing Conditions

The site is currently occupied by approximately 70,000 square feet of mixed land uses, including a bank with drive thru, supermarket, food service, and specialty retail. Based on the Traffic Impact Analysis (Urban Systems 2011), the net cumulative trip generation for the existing uses is 3,807 ADT. Vehicles are a source of existing GHG emissions. In addition to GHGs generated by vehicles, indirect GHG emissions are generated from electricity, natural gas, and water use.

Baseline energy use was calculated as a function of kWh per square foot based on average performance for California commercial buildings, according to the *California Commercial End-Use Survey* (CEC 2006). The energy use figures in these reports represent current state-wide average uses for all land uses, including those that are compliant with 2005 Title 24 standards. Because the existing buildings were constructed prior to adoption of these energy efficiency standards, it is likely that energy efficiency is lower and that average energy use figures underestimate energy use for these buildings. Thus the baseline energy use provides a conservative estimate of current energy requirements relative to future energy requirements.

Electricity usage rates for the existing space were calculated from the *California Commercial End-Use Survey* (CEC 2006) based on estimated annual rates of 13.63 kilowatt-hours (kWh) per square foot for the bank (for general commercial uses); 40.99 kWh/square foot for the supermarket; 40.20 kWh/square foot for the food service uses; and 14.06 kWh/square foot for the specialty retail uses. Emissions were calculated based on emission factors in the California

Climate Action Registry General Reporting Protocol, Version 3.1 (CCAR 2009), which assumes that for California, energy use (electricity) would have emissions of 724.12 lbs/MWh of CO_2, 0.0302 lbs/MWh of CH_4, and 0.0081 lbs/MWh of N_2O. Natural gas usage rates were calculated based on estimated annual rates of 25.99 kiloBTUs/square foot/year for the bank, 27.60 kiloBTUs/square foot for the supermarket, 209.98 kiloBTUs/square foot for the food service uses, and 4.62 kiloBTUs/square foot for the retail uses. For natural gas usage, the Protocol assumes that natural gas would have emissions of 53.06 kg/MMBTU of CO_2, 0.0059 kg/MMBTU of CH_4, and 0.0001 kg/MMBTU of N_2O.

Water use and energy use are often closely linked. The provision of potable water to commercial consumers requires large amounts of energy associated with five stages: (1) source and conveyance, (2) treatment, (3) distribution, (4) end use and (5) wastewater treatment. Existing water use was estimated based on a usage rate of 35 gallons per square foot annually (Dziegelewski 2000). The existing water use was estimated at 2,450,000 gallons.

The California Energy Commission (2006b) estimates that in southern California, water usage will have an embodied energy of 12,700 kWh per million gallons. Emissions of greenhouse gases were calculated based on the California Climate Action Registry General Reporting Protocol (CCAP 2007b), which assumes that energy use (electricity) would have emissions of 724.12 lbs/MWh of CO_2, 0.0302 lbs/MWh of CH_4, and 0.0081 lbs/MWh of N_2O.

Solid waste generation will also contribute to emissions of GHGs, through waste collection and management activities and emissions of GHGs from landfilling. Solid waste GHG emissions were calculated using the CalEEMod Model (ENVIRON 2011).

Emissions from vehicles were estimated using the EMFAC2007 model (ARB 2007a) emission factors, assuming an average trip length of 5.8 miles based on data for average trip lengths within San Diego County estimated by the San Diego Association of Governments (SANDAG).

Estimated GHG emissions associated with existing uses are presented in Table 4.

Table 4 SUMMARY OF ESTIMATED EXISTING OPERATIONAL GREENHOUSE GAS EMISSIONS				
Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Electricity Use	407	0.0169	0.0046	409
Natural Gas Use	69	0.0076	0.0001	69
Water Use	12	0.00009	0.00005	12
Solid Waste Management	63	-	-	63
Vehicle Emissions	3,567	0.23	0.14	3,616
Total	**4,118**	**0.25**	**0.14**	**4,169**
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	4,118	5	43	4,169
TOTAL Existing CO_2 Equivalent Emissions	**4,169**			

4.2 Construction Greenhouse Gas Emissions

Construction GHG emissions include emissions from heavy construction equipment, truck traffic, and worker trips. Emissions were calculated using the CalEEMod Model, which is the newest land use emissions model developed by ENVIRON and the SCAQMD (ENVIRON 2011), for completed and proposed construction. CalEEMod contains emission factors from the OFFROAD2007 model for heavy construction equipment (ARB 2007), and from the EMFAC2007 model for on-road vehicles. Table 5 presents the construction-related emissions associated with construction of the project.

Table 5
Construction GHG Emissions
Metric tons/year

Construction Phase	CO_2 Emissions, metric tons
Construction	1,141

Lead agencies, including the South Coast Air Quality Management District, the City of San Diego, and the County of San Diego, recommend that construction emissions be amortized over a 30-year period to account for the contribution of construction emissions over the lifetime of the

project. Amortizing the emissions from construction of the Proposed Project over a 30-year period would result in an annual contribution of 38 metric tons of CO_2e. These emissions are added to operational emissions to account for the contribution of construction to GHG emissions for the lifetime of the project.

4.3 Operational Greenhouse Gas Emissions

The proposed 9th and Palm Project is a redevelopment of the existing 70,000 square feet with 46,200 square feet of mixed uses. The uses include a food market, specialty retail, food service, fast food with drive-thru, retail/financial, and a drug store. As for the existing development, GHG emissions for the 9th and Palm Project were estimated for five categories of emissions: (1) construction; (2) energy use, including electricity and natural gas usage; (3) water consumption; (4) solid waste management, and (5) transportation. Emissions were estimated using the methodologies described below.

4.3.1 Energy Use

Business as usual electricity usage rates for the existing space were calculated from the *California Commercial End-Use Survey* (CEC 2006) based on estimated annual 40.99 kWh/square foot for the supermarket; 40.20 kWh/square foot for the food service uses; and 14.06 kWh/square foot for the drug store and specialty retail uses. Emissions were calculated based on emission factors in the California Climate Action Registry General Reporting Protocol, Version 3.1 (CCAR 2009), which assumes that for California, energy use (electricity) would have emissions of 724.12 lbs/MWh of CO_2, 0.0302 lbs/MWh of CH_4, and 0.0081 lbs/MWh of N_2O. Natural gas usage rates were calculated based on estimated annual rates of 27.60 kiloBTUs/square foot for the supermarket, 209.98 kiloBTUs/square foot for the food service uses, and 4.62 kiloBTUs/square foot for the drug store, retail/financial, and retail uses. For natural gas usage, the Protocol assumes that natural gas would have emissions of 53.06 kg/MMBTU of CO_2, 0.0059 kg/MMBTU of CH_4, and 0.0001 kg/MMBTU of N_2O.

4.3.2 Water Usage

GHG emissions were calculated on the basis of the embodied energy of water as discussed under existing conditions. Water usage was estimated based on an estimated water usage of 35 gallons per year per square foot (Dziegielewski 2000). Total water usage would therefore be 1,617,000 gallons per year.

4.3.3 Vehicle Emissions

Mobile source greenhouse gas emissions were estimated based on the projected ADTs from the Traffic Impact Analysis (Urban Systems 2011). Based on the analysis, the net cumulative trip generation for the project is 5,616 ADT. Emissions from vehicles were estimated using the EMFAC2007 model (ARB 2007a) emission factors, assuming an average trip length of 5.8 miles based on data for average trip lengths within San Diego County estimated by the San Diego Association of Governments (SANDAG).

4.3.4 Solid Waste

Solid waste generation will also contribute to emissions of GHGs, through waste collection and management activities and emissions of GHGs from landfilling. Solid waste GHG emissions were calculated using the CalEEMod Model (ENVIRON 2011).

4.3.5 Operational Emissions Summary

The results of the inventory for operational emissions for business as usual are presented in Table 6. These include GHG emissions associated with buildings (natural gas, purchased electricity), water consumption (energy embodied in potable water), solid waste management (including transport and landfill gas generation), and vehicles. Table 6 summarizes projected emissions using the methodologies noted above.

Table 6 SUMMARY OF ESTIMATED OPERATIONAL GREENHOUSE GAS EMISSIONS BUSINESS AS USUAL SCENARIO				
Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Electricity Use	451	0.0188	0.0050	453
Natural Gas Use	166	0.0184	0.0003	166
Water Use	7	0.0003	0.00007	7
Solid Waste Management	112	-	-	112
Vehicle Emissions	5,262	0.33	0.21	5,334
Amortized Construction Emissions	38	-	-	38
Total	**6,036**	**0.37**	**0.22**	**6,110**
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	**6,036**	**8**	**67**	**6,110**
TOTAL CO_2 Equivalent Emissions	**6,110**			
Existing CO_2 Equivalent Emissions	**4,169**			
Net CO_2 Equivalent Emissions	**1,941**			

As shown in Table 6, the net emissions associated with the 9th and Palm Project are above the 900 metric ton screening threshold. The project was therefore evaluated to assess the GHG emission reductions that would be achieved through state and federal programs and through project design features.

5.0 SUMMARY OF PROJECT DESIGN FEATURES, IMPACTS, AND MITIGATION MEASURES

As discussed in Section 3.0, a significance threshold of 28.3% below "business as usual" levels is considered to demonstrate that a project would be consistent with the goals of AB 32. As shown in Table 6, and as discussed in the ARB's *Staff Report, California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit* (ARB 2007a), vehicular emissions are the greatest contributor to GHG emissions. Because the applicant does not have direct control over the types of vehicles or emission/fuel standards, the effect of California programs to reduce GHG emissions from vehicles was evaluated.

Based on the SDCGHGI, the percent reductions in GHG emissions anticipated through implementation of the Federal CAFE standards, LCFS, and Pavley fuel efficiency standard (analogous to the Federal CAFE standard), as well as the effect of light/heavy vehicle efficiency/hybridization programs can be estimated. Based on that study, emissions from vehicles would be reduced by 20 percent through implementation of the Federal CAFE standard/Pavley standard and 10 percent through implementation of the LCFS. Emissions from vehicles would therefore be reduced by as much as 30 percent from state and federal programs by the year 2020.

In addition to the Pavley fuel efficiency standards and the LCFS, included in the ARB's Scoping Plan (ARB 2008) are strategies to reduce emissions by increasing efficiency, optimizing aerodynamics, and converting combustion-only vehicles to hybrids. According to the SDCGHGI, although these on-road emissions reduction measures are intended for implementation at the state level, several on-road transportation strategies were scaled down to San Diego County using data related to CO_2e emissions, vehicle population, and vehicle type. When scaled down, the ARB's transportation efficiency, aerodynamics, and hybrid conversion strategies translate to an emissions reduction of 0.6 MMT CO_2e for San Diego County by 2020, which amounts to a reduction in vehicle emissions of approximately 3%. The Scoping Plan measures apply to both light-duty vehicles (Measure T-4) and medium and heavy-duty vehicles (Measures T-7 and T-8). Measure T-4 includes such vehicle efficiency measures as

implementation of a properly inflated tire program, use of low-friction engine oils, requiring solar-reflective automotive paints and window glazing, and implementing a tire tread program that develops and adopts tire rolling resistance standards. Measure T-7 would require existing trucks and trailers to be retrofitted with the best available technology and/or ARB approved technology. The retrofits would improve fuel efficiency of trucks by including devices that reduce aerodynamic drag and rolling resistance. Measure T-8 will require medium and heavy-duty vehicles to be converted to hybrid vehicles; these vehicles include parcel delivery trucks and vans, utility trucks, garbage trucks, buses, and other vocational work trucks.

According to the Scoping Plan, Measure T-4 would result in a reduction in GHG emissions from light-duty vehicles of 4.5 MMT CO_2e by 2020 (a reduction of 2.0% from business as usual emissions); Measure T-7 would result in a reduction in GHG emissions from heavy-duty vehicles of 0.93 MMT CO_2e by 2020 (a reduction of 0.4% from business as usual emissions); and Measure T-8 would result in a reduction in GHG emissions from medium- and heavy-duty vehicles of 0.5 MMT CO_2e by 2020 (a reduction of 0.2% from business as usual emissions). Because the project would not generate substantial heavy-duty truck traffic, it is appropriate to include the reductions in GHG emissions associated with Measures T-4 and T-8, but not with Measure T-7. The associated GHG emission reductions would be 2.2% from business as usual.

In addition to the energy efficiency and mobile source emissions reductions discussed above, reductions attributable to California's RPS (SB 1078; 2002) were included in the emission calculations for electricity use. SB 1078 initially set a target of 20% of energy to be sold from renewable sources by the year 2017. The schedule for implementation of the RPS was accelerated in 2006 with the Governor’s signing of SB 107, which accelerated the 20% RPS goal from 2017 to 2010. On November 17, 2008, the Governor signed Executive Order S-14-08, which requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. The Governor signed Executive Order S-21-09 on September 15, 2009, which directs ARB to implement a regulation consistent with the 2020 33% renewable energy target by July 31, 2010. As of September 23, 2010, the ARB has adopted the regulation that implements the 33% renewable energy standard.

According to the SDCGHGI, implementation of the 20% RPS goal by 2010 would reduce GHG emissions by a further 14% from 2006 levels; the inventory estimated that San Diego Gas and Electric was providing 6% of its electricity from renewable resource in 2006. To account for the implementation of the 20% RPS, a 14% reduction in GHG emissions was assumed. Implementation of Executive Order S-21-09 (i.e., the 33% RPS) will result in additional GHG reductions of 27% below 2006 levels.

Based on information regarding Title 24 standards as of 2008 (CEC 2007), it is anticipated that for the San Diego climate zone, estimated electricity savings for nonresidential buildings are 8.596% and natural gas savings are 8.633%. These reductions were considered in calculating emissions with GHG reduction measures.

Table 7 presents the estimated GHG emissions for the project, with implementation of the GHG reduction measures summarized.

Table 7
SUMMARY OF ESTIMATED OPERATIONAL GREENHOUSE GAS EMISSIONS WITH GHG REDUCTION MEASURES

Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Electricity Use	301	0.0126	0.0034	302
Natural Gas Use	151	0.0168	0.0003	152
Water Use	5	0.0002	0.00006	5
Solid Waste Management	112	-	-	112
Vehicle Emissions	3,568	0.23	0.16	3,623
Amortized Construction Emissions	38	-	-	38
Total	**4,175**	**0.26**	**0.16**	**4,232**
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	**4,175**	**5**	**50**	**4,232**
TOTAL CO_2 Equivalent Emissions	**4,232**			
Business as Usual CO_2 Equivalent Emissions	**6,110**			
Percent Reduction from Business as Usual	**30.74%**			

As shown in Table 7, emissions from the 9th and Palm Project, considering GHG reduction measures discussed above, will be more than 28.3% below business as usual. Furthermore, the net GHG emissions from existing conditions would result in an increase of only 59 metric tons of CO2e. Accordingly, the 9th and Palm Project will meet the goals of AB 32 and would not result in cumulatively considerable significant global climate impacts.

6.0 CONCLUSIONS

Emissions of GHGs were quantified for both construction and operation of the 9th and Palm Project. Operational emissions were calculated assuming a "business as usual" operational scenario as well as an operational scenario with GHG reduction measures employed. Based on the analysis, quantifiable emission reductions that will be implemented through state and local requirements demonstrate that emissions will be reduced by more than 28.3% below "business as usual" levels. The project would therefore be consistent with the goals of AB 32, and would not result in a significant global climate change impact.

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Appendix A

Greenhouse Gas Emission Calculations

Table A-1
Electricity Greenhouse Gas Emissions - Existing Conditions
9th and Palm Project

Electricity

Land Use	Units, 1000 SF	Usage Rate [a] (kWh\sf\yr)	(KWh\year)	MWh\year
Project				
Bank	3.9	13.63	53,634	53.63
Supermarket	6.2	40.99	253,359	253.36
Food Service	3.6	40.20	145,886	145.89
Specialty Retail	55.9	14.06	786,418	786.42
Total Project			**1,239,297**	**1,239**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	724.12	897399.7581	407.0533511	407.0533511
CH_4	0.0302	37.42677	0.016976483	0.356506153
N_2O	0.0081	10.03830586	0.004553295	1.411521522
				408.82

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-2
Natural Gas Greenhouse Gas Emissions - Existing Conditions
9th and Palm Project

Natural Gas

Land Use	Units, 1000 SF	Usage Rate per SF or unit Therms/Year	Total Natural Gas Usage Therms/Year	Total Natural Gas Usage (MMBTU\year)
Project				
Bank	3.9	0.26	1,023	102
Supermarket	6.2	0.28	1,706	171
Food Service	3.6	2.10	7,620	762
Specialty Retail	55.9	0.05	2,584	258
Total Project			12,933	**1,293**

GHG	Kg/MMBtu[b]	Kg	metric tons	CO_2E (Metric Tons)
Project				
CO_2	53.06	68,622.19	68.62	68.62
CH_4	0.0059	7.63	0.0076	0.16
N_2O	0.0001	0.13	0.0001	0.04
				68.82

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-3
Water Use Greenhouse Gas Emissions - Existing Conditions
9th and Palm Project

Water Usage

Land Use	GPY	Usage Rate (kWh\MMgal)	(KWh\year)	MWh\year
Project	2450000	12700	31,115	31.12
Total Project			**31,115**	**31.12**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	878.71	27341.06165	12.40168684	12.40168684
CH_4	0.0067	0.2084705	9.45606E-05	0.001985772
N_2O	0.0037	0.1151255	5.222E-05	0.016188202
				12.42

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-4
Solid Waste Management Existing GHG Emissions
9th and Palm Project

Solid Waste Management

Land Use	Units, 1000 sf	Solid Waste generation, tons/unit or sf	Solid Waste Tons/year
Project			
Bank	3.9	0.0108	42.50
Supermarket	6.2	0.0108	66.75
Food Service	3.6	0.0108	39.19
Specialty Retail	55.9	0.0108	604.08
Total Project			**752.52**

GHG	Metric Tons/ton	lbs	metric tons	CO_2E
Project				
CO_2e	1.51		0	63
				63.00

Table A-5
On-Road Mobile Source Greenhouse Gas Emissions - Existing Conditions
9th and Palm Project

On Road Mobile Source

Land Use	Daily VMT	Annual VMT[a]
Total Project	**22,081**	**8,059,419.00**

[a] Multiplied Daily VMT by 365 to get Annual VMT
[b] Factors dervied from EMFAC2007

San Diego County CO_2 2012 AVG Gram/Mile[c]	**442.584**
San Diego County CH_4 2012 AVG Gram/Mile[c]	**0.028**
N_2O Gram/Mile	**0.0177**

GHG	Gram/Mile	Gram	metric tons	CO_2E (Metric Tons)
Project				
CO_2	442.584	3,566,969,898.70	3,566.97	3,566.97
CH_4	0.028	225,663.73	0.23	4.74
N_2O	0.0177	142,651.72	0.14	44.22
				3615.93

[c] Averaged EMFAC2007 fleet values for 30 mph
[d] Emission Factor for N_2O based on CCAP

Table A-6
Electricity Greenhouse Gas Emissions - Business As Usual
9th and Palm Project

Electricity

Land Use	1,000 Sqft or units	Usage Rate [a] (kWh\sq.ft\yr)	(KWh\year)	MWh\year
Project			0	0.00
Market	14.8	40.99	606,652	606.65
Specialty Retail	3.8	14.06	53,428	53.43
Food Service	10.8	40.20	434,160	434.16
Fast Food with Drive	1.7	40.20	68,340	68.34
Drug Store	15.0	14.06	210,900	210.90
Total Project			**1,373,480**	**1373.48**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	724.12	994564.3376	451.126427	451.126427
CH_4	0.0302	41.479096	0.018814586	0.395106308
N_2O	0.0081	11.125188	0.005046296	1.564351845
				453.09

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-7
Natural Gas Greenhouse Gas Emissions - Business As Usual
9th and Palm Project

Natural Gas

Land Use	1,000 Sqft	Usage Rate per SF or unit Therms/Year	Total Natural Gas Usage Therms/Year	Total Natural Gas Usage (MMBTU\year)
Project				
Market	14.8	0.2760	4,085	408
Specialty Retail	3.8	0.0462	176	18
Food Service	10.8	2.0998	22,678	2,268
Fast Food with Dri	1.7	2.0998	3,570	357
Drug Store	15.0	0.0462	693	69
Total Project			31,201	**3,120**

GHG	Kg/MMBtu[b]	Kg	metric tons	CO_2E (Metric Tons)
Project				
CO_2	53.06	165,551.76	165.55	165.55
CH_4	0.0059	18.41	0.0184	0.39
N_2O	0.0001	0.31	0.0003	0.10
				166.04

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-8
Water Use Greenhouse Gas Emissions - Business As Usual
9th and Palm Project

Water Usage

Land Use	GPY	Usage Rate (kWh\MMgal)	(KWh\year)	MWh\year
Project	1617000	12700	20,536	20.54
Total Project			**20,536**	**20.54**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	724.12	14870.45591	6.745119836	6.745119836
CH_4	0.0302	0.62018418	0.000281311	0.005907522
N_2O	0.0081	0.16634079	7.54509E-05	0.023389764
				6.77

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-9
Solid Waste Management Business As Usual GHG Emissions
9th and Palm Project

Solid Waste Management

Land Use	Units	Solid Waste generation, tons/unit or sf	Solid Waste Tons/year
Project			
Market	14.8	0.0108	159.84
Specialty Retail	3.8	0.0108	41.04
Food Service	10.8	0.0108	116.64
Fast Food with Drive-Thru	1.7	0.0108	18.36
Drug Store	15.0	0.0108	162.00
Total Project			**335.88**

GHG	Metric Tons/ton	lbs	metric tons	CO_2E
Project				
CO_2e	1.51		0	112
				112.00

Table A-10
On-Road Mobile Source Greenhouse Gas Emissions - Business As Usual
9th and Palm Project

On Road Mobile Source

Land Use	Daily VMT	Annual VMT[a]
Total Project	**32,573**	**11,889,072.00**

[a] Multiplied Daily VMT by 365 to get Annual VMT
[b] Factors derived from EMFAC2007

San Diego County CO_2 2012 AVG Gram/Mile[c]	**442.584**
San Diego County CH_4 2012 AVG Gram/Mile[c]	**0.028**
N_2O Gram/Mile	**0.0177**

GHG	Gram/Mile	Gram	metric tons	CO_2E (Metric Tons)
Project				
CO_2	442.584	5,261,913,042.05	5,261.91	5,261.91
CH_4	0.028	332,894.02	0.33	6.99
N_2O	0.0177	210,436.57	0.21	65.24
				5334.14

[c] Averaged EMFAC2007 fleet values for 30mph
[d] Emission Factor for N_2O based on CCAP

Table A-11
Electricity Greenhouse Gas Emissions - with GHG Reductions
9th and Palm Project

Electricity

Land Use	1,000 Sqft or units	Usage Rate [a] (kWh\sq.ft\yr)	(KWh\year)	MWh\year
Project			0	0.00
Market	14.8	37.47	554,504	554.50
Specialty Retail	3.8	12.85	48,835	48.84
Food Service	10.8	36.74	396,840	396.84
Fast Food with Drive	1.7	36.74	62,465	62.47
Drug Store	15.0	12.85	192,771	192.77
Total Project			**1,255,416**	**1255.42**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	528.6076	663622.2586	301.0137475	301.0137475
CH_4	0.022046	27.67689362	0.012554018	0.263634368
N_2O	0.005913	7.423272793	0.003367137	1.043812517
				302.32

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-12
Natural Gas Greenhouse Gas Emissions - with GHG Reductions
9th and Palm Project

Natural Gas

Land Use	1,000 Sqft	Usage Rate per SF or unit Therms/Year	Total Natural Gas Usage Therms/Year	Total Natural Gas Usage (MMBTU\year)
Project				
Market	14.8	0.2522	3,732	373
Specialty Retail	3.8	0.0422	160	16
Food Service	10.8	1.9185	20,720	2,072
Fast Food with Dri	1.7	1.9185	3,261	326
Drug Store	15.0	0.0422	633	63
Total Project			28,507	**2,851**

GHG	Kg/MMBtu[b]	Kg	metric tons	CO_2E (Metric Tons)
Project				
CO_2	53.06	151,259.68	151.26	151.26
CH_4	0.0059	16.82	0.0168	0.35
N_2O	0.0001	0.29	0.0003	0.09
				151.70

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-13
Water Use Greenhouse Gas Emissions - with GHG Reductions
9th and Palm Project

Water Usage

Land Use	GPY	Usage Rate (kWh\MMgal)	(KWh\year)	MWh\year
Project	1617000	12700	20,536	20.54
Total Project			**20,536**	**20.54**

GHG	lbs/MWh[b]	lbs	metric tons	CO_2E
Project				
CO_2	528.6076	10855.43281	4.92393748	4.92393748
CH_4	0.022046	0.452734451	0.000205357	0.004312491
N_2O	0.005913	0.121428777	5.50791E-05	0.017074528
				4.95

[b] Emission factors for CO_2, CH_4, and N_2O were derived from the California Climate Action Registry General Reporting Protocol; Version 3.1, January 2009

Table A-14
Solid Waste Management GHG Emissions - with GHG Reductions
9th and Palm Project

Solid Waste Management

Land Use	Units	Solid Waste generation, tons/unit or sf	Solid Waste Tons/year
Project			
Market	14.8	0.0108	159.84
Specialty Retail	2.6	0.0108	28.08
Food Service	10.8	0.0108	116.64
Fast Food with Drive-Thru	1.7	0.0108	18.36
Drug Store	15.0	0.0108	162.00
Total Project			**322.92**

GHG	Metric Tons/ton	lbs	metric tons	CO_2E
Project				
CO_2e	1.51		0	112
				112.00

Table A-15
On-Road Mobile Source Greenhouse Gas Emissions - with GHG Reductions
9th and Palm Project

On Road Mobile Source

Land Use	Daily VMT	Annual VMT[a]
Total Project	**32,573**	**11,889,072.00**

[a] Multiplied Daily VMT by 365 to get Annual VMT
[b] Factors derived from EMFAC2007

San Diego County CO_2 2012 AVG Gram/Mile[c]	**442.584**
San Diego County CH_4 2012 AVG Gram/Mile[c]	**0.028**
N_2O Gram/Mile	**0.0177**

GHG	Gram/Mile	Gram	metric tons	CO_2E (Metric Tons)
Project				
CO_2	300.07195	3,567,577,042.51	3,567.58	3,567.58
CH_4	0.018984	225,702.14	0.23	4.74
N_2O	0.0137706	163,719.65	0.16	50.75
				3623.07

[c] Averaged EMFAC2007 fleet values for 30mph
[d] Emission Factor for N_2O based on CCAP

Table A-16
Summary of GHG Emission Reduction Measures
Pinnacle Mixed-Use Project

Transportation Emissions		
Business as Usual, CO2e		**5334**
Reductions due to Statewide Measures		
Measure	**Percent Reduction**	**Emissions Reduction**
Pavley Motor Vehicle Standards	20%	1289
Low Carbon Fuel Standard	10% (CO2 and CH4)	637
Improved Vehicle Efficiency/Hybridization	2.20%	142
Increase Density	3.20%	140
Improve Walkability	0.60%	26
Improve Destination Accessibility	0.17%	8
Improve Transit Accessibility	7.30%	318
Total Reductions		**2560**
Net Transportation Emissions		**2774**

Operational Emissions		
Business as Usual, CO2e		**738**
Reductions due to Project Design Features and Statewide Measures		
Measure	**Percent Reduction**	**Emissions Reduction**
Meet Title 24 Standards as of 2008	15% (electricity and natural gas usage)	329
Renewable Portfolio Standard (20% renewables)	27% (electricity and embodied energy of water)	532
Total Reductions		**861**
Net Operational Emissions		**-123**

9th and Palm Existing

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Bank (with Drive-Through)	3.935	1000sqft
Supermarket	6.181	1000sqft
Strip Mall	55.933	1000sqft
Fast Food Restaurant w/o Drive Thru	3.629	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Utility Company**
Climate Zone	13	**Precipitation Freq (Days)**	40	

1.3 User Entered Comments

Project Characteristics -

Land Use - site conditions

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					
2011	0.89	6.07	3.82	0.01	0.11	0.39	0.51	0.04	0.39	0.43	0.00	578.54	578.54	0.07	0.00	580.04
2012	0.86	0.34	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	30.16	30.16	0.00	0.00	30.25
Total	**1.75**	**6.41**	**4.05**	**0.01**	**0.11**	**0.42**	**0.54**	**0.04**	**0.42**	**0.46**	**0.00**	**608.70**	**608.70**	**0.07**	**0.00**	**610.29**

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					
2011	0.89	6.07	3.82	0.01	0.07	0.39	0.47	0.04	0.39	0.43	0.00	578.54	578.54	0.07	0.00	580.04
2012	0.86	0.34	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	0.00	30.16	30.16	0.00	0.00	30.25
Total	**1.75**	**6.41**	**4.05**	**0.01**	**0.07**	**0.42**	**0.50**	**0.04**	**0.42**	**0.46**	**0.00**	**608.70**	**608.70**	**0.07**	**0.00**	**610.29**

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	0.35	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	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	51.90	51.90	0.00	0.00	52.21
Mobile	4.91	9.35	47.86	0.05	4.62	0.32	4.95	0.07	0.29	0.36	0.00	4,531.58	4,531.58	0.30	0.00	4,537.93
Waste						0.00	0.00		0.00	0.00	28.23	0.00	28.23	1.67	0.00	63.27
Water						0.00	0.00		0.00	0.00	0.00	0.07	0.07	0.19	0.00	5.47
Total	**5.27**	**9.40**	**47.90**	**0.05**	**4.62**	**0.32**	**4.95**	**0.07**	**0.29**	**0.36**	**28.23**	**4,583.55**	**4,611.78**	**2.16**	**0.00**	**4,658.88**

2.2 Overall Operational

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	0.35	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	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	51.90	51.90	0.00	0.00	52.21
Mobile	4.91	9.35	47.86	0.05	4.62	0.32	4.95	0.07	0.29	0.36	0.00	4,531.58	4,531.58	0.30	0.00	4,537.93
Waste						0.00	0.00		0.00	0.00	28.23	0.00	28.23	1.67	0.00	63.27
Water						0.00	0.00		0.00	0.00	0.00	0.07	0.07	0.19	0.00	5.47
Total	**5.27**	**9.40**	**47.90**	**0.05**	**4.62**	**0.32**	**4.95**	**0.07**	**0.29**	**0.36**	**28.23**	**4,583.55**	**4,611.78**	**2.16**	**0.00**	**4,658.88**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2011

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	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	**0.10**	**0.80**	**0.46**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**68.12**	**68.12**	**0.01**	**0.00**	**68.29**

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	1.40	1.40	0.00	0.00	1.40
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.40**	**1.40**	**0.00**	**0.00**	**1.40**

3.2 Demolition - 2011

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	0.10	0.80	0.46	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.29
Total	**0.10**	**0.80**	**0.46**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**68.12**	**68.12**	**0.01**	**0.00**	**68.29**

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	1.40	1.40	0.00	0.00	1.40
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.40**	**1.40**	**0.00**	**0.00**	**1.40**

3.3 Site Preparation - 2011

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					0.05	0.00	0.05	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.22	0.13	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.18
Total	**0.03**	**0.22**	**0.13**	**0.00**	**0.05**	**0.01**	**0.06**	**0.02**	**0.01**	**0.03**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.18**

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	0.42	0.42	0.00	0.00	0.42
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.42**	**0.42**	**0.00**	**0.00**	**0.42**

3.3 Site Preparation - 2011

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					0.05	0.00	0.05	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.22	0.13	0.00		0.01	0.01		0.01	0.01	0.00	18.13	18.13	0.00	0.00	18.18
Total	**0.03**	**0.22**	**0.13**	**0.00**	**0.05**	**0.01**	**0.06**	**0.02**	**0.01**	**0.03**	**0.00**	**18.13**	**18.13**	**0.00**	**0.00**	**18.18**

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	0.42	0.42	0.00	0.00	0.42
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.42**	**0.42**	**0.00**	**0.00**	**0.42**

3.4 Grading - 2011

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					0.03	0.00	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.22	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.01	19.01	0.00	0.00	19.06
Total	**0.03**	**0.22**	**0.13**	**0.00**	**0.03**	**0.01**	**0.04**	**0.01**	**0.01**	**0.02**	**0.00**	**19.01**	**19.01**	**0.00**	**0.00**	**19.06**

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	0.56	0.56	0.00	0.00	0.56
Total	**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**

3.4 Grading - 2011

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					0.03	0.00	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.03	0.22	0.13	0.00		0.01	0.01		0.01	0.01	0.00	19.01	19.01	0.00	0.00	19.06
Total	**0.03**	**0.22**	**0.13**	**0.00**	**0.03**	**0.01**	**0.04**	**0.01**	**0.01**	**0.02**	**0.00**	**19.01**	**19.01**	**0.00**	**0.00**	**19.06**

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	0.56	0.56	0.00	0.00	0.56
Total	**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**

3.5 Building Construction - 2011

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	0.69	4.56	2.73	0.00		0.32	0.32		0.32	0.32	0.00	415.93	415.93	0.06	0.00	417.11
Total	**0.69**	**4.56**	**2.73**	**0.00**		**0.32**	**0.32**		**0.32**	**0.32**	**0.00**	**415.93**	**415.93**	**0.06**	**0.00**	**417.11**

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	0.02	0.24	0.15	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	30.67	30.67	0.00	0.00	30.69
Worker	0.02	0.02	0.20	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	24.30	24.30	0.00	0.00	24.34
Total	**0.04**	**0.26**	**0.35**	**0.00**	**0.04**	**0.01**	**0.05**	**0.00**	**0.01**	**0.01**	**0.00**	**54.97**	**54.97**	**0.00**	**0.00**	**55.03**

3.5 Building Construction - 2011

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	0.69	4.56	2.73	0.00		0.32	0.32		0.32	0.32	0.00	415.93	415.93	0.06	0.00	417.11
Total	**0.69**	**4.56**	**2.73**	**0.00**		**0.32**	**0.32**		**0.32**	**0.32**	**0.00**	**415.93**	**415.93**	**0.06**	**0.00**	**417.11**

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	0.02	0.24	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	30.67	30.67	0.00	0.00	30.69
Worker	0.02	0.02	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.30	24.30	0.00	0.00	24.34
Total	**0.04**	**0.26**	**0.35**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**54.97**	**54.97**	**0.00**	**0.00**	**55.03**

3.5 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	0.01	0.06	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.50	5.50	0.00	0.00	5.51
Total	**0.01**	**0.06**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**5.50**	**5.50**	**0.00**	**0.00**	**5.51**

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	0.41	0.41	0.00	0.00	0.41
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.00	0.00	0.31
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.72**	**0.72**	**0.00**	**0.00**	**0.72**

3.5 Building Construction - 2012

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	0.01	0.06	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.50	5.50	0.00	0.00	5.51
Total	**0.01**	**0.06**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**5.50**	**5.50**	**0.00**	**0.00**	**5.51**

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	0.41	0.41	0.00	0.00	0.41
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.00	0.00	0.31
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.72**	**0.72**	**0.00**	**0.00**	**0.72**

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	0.04	0.25	0.15	0.00		0.02	0.02		0.02	0.02	0.00	19.60	19.60	0.00	0.00	19.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.25**	**0.15**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**19.60**	**19.60**	**0.00**	**0.00**	**19.67**

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	1.64	1.64	0.00	0.00	1.64
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.64**	**1.64**	**0.00**	**0.00**	**1.64**

3.6 Paving - 2012

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	0.04	0.25	0.15	0.00		0.02	0.02		0.02	0.02	0.00	19.60	19.60	0.00	0.00	19.67
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.25**	**0.15**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**19.60**	**19.60**	**0.00**	**0.00**	**19.67**

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	1.64	1.64	0.00	0.00	1.64
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.64**	**1.64**	**0.00**	**0.00**	**1.64**

3.7 Architectural Coating - 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					
Archit. Coating	0.81					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.30	2.30	0.00	0.00	2.30
Total	**0.81**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.30**	**2.30**	**0.00**	**0.00**	**2.30**

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	0.41	0.41	0.00	0.00	0.41
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.41**	**0.41**	**0.00**	**0.00**	**0.41**

3.7 Architectural Coating - 2012

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	0.81					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.30	2.30	0.00	0.00	2.30
Total	**0.81**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.30**	**2.30**	**0.00**	**0.00**	**2.30**

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	0.41	0.41	0.00	0.00	0.41
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.41**	**0.41**	**0.00**	**0.00**	**0.41**

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	4.91	9.35	47.86	0.05	4.62	0.32	4.95	0.07	0.29	0.36	0.00	4,531.58	4,531.58	0.30	0.00	4,537.93
Unmitigated	4.91	9.35	47.86	0.05	4.62	0.32	4.95	0.07	0.29	0.36	0.00	4,531.58	4,531.58	0.30	0.00	4,537.93
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
Bank (with Drive-Through)	582.97	339.67	125.53	446,637	446,637
Fast Food Restaurant w/o Drive Thru	2,598.36	2,525.78	1814.50	3,992,743	3,992,743
Strip Mall	2,478.95	2,351.42	1142.71	3,495,630	3,495,630
Supermarket	631.95	1,097.68	1028.77	858,961	858,961
Total	6,292.23	6,314.56	4,111.50	8,793,972	8,793,972

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
Bank (with Drive-Through)	9.50	7.30	7.30	6.60	74.40	19.00

	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
Fast Food Restaurant w/o Drive Thru	9.50	7.30	7.30	1.50	79.50	19.00
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00

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	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	51.90	51.90	0.00	0.00	52.21
NaturalGas Unmitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	51.90	51.90	0.00	0.00	52.21
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					
Bank (with Drive-Through)	46393.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	2.48	2.48	0.00	0.00	2.49
Fast Food Restaurant w/o Drive Thru	639648	0.00	0.03	0.03	0.00		0.00	0.00		0.00	0.00	0.00	34.13	34.13	0.00	0.00	34.34
Strip Mall	128087	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	6.84	6.84	0.00	0.00	6.88
Supermarket	158419	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	8.45	8.45	0.00	0.00	8.51
Total		**0.00**	**0.05**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**51.90**	**51.90**	**0.00**	**0.00**	**52.22**

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					
Bank (with Drive-Through)	46393.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	2.48	2.48	0.00	0.00	2.49
Fast Food Restaurant w/o Drive Thru	639648	0.00	0.03	0.03	0.00		0.00	0.00		0.00	0.00	0.00	34.13	34.13	0.00	0.00	34.34
Strip Mall	128087	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	6.84	6.84	0.00	0.00	6.88
Supermarket	158419	0.00	0.01	0.01	0.00		0.00	0.00		0.00	0.00	0.00	8.45	8.45	0.00	0.00	8.51
Total		**0.00**	**0.05**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**51.90**	**51.90**	**0.00**	**0.00**	**52.22**

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			
Bank (with Drive-Through)	35415					0.00	0.00	0.00	0.00
Fast Food Restaurant w/o Drive Thru	150095					0.00	0.00	0.00	0.00
Strip Mall	785299					0.00	0.00	0.00	0.00
Supermarket	230551					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Bank (with Drive-Through)	35415					0.00	0.00	0.00	0.00
Fast Food Restaurant w/o Drive Thru	150095					0.00	0.00	0.00	0.00
Strip Mall	785299					0.00	0.00	0.00	0.00
Supermarket	230551					0.00	0.00	0.00	0.00
Total						**0.00**	**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.35	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	0.35	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	0.08					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.27					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	**0.35**	**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**

6.2 Area by SubCategory

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	0.08					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.27					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	**0.35**	**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					0.07	0.19	0.00	5.47
Unmitigated					0.07	0.19	0.00	5.47
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			
Bank (with Drive-Through)	0.156114 / 0.095683					0.00	0.00	0.00	0.14
Fast Food Restaurant w/o Drive Thru	1.10183 / 0.0703294					0.01	0.03	0.00	0.98
Strip Mall	4.14288 / 2.53918					0.05	0.13	0.00	3.67
Supermarket	0.761798 / 0.0235607					0.01	0.02	0.00	0.68
Total						**0.07**	**0.18**	**0.00**	**5.47**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Bank (with Drive-Through)	0.156114 / 0.095683					0.00	0.00	0.00	0.14
Fast Food Restaurant w/o Drive Thru	1.10183 / 0.0703294					0.01	0.03	0.00	0.98
Strip Mall	4.14288 / 2.53918					0.05	0.13	0.00	3.67
Supermarket	0.761798 / 0.0235607					0.01	0.02	0.00	0.68
Total						**0.07**	**0.18**	**0.00**	**5.47**

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					28.23	1.67	0.00	63.27
Unmitigated					28.23	1.67	0.00	63.27
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			
Bank (with Drive-Through)	3.68					0.75	0.04	0.00	1.67
Fast Food Restaurant w/o Drive Thru	41.81					8.49	0.50	0.00	19.02
Strip Mall	58.73					11.92	0.70	0.00	26.72
Supermarket	34.86					7.08	0.42	0.00	15.86
Total						**28.24**	**1.66**	**0.00**	**63.27**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Bank (with Drive-Through)	3.68					0.75	0.04	0.00	1.67
Fast Food Restaurant w/o Drive Thru	41.81					8.49	0.50	0.00	19.02
Strip Mall	58.73					11.92	0.70	0.00	26.72
Supermarket	34.86					7.08	0.42	0.00	15.86
Total						**28.24**	**1.66**	**0.00**	**63.27**

9.0 Vegetation