AIR QUALITY ANALYSIS

YERMO TRAVEL STOP

SAN BERNARDINO COUNTY, CALIFORNIA

LSA

July 2014

AIR QUALITY ANALYSIS

YERMO TRAVEL STOP

SAN BERNARDINO COUNTY, CALIFORNIA

Submitted to:

Alex Ringle
29354 Wagon Road
Agoura, California 91301

Prepared by:

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, California 92614-4731
(949) 553-0666

Project No. ARI1401

LSA

July 2014

TABLE OF CONTENTS

APPENDIX

FIGURES AND TABLES

FIGURES

TABLES

LIST OF ACRONYMS & ABBREVIATIONS

^{o}C	degrees Celsius
^{o}F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ac	acres
APN	Assessor's Parcel Number
AQAP	Air Quality Attainment Plan
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
Basin	Mojave Desert Air Basin
BWh	dry-hot desert climate
BWhh	dry-very hot desert climate
CAA	Clean Air Act
CALGreen Code	California Green Building Standards Code
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
County	San Bernardino County
CVC	California Vehicle Code
Diesel RRP	Diesel Risk Reduction Plan
DPM	diesel particulate matter
EO	Executive Order
EPA	United States Environmental Protection Agency
ft	feet
GCC	global climate change
GHG	greenhouse gas
H_2S	hydrogen sulfide
HFC	hydrofluorocarbons
HVLP	high-volume, low-pressure
I-15	Interstate 15
lbs/day	pounds per day
LSA	LSA Associates, Inc.
m	meter(s)

LIST OF ACRONYMS & ABBREVIATIONS

MDAQMD	Mojave Desert Air Quality Management District
mg/m^3	milligrams per cubic meter
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
NAAQS	national ambient air quality standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
O_3	ozone
OMB	White House Office of Management and Budget
PFC	perfluorocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PRC	Public Resources Code
RCP	Regional Comprehensive Plan
ROCs	reactive organic compounds
ROGs	reactive organic gases
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	square feet
SIP	State Implementation Plan
SO_2	sulfur dioxides
SO_x	sulfur oxides
State	State of California
TACs	toxic air contaminants
tpy	tons per year
US 395	United States Route 395
USGS	United States Geological Survey
VOCs	volatile organic compounds

1.0 EXECUTIVE SUMMARY

LSA Associates, Inc. (LSA) was retained to prepare an air quality study for the proposed Travel Stop project located in the unincorporated community of Yermo, San Bernardino County (County), California.

The air quality study provides a discussion of the proposed project, the physical setting of the project area, and the regulatory framework for air quality. The report provides data on existing air quality, evaluates potential air quality impacts associated with the proposed project, and identifies mitigation measures recommended for potentially significant impacts. Modeled air quality levels are based upon vehicle data and project trip generation prepared for this project in the Yermo Travel Stop Traffic Impact Study (LSA, May 2014).

Emissions during project construction would not exceed any criteria pollutant threshold established by the Mojave Desert Air Quality Management District (MDAQMD). Compliance with MDAQMD Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. Standard dust suppression measures have been identified for short-term construction to meet the MDAQMD emissions thresholds. The project construction emissions would be less than significant.

Pollutant emissions from project operation, calculated with the CalEEMod model (Version 2013.2.2), would not exceed any of the MDAQMD thresholds for criteria pollutants. Therefore, project-related long-term regional air quality impacts would not be significant and no mitigation measures are required.

Historical air quality data show that existing carbon monoxide (CO) levels for the project area and the general vicinity do not exceed either State or federal ambient air quality standards. The project-related traffic would not significantly affect local CO levels, and the CO concentrations would remain below the State and federal standards. No significant impact on local CO levels would occur.

The potential of the project to affect global climate change (GCC) is also included. Short-term construction and long-term operational emissions of the principal greenhouse gases (GHGs), including carbon dioxide (CO_2) and methane (CH_4), are quantified, and their significance relative to Assembly Bill (AB) 32 is discussed. The proposed project will not exceed any proposed GHG emissions thresholds or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

The proposed project is consistent with the County's General Plan and Zoning Designations, which are consistent with the Southern California Association of Governments (SCAG) Regional Comprehensive Plan (RCP) Guidelines and the MDAQMD Air Quality Management Plan (AQMP). Therefore, the proposed project is consistent with the General Plan and the regional AQMP.

The evaluation was prepared in conformance with appropriate standards, utilizing procedures and methodologies in the MDAQMD California Environmental Quality Act (CEQA) *Air Quality Handbook* (MDAQMD 2007). Air quality data posted on the California Air Resources Board (ARB) and United States Environmental Protection Agency (EPA) websites are included to document the local air quality environment.

2.0 PROJECT DESCRIPTION

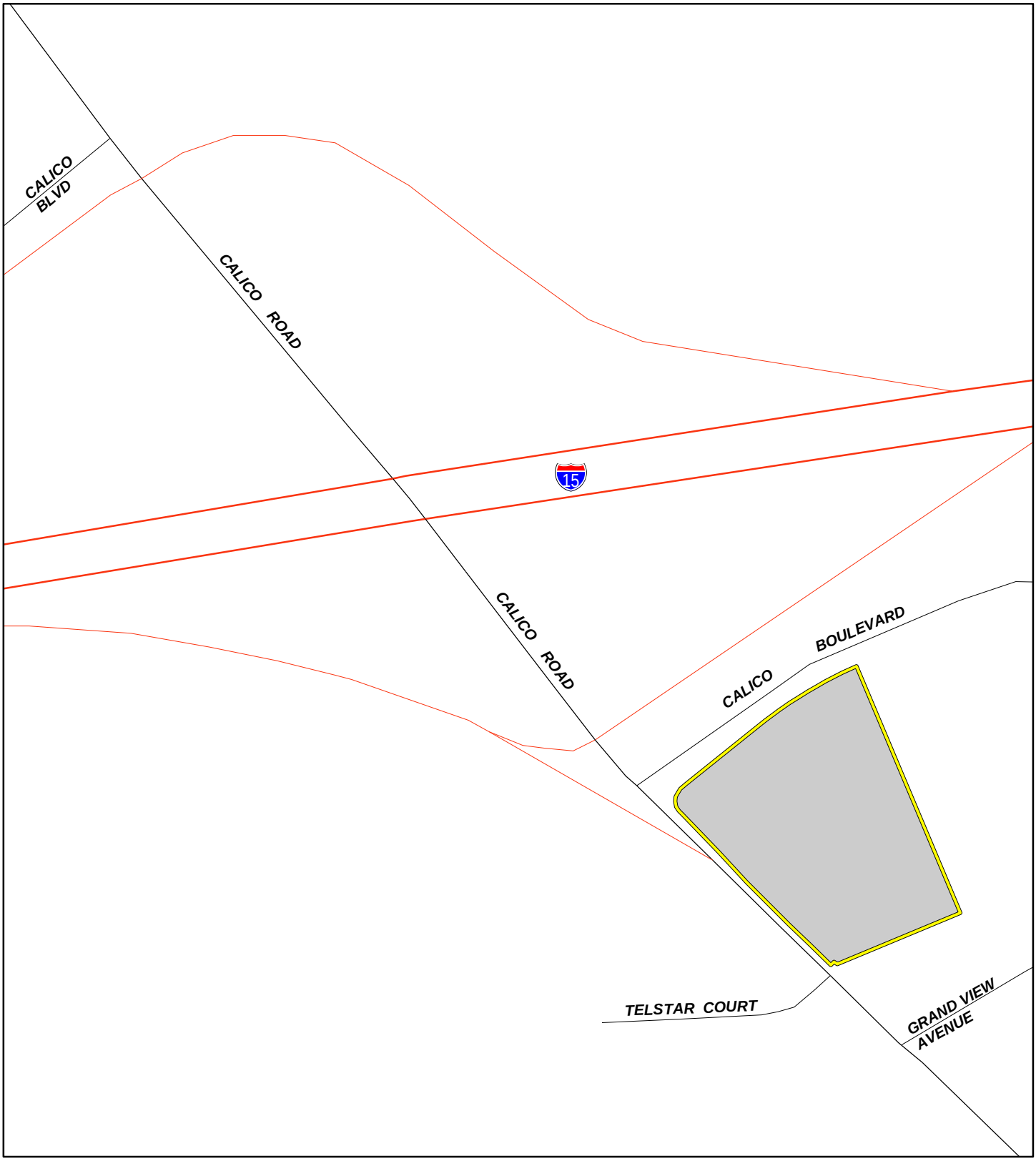
2.1 PROJECT LOCATION

The project site is located in the unincorporated community of Yermo in San Bernardino County. The proposed project site is located adjacent to and south of Interstate 15 (I-15), as shown on Figure 2.1. More specifically, the site is at the southeast corner of Calico Road and Calico Boulevard, near the I-15 ramps at Calico Road.

The area adjacent to and in the vicinity of the project site is characterized by a mix of developed and undeveloped properties. The project site has historically been vacant with no developed uses. The closest sensitive land uses are the existing homes south of the project site that are approximately 60 feet (ft) away.

2.2 PROJECT DESCRIPTION

The project proposes a travel stop that includes a gas station with 32 fueling positions and a 25,060 square foot (sf) building housing a convenience store and fast casual type restaurant, at the southeast corner of Calico Road and Calico Boulevard near the I-15 ramps at Calico Road. Access to the project site will be provided via two full access driveways on Calico Road and one full access driveway on Calico Boulevard. The proposed travel stop's intended clientele are those traveling in passenger vehicles on I-15. According to the project applicant, the site is designed to discourage trucks from entering the site; however, access for delivery trucks will be provided off of Calico Road. The opening year of the project is expected to be 2015. Figure 2.2 depicts the project's site plan.



LSA

FIGURE 2.1

Project Location

N

0 150 300

FEET

Yermo Travel Stop

Project Location

SOURCE: Paul Berger, November 5, 2013.

I:\PBE1301\Reports\Traffic\fig2_StudyArea_Inters.mxd (12/3/2013)

LSA

FIGURE 2

N

0 60 120

FEET

Yermo Travel Stop

Site Plan

SOURCE: Paul Berger, November 5, 2013.

I:\PBE1301\Reports\Traffic\fig2_SitePlan.mxd (4/24/2014)

3.0 SETTING

The project site is located in the unincorporated community of Yermo in San Bernardino County, California, which is part of the Mojave Desert Air Basin (Basin) and is under the jurisdiction of the MDAQMD. The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project.

A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts such as the MDAQMD have created guidelines and requirements to conduct air quality analyses. The MDAQMD's current guidelines, which are included in its *California Environmental Quality Act* (CEQA) *and Federal Conformity Guidelines* (MDAQMD, 2011), were adhered to in the assessment of air quality impacts for the proposed project.

3.1 REGIONAL AIR QUALITY

Both the State of California (State) and the federal government have established health-based ambient AAQS for seven air pollutants. As shown in Table 3.1.A, these pollutants include ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant alert levels is reached at any monitoring site and meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase, or in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken.

Pollutant alert levels:[1]

- **O_3:** 392 micrograms per cubic meter ($\mu g/m^3$) (0.20 part per million [ppm]), 1-hour average
- **CO:** 17 milligrams per cubic meter (mg/m^3) (15 ppm), 8-hour average

[1] The South Coast Air Quality Management District (SCAQMD) Rule 701, Attachment 2.

Table 3.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15.0 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm(40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)[8]	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3)	—	
Sulfur Dioxide (SO_2)[9]	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas)[9]	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	—	
Lead[10,11]	30-Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	
	Rolling 3-Month Average[11]	—		0.15 µg/m^3		
Visibility-Reducing Particles[12]	8-Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No Federal Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board (June 7, 2012).
Footnotes are on the following page.

[1] California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter - PM_{10}, $PM_{2.5}$ and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent procedure which can be shown to the satisfaction of ARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[9] On June 2, 2010, the new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[10] The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[11] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[12] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basins, respectively.

°C = degrees Celsius
ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
$\mu g/m^3$ = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
ppm = parts per million
ppb = parts per billion

- **NO_2:** 1,130 µg/m^3 (0.6 ppm), 1-hour average; 282 µg/m^3 (0.15 ppm), 24-hour average
- **SO_2:** 525 µg/m^3 (0.2 ppm), 24-hour average
- **Particulates, measured as PM_{10}:** 350 µg/m^3, 24-hour average

Table 3.B lists the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than federal AAQS. Among the pollutants, O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) are considered regional pollutants, while the others have more localized effects.

Table 3.B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate matter (PM_{10}: less than or equal to 10 microns)	• Increased respiratory disease • Lung damage • Premature death	• Cars and trucks, especially diesels • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Breathing difficulties • Lung damage	• Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	• Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen dioxide (NO_2)	• Lung damage	• See CO sources
Toxic air contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: California Air Resources Board, 2009 (http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm).

The California Clean Air Act (CCAA) provides the MDAQMD and other air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this would be the motor vehicles at an intersection, a mall, and on highways. The MDAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the ARB.

3.1.1 Climate/Meteorology

Air quality in the planning area is affected not only by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, rainfall, etc.

The Mojave Desert Air Basin is an assemblage of mountain ranges interspersed with long, broad valleys that often contain dry lakes. Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 ft above the valley floor. Prevailing winds in the Basin are out of the west and southwest. These prevailing winds are due to the proximity of the Basin to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the Basin. The Basin is separated from the Southern California coastal and central California valley regions by mountains (highest elevation is approximately 10,000 ft), whose passes form the main channels for these air masses. The Mojave Desert is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 ft). A lesser pass lies between the San Bernardino Mountains and the Little San Bernardino Mountains in the Morongo Valley. The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley), whose primary channel is the San Gorgonio Pass (2,300 ft) between the San Bernardino and San Jacinto Mountains.

During the summer, the Basin is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The Basin is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The Basin averages between 3 and 7 inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The Basin is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate that at least 3 months have maximum average temperatures over 100.4 degrees Fahrenheit (^{o}F).

Snow is common above 5,000 ft in elevation, resulting in moderate snowpack and limited spring runoff. Below 5,000 ft, any precipitation normally occurs as rainfall. Pacific storm fronts normally move into the area from the west, driven by prevailing winds from the west and southwest. During late summer, moist high-pressure systems from the Pacific Ocean collide with rising heated air from desert areas, resulting in brief, high-intensity thunderstorms that can cause high winds and localized flash flooding. During the fall and winter months, strong, dry Santa Ana winds from the northeast can cause rapid temperature variations of significant magnitude.

The climatological station closest to the site with a temperature history is the Barstow station.[1] The annual average maximum temperature recorded between 1903 and 1980 at this station is 80.3°F, and the annual average minimum is 47.5°F. January and December are typically the coldest months in this area of the Basin.

The Barstow station has a precipitation history for the project area. Average rainfall measured at this station in the past varied from 0.72 inches in January to 0.31 inch or lower between April and October, with an average annual total of 4.33 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

[1] Western Regional Climatic Center, at Web site: wrcc.dri.edu, 2010.

3.2 DESCRIPTION OF GLOBAL CLIMATE CHANGE AND ITS SOURCES

GCC is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors, such as changes in the sun's intensity; natural processes within the climate system, such as changes in ocean circulation; or human activities, such as the burning of fossil fuels, land clearing, or agriculture. The primary observed effect of GCC has been a rise in the average global tropospheric[1] temperature of 0.36°F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Delta.

Global surface temperatures have risen by 1.33°F ± 0.32°F over the last 100 years (1906 to 2005). The rate of warming over the last 50 years is almost double that over the last 100 years.[2] The latest projections, based on state-of-the art climate models, indicate that temperatures in California are expected to rise between 3°F and 10.5°F by the end of the century.[3] The prevailing scientific opinion on climate change is that "most of the warming observed over the last 50 years is attributable to human activities."[4] Increased amounts of CO_2 and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.[5]

---

1 The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

2 The Intergovernmental Panel on Climate Change (IPCC), 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.*

3 California Climate Change Center, 2006. *Our Changing Climate. Assessing the Risks to California.* July.

4 IPCC, *Climate Change 2007: The Physical Science Basis,* http://www.ipcc.ch.

5 The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the amount of heat that escapes, greenhouse gases (GHGs) like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, although an excess of GHGs results in global warming, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:[1]

- CO_2
- CH_4
- N_2O
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. While GHGs produced by human activities include naturally occurring GHGs such as CO_2, CH_4, and N_2O, some gases, like HFCs, PFCs, and SF_6, are completely new to the atmosphere. Certain other gases, such as water vapor, are short-lived in the atmosphere as compared to these GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this air quality study, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of metric tons (MT)[2] of "CO_2 equivalents" (CO_2e). Table 3.C shows the GWPs for each type of GHG. For example, SF_6 is 22,800 times more potent at contributing to global warming than CO_2.

[1] The GHGs listed are consistent with the definition in Assembly Bill (AB) 32 (Government Code 38505), as discussed later in this section.

[2] A metric ton (MT) is equivalent to approximately 1.1 tons.

Table 3.C: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12	25
Nitrous Oxide (NO_x)	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoromethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC, 2007. *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the IPCC.
HFC = hydrofluorocarbons
IPCC = Intergovernmental Panel on Climate Change
PFC = perfluorocarbons

The following discussion summarizes the characteristics of the six primary GHGs.

3.2.1 Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO_2 are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO_2 to the atmosphere. Natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2. Consequently, the gas is building up in the atmosphere. The concentration of CO_2 in the atmosphere has risen approximately 30 percent since the late 1800s.[1]

In 2002, CO_2 emissions from fossil fuel combustion accounted for approximately 98 percent of human-made CO_2 emissions and approximately 84 percent of California's overall GHG emissions (CO_2e). The transportation sector accounted for California's largest portion of CO_2 emissions, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second-largest category of GHG emissions.

[1] The California Environmental Protection Agency (CalEPA). 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature.* March.

3.2.2 Methane

CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (burning of coal, oil, natural gas, etc.). Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California, followed by enteric fermentation (emissions from the digestive processes of livestock).[1] Agricultural processes such as manure management and rice cultivation are also significant sources of human-made CH_4 in California. CH_4 accounted for approximately 6 percent of gross climate change emissions (CO_2e) in California in 2002.[2] It is estimated that over 60 percent of global CH_4 emissions are attributable to human-related activities.[3] As with CO_2, the major removal process of atmospheric CH_4—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

3.2.3 Nitrous Oxide

N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California. N_2O emissions accounted for nearly 7 percent of human-made GHG emissions (CO_2e) in California in 2002.

3.2.4 Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O_3-depleting substances regulated under the Montreal Protocol.[4] PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry, which is active in California, leads to greater use of PFCs. HFCs, PFCs, and SF_6 accounted for about 3.5 percent of human-made GHG emissions (CO_2e) in California in 2002.[5]

---

1 The California Air Resources Board (ARB), Greenhouse Gas Inventory Data – 1990 to 2004. http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed November 2008).

2 Ibid.

3 Intergovernmental Panel on Climate Change (IPCC), 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.*

4 The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone (O_3) depletion.

5 CalEPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature.* March.

3.3 EMISSIONS SOURCES AND INVENTORIES

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, California, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere, accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

3.3.1 Global Emissions

Worldwide emissions of GHGs in 2004 totaled 27 billion MT of CO_2e per year (CO_2e/yr).[1] Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

3.3.2 United States Emissions

In 2008, the United States emitted approximately 7.0 billion MT of CO_2e, or approximately 25 tons per year (tpy) per person. Of the six major sectors nationwide—electric power industry, transportation, industry, agriculture, commercial, and residential—the electric power industry and transportation sectors combined account for approximately 62 percent of the GHG emissions; the majority of the electric power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2006, total United States GHG emissions rose approximately 14.7 percent.[2]

3.3.3 State of California Emissions

According to ARB emission inventory estimates, California emitted approximately 474 million metric tons (MMT) of CO_2e (or $MMTCO_2e$) emissions in 2008.[3] This large number is due primarily to the sheer size of California compared to other states. By contrast, California has the fourth-lowest per-capita CO_2 emission rate from fossil fuel combustion in the country due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[4]

---

1 Combined total of Annex I and Non-Annex I Country carbon monoxide equivalent (CO_2e) emissions. United Nations Framework Convention on Climate Change (UNFCCC), 2007. *Greenhouse Gas Inventory Data*. Information available at http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php and http://maindb.unfccc.int/library/view_pdf.pl?url=http://unfccc.int/resource/docs/2005/sbi/eng/18a02.pdf.

2 The United States (U.S.) Environmental Protection Agency (EPA). 2010. The 2010 U.S. Greenhouse Gas Inventory Report. http://www.epa.gov/climatechange/emissions/usinventoryreport.html (accessed September 2010).

3 ARB, Greenhouse Gas Inventory Data – 1990 to 2004. http://www.arb.ca.gov/cc/inventory/data/data.htm (accessed September 2010).

4 The California Energy Commission (CEC), 2007. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004 – Final Staff Report, publication # CEC-600-2006-013-sf, Sacramento, CA, December 22, 2006; and January 23, 2007, update to that report.

The California Environmental Protection Agency (CalEPA) Climate Action Team (CAT)[1] stated in its March 2006 report that the composition of gross climate change pollutant emissions in California in 2002 (expressed in terms of CO_2e) was as follows:

- CO_2 accounted for 83.3 percent
- CH_4 accounted for 6.4 percent
- N_2O accounted for 6.8 percent
- HFCs, PFC, and SF_6 accounted for 3.5 percent[2]

The ARB estimates that transportation was the source of approximately 38 percent of the State's GHG emissions in 2011, followed by electricity generation (both in-State and out-of-State) at 19 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were residential and commercial activities at 10 percent, agriculture at 7 percent, high-GWP gases at 3 percent, and recycling and waste at 2 percent.[3]

The ARB is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted to and removed from the atmosphere by human activities within the State of California and supports the AB 32 Climate Change Program. The ARB's current GHG emission inventory covers the years 1990–2004 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, agricultural lands). The emission inventory estimates are based on the actual amount of all fuels combusted in the State, which accounts for over 85 percent of the GHG emissions within California.

The ARB staff has projected statewide unregulated GHG emissions for 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, at 596 $MMTCO_2e$. GHG emissions from the transportation and electricity sectors as a whole are expected to increase but remain at approximately 36 percent and 22 percent of total CO_2e emissions, respectively. The industrial sector consists of large stationary sources of GHG emissions, and the percentage of the total 2020 emissions is projected to be 18 percent of total CO_2e emissions. The remaining sources of GHG emissions in 2020 are high-GWP gases at 7 percent, residential and commercial activities at 9 percent, agriculture at 6 percent, and recycling and waste at 2 percent.[4]

3.3.4 Air Pollution Constituents and Attainment Status

The ARB coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and maintains air

1 The Climate Action Team (CAT) is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of ARB's jurisdiction.
2 CalEPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature.* March.
3 ARB, 2013. http://www.arb.ca.gov/cc/inventory/data/data.htm (October 2013).
4 Ibid.

quality monitoring stations throughout the State in conjunction with the EPA and local air districts. The ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by ARB and EPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent 3 calendar years compared with the AAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table 3.D lists the attainment status for the criteria pollutants in the Basin.

Table 3.D: Attainment Status for the MDAQMD Portion of the Mojave Desert Air Basin

Criteria Pollutant	Federal Designation	State Designation
1-hour ozone (O_3)	Revoked June 2005	Nonattainment: Moderate
8-hour ozone (O_3)	Nonattainment: Moderate	Nonattainment
Carbon monoxide (CO)	Attainment	Attainment
PM_{10}	Nonattainment: Moderate	Nonattainment
$PM_{2.5}$	Unclassified/attainment	Nonattainment
Lead (Pb)	Attainment	Attainment
Sulfur dioxide (SO_2)	Attainment/unclassified	Attainment/unclassified
Nitrogen dioxide (NO_2)	Attainment/unclassified	Attainment/unclassified

Source: California Air Resources Board, 2012 (http://www.arb.ca.gov/desig/desig.htm).
MDAQMD = Mojave Desert Air Quality Management District
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

3.3.5 Ozone

O_3 (smog) is formed by photochemical reactions between NO_X and reactive organic gases (ROGs) rather than being directly emitted. O_3 is a pungent colorless gas typical of Southern California smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly and young children. O_3 levels peak during summer and early fall. The entire Basin is designated as a nonattainment area for the State 1-hour and 8-hour O_3 standards. The EPA has classified the portion of the Basin in which the project is located as moderate nonattainment for the 8-hour O_3 standard.

3.3.6 Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairment to central nervous system functions. The entire Basin is designated as in attainment for federal and State CO standards.

3.3.7 Nitrogen Oxides

NO_2, a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides,

or NO_X. NO_X is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO_2 decreases lung function and may reduce resistance to infection. The entire Basin is designated as in attainment or unclassified area for federal and State NO_2 standards.

3.3.8 Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire Basin is in attainment or unclassified with both federal and State SO_2 standards.

3.3.9 Lead

Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The entire Basin is in attainment for the federal and State standards for lead.

3.3.10 Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles, PM_{10}, are derived from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine, $PM_{2.5}$, particle levels. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The portion of the Basin in which the project is located is a nonattainment area for federal and State PM_{10} standards. The portion of the Basin in which the project is located is an unclassified/attainment area for federal $PM_{2.5}$ and a nonattainment area for State $PM_{2.5}$ standards.

3.3.11 Reactive Organic Compounds

Reactive organic compounds (ROCs, also known as ROGs and volatile organic compounds [VOCs]) are formed from the combustion of fuels and the evaporation of organic solvents. ROCs are not defined as criteria pollutants, but are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower.

3.3.12 Sulfates

Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The entire Basin is in attainment for the State standard for sulfates.

3.3.13 Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance. The entire Basin is unclassified for the State standard for hydrogen sulfide.

3.3.14 Visibility-Reducing Particles

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire Basin is unclassified for the State standard for visibility-reducing particles.

3.4 LOCAL AIR QUALITY

The MDAQMD maintains ambient air quality monitoring stations throughout the Basin. The air quality monitoring station within the Basin that is closest to the site is the Barstow station. However, this monitoring station does not provide data for the 24-hour $PM_{2.5}$ levels or the 24-hour sulfur dioxide levels. The second closest monitoring station that is in the same air basin and is at a similar altitude, thus providing air data similar to the project site, is the Victorville station. The criteria pollutants monitored at these stations[1] are illustrated in Table 3.E. Ozone levels have all exceeded State and/or federal standards at the Barstow station multiple times in the past 3 years. PM_{10} levels have exceeded State standards at the Barstow station 2 days in the past 3 years, and did not exceed the federal standard in the past 3 years. $PM_{2.5}$, CO, N_2O, and S_2O have not exceeded State or federal standards in the past 3 years.

[1] ARB and Mojave Desert Air Quality Management District (MDAQMD), 2010.

Table 3.E: Ambient Air Quality Data Monitored at the Barstow and Victorville Monitoring Stations

Pollutant	Standard	2010	2011	2012
Carbon Monoxide (CO) – measured at the Barstow station				
Maximum 1-hr concentration (ppm)		5.3	4.4	2.0
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hr concentration (ppm)		0.89	1.35	0.66
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal:≥ 9 ppm	0	0	0
Ozone (O_3) – measured at the Barstow station				
Maximum 1-hr concentration (ppm)		0.097	0.093	0.090
Number of days exceeded:	State: > 0.09 ppm	1	0	0
Maximum 8-hr concentration (ppm)		0.078	0.083	0.084
Number of days exceeded:	State: > 0.07 ppm	7	35	36
	Federal: > 0.075 ppm	1	9	15
Coarse Particulates (PM_{10}) – measured at the Barstow station				
Maximum 24-hr concentration ($\mu g/m^3$)		38	98	42
Number of days exceeded:	State: > 50 $\mu g/m^3$	0	2	0
	Federal: > 150 $\mu g/m^3$	0	0	0
Annual arithmetic average concentration ($\mu g/m^3$)		18.8	21.3	20.4
Exceeded for the year:	State: > 20 $\mu g/m^3$	No	Yes	Yes
Fine Particulates ($PM_{2.5}$) – measured at the Victorville station				
Maximum 24-hr concentration ($\mu g/m^3$)		18.0	15.0	12.0
Number of days exceeded:	Federal: > 35 $\mu g/m^3$	0	0	0
Annual arithmetic average concentration ($\mu g/m^3$)		7.2	N/A	N/A
Exceeded for the year:	State: > 12 $\mu g/m^3$	No	N/A	N/A
	Federal: > 15 $\mu g/m^3$	No	N/A	N/A
Nitrogen Dioxide (NO_2) – measured at the Barstow station				
Maximum 1-hr concentration (ppm)		0.062	0.077	0.146
Number of days exceeded:	State: > 0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.017	0.017	0.017
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO_2) – measured at the Victorville station				
Maximum 24-hr concentration (ppm)		0.007	0.007	0.003
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.000	0.001	N/A
Exceeded for the year:	Federal: > 0.030 ppm	No	No	N/A

Sources: United States Environmental Protection Agency (www.epa.gov/air/data/index.html); California Air Resources Board (www.arb.ca.gov/adam/welcome.html); and South Coast Air Quality Management District (http://www.aqmd.gov/smog/historicaldata.htm).
hr = hour/hours
ppm = parts per million
$\mu g/m^3$ = microgram of pollutant per cubic meter of air
NA = Data not available

3.5 REGULATORY SETTINGS

3.5.1 Federal Regulations/Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "nonattainment," depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA.

The EPA has designated the SCAG as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

The EPA established new national air quality standards for ground-level O_3 and fine particulate matter in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O_3 and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the U.S. Supreme Court upheld the way the government sets air quality standards under the CAA. The court unanimously rejected industry arguments that the EPA must consider financial cost as well as health benefits in writing standards. The justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for O_3 and soot in 1997.

Nevertheless, the court threw out the EPA's policy for implementing new O_3 rules, saying that the agency ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the 8-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the 8-hour O_3 standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour O_3 standard on June 15, 2005, and lowered the 8-hour O_3 standard from 0.08 ppm to 0.075 ppm on April 1, 2008.

The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 to 35 $\mu g/m^3$ and revoked the annual PM_{10} standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour $PM_{2.5}$ standard on December 12, 2008.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the 8-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the 8-hour O_3 standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour O_3 standard on June 15, 2005, and lowered the 8-hour O_3 standard from 0.08 ppm to 0.075 ppm on April 1, 2008.

The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 to 35 $\mu g/m^3$ and revoked the annual PM_{10} standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour $PM_{2.5}$ standard on December 12, 2008.

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the CAA. While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that are required to implement a regulatory approach to GCC.

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to GCC. This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles mentioned below.

On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA is finalizing the first-ever national GHG emissions standards under the CAA, and NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg).

3.5.2 State Regulations/Standards

In 1967, the California Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus, the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board, to establish ARB. Since its formation, ARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems.

The ARB identified particulate emissions from diesel-fueled engines (diesel particulate matter [DPM]) as toxic air contaminants (TACs) in August 1998. Following the identification process, ARB was required by law to determine whether there is a need for further control. In September 2000, the ARB adopted the Diesel Risk Reduction Plan (Diesel RRP), which recommends many control measures to reduce the risks associated with DPM and to achieve goals of 75 percent DPM reduction by 2010 and 85 percent by 2020.

In a response to the transportation sector's significant contribution to California's CO_2 emissions, Assembly Bill (AB) 1493 (Pavley) was enacted on July 22, 2002. AB 1493 requires ARB to set greenhouse gas (GHG) emission standards for passenger vehicles and light-duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in

2009 and all subsequent model years. In setting these standards, the ARB considered cost effectiveness, technological feasibility, and economic impacts. The ARB adopted the standards in September 2004. When fully phased in, the near-term (2009 to 2012) standards would result in a reduction in GHG emissions of approximately 22 percent compared to the emissions from the 2002 fleet, while the midterm (2013 to 2016) standards would result in a reduction of approximately 30 percent. To set its own GHG emissions limits on motor vehicles, California must receive a waiver from the EPA. However, in December 2007, the EPA denied the request from California for the waiver. In January 2008, the California Attorney General filed a petition for review of the EPA's decision in the Ninth Circuit Court of Appeals; however, no decision on that petition has been published as of January 2009. On January 26, 2009, the President issued an Executive Memorandum directing the EPA to reassess its decision to deny the waiver and to initiate any appropriate action.[1] On May 18, 2009, the President announced the enactment of a 35.5 miles-per-gallon (mpg) fuel economy standard for automobiles and light duty trucks which will begin to take effect in 2012. This standard is approximately the same standard that was proposed by California, and so the California waiver request has been shelved as a result.

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order (EO) S-3-05. This EO established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

California's major initiative for reducing GHG emissions is outlined in AB 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. AB 32 requires the ARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011.

The ARB has established the level of GHG emissions in 1990 at 427 $MMTCO_2e$. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual (BAU) 2020 emissions of 596 MMT. AB 32 requires the ARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to GCC. The Scoping Plan was approved by the ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.[2] Emission reductions that are projected to result from the recommended measures in the Scoping Plan are expected to total 174 $MMTCO_2e$, which would allow

[1] Obama, President Barack. 2009. Memorandum for the Administrator of the Environmental Protection Agency. State of California Request for Waiver Under 42 United States Code (U.S.C.) 7543(b), the Clean Air Act. January 26.

[2] ARB. 2008. *Climate Change Proposed Scoping Plan: a Framework for Change* (October).

California to attain the emissions goal of 427 $MMTCO_2e$ by 2020. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The ARB rule-making process includes preparation and release of each of the draft measures, public input through workshops, and a public comment period, followed by an ARB Board hearing and rule adoption.

In addition to reducing GHG emissions to 1990 levels by 2020, AB 32 directed the ARB and the newly created CAT to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. This EO set a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directed the ARB to consider the Low Carbon Fuel Standard as a discrete early action measure.

In June 2007, the ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted additional early action measures in October 2007[1] that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of PFCs from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF_6 reductions from the nonelectricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT.[2]

To assist public agencies in the mitigation of GHG emissions or analyzing the effects of GHGs under CEQA, including the effects associated with transportation and energy consumption, Senate Bill (SB) 97 (Chapter 185, 2007) requires the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines on how to minimize and mitigate a project's GHG emissions. The OPR prepared, developed, and transmitted these guidelines in May 2009, the Resources Agency certified and adopted them on December 30, 2009, and they became effective on March 18, 2010. The amendments encourage lead agencies to consider many factors in performing a CEQA analysis but preserve the discretion granted by CEQA to lead agencies in making their own determinations.

SB 375, signed into law on October 1, 2008, is intended to enhance the ARB's ability to reach AB 32 goals by directing the ARB to develop regional GHG emissions reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035. The ARB will work with California's 18 MPOs to align their regional transportation, housing, and land use plans and prepare a

1 ARB. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration* (October).

2 ARB. 2007. "ARB approves tripling of early action measures required under AB 32." News Release 07-46. http://www.arb.ca.gov/newsrel/nr102507.htm (October 25).

"Sustainable Communities Strategy" to reduce the number of vehicle miles traveled (VMT) in their respective regions and demonstrate each region's ability to attain its GHG reduction targets.

Additionally, SB 375 provides incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The bill exempts homebuilders from certain CEQA requirements if they build projects consistent with the new sustainable community strategies. It also encourages the development of more alternative transportation options to promote healthy lifestyles and reduce traffic congestion.

3.5.3 California Green Building Code

California Green Building Standards Code (CALGreen Code) (California Code of Regulations [CCR], Title 24, part 11) was adopted by the California Building Standards Commission in 2010 and became effective in January, 2011. The CALGreen Code applies to all newly constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. The CALGreen Code is comprised of Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (Tiers I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The CALGreen Code refers to Title 24, Part 6 compliance with respect to energy efficiency; however, it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional, more stringent measures that may be used by jurisdictions that strive to enhance their commitment towards green and sustainable design and achievement of AB 32 goals. Under Tiers I and II, all new construction projects are required to reduce energy consumption by 15 percent and 30 percent, respectively, below the baseline required under the California Energy Commission (CEC), as well as implement more stringent green measures than those required by mandatory code.

3.5.4 Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established the MDAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state.

The ARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

3.5.5 Regional Air Quality Management Plan

The MDAQMD and SCAG are responsible for formulating and implementing the air quality attainment plan (AQAP) for the Basin. Regional AQAPs were adopted in 1991, 1994, and 1997. The following SIP and AQAP are the currently approved plans for the Basin region:

- 1997 SIP for O_3, PM_{10}, and NO_2
- 1995 Mojave Desert Planning Area Federal PM_{10} Attainment Plan; no formal action by the EPA

The MDAQMD completed the MDAQMD 2004 Ozone Attainment Plan (State and federal) in April 2004, which has been approved by the EPA.

4.0 THRESHOLDS AND METHODOLOGY

The proposed project is located within the MDAQMD's air quality jurisdiction. Therefore, the emission thresholds established by the MDAQMD were adhered to in the assessment of air quality impacts for the proposed project.

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts, such as the MDAQMD, have created guidelines and requirements to conduct air quality analysis. MDAQMD's current guidelines, *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* (February 2009), were adhered to in the assessment of air quality impacts for the proposed project. The current model, CalEEMod, Version 2013.2.2, was used to estimate project-related mobile and stationary sources emissions in this Air Quality Analysis.

This Air Quality Analysis includes estimated emissions associated with short-term construction and long-term operation of the proposed project. Criteria pollutants with regional impacts would be emitted by project-related vehicular trips, as well as by emissions associated with stationary sources used on site. Localized air quality impacts, i.e., higher CO concentrations (CO hot spots) near intersections or roadway segments in the project vicinity, would be small and less than significant due to the generally low ambient CO concentrations in the project area. A local CO hot-spot analysis was conducted. Project-specific information was used in the modeling. Default values representative of the proposed project were used when project-specific data were not available.

The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of the proposed project. The results also allow the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with federal and State AAQS.

4.1 THRESHOLDS OF SIGNIFICANCE

Based on *Guidelines for the Implementation of California Environmental Quality Act*, Appendix G, Public Resource Code (PRC) Sections 15000–15387, a project would normally be considered to have a significant effect on air quality if the project would violate any ambient air quality standards, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with adopted environmental plans and goals of the community in which it is located.

In addition to the federal and State AAQS, there are daily emissions thresholds for construction and operation of a proposed project in the Basin. Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the MDAQMD's *CEQA and Federal Conformity Guidelines* (2011). The criteria include emissions thresholds, compliance with State and national air quality standards, and consistency with the current air quality plans. It should be noted that the emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at

a level that protects public health with adequate margin of safety (EPA), these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

4.1.1 Regional Thresholds for Construction and Operational Emissions

The following significance thresholds for direct and indirect impacts have been established by the MDAQMD:

- 137 pounds per day (lbs/day) or 25 tons per year (tons/yr) of ROGs
- 137 lbs/day or 25 tons/yr of NO_X
- 548 lbs/day or 100 tons/yr of CO
- 82 lbs/day or 15 tons/yr of PM_{10}
- 137 lbs/day or 25 tons/yr of SO_X

4.1.2 Local Microscale Concentration Standards

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

When ambient levels are below standards without the project emissions, a project is considered to have significant impacts if project emissions result in an exceedance of one or more of these standards.

4.1.3 Thresholds for Greenhouse Gases

Appendix G of the CEQA Guidelines suggest that the project be evaluated for the following impacts:

- Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

4.1.4 Mojave Desert Air Quality Management District Thresholds

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in MDAQMD's CEQA and Federal Conformity Guidelines (2011). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. MDAMD has established thresholds of significance for greenhouse gas emissions, applicable to both construction and operations regardless of whether they are stationary or mobile sources. The MDAQMD's GHG emissions thresholds are 548,000 lbs/day or 100,000 tons/year (or 90,718 $MTCO_2e$/year).

5.0 IMPACTS AND MITIGATION

Air pollutant emissions associated with the project would occur over the short term from construction activities, such as fugitive dust from site preparation and grading, and emissions from equipment exhaust. There would be long-term regional emissions associated with project-related vehicular trips. Long-term stationary source emissions would occur due to energy consumption such as electricity usage by the proposed land uses.

5.1 CONSTRUCTION IMPACTS

5.1.1 Equipment Exhausts and Related Construction Activities

Construction activities produce combustion emissions from various sources such as site grading, utility engines, on site heavy duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions.

The project is planned to be built in one phase. Site preparation (mass grading and/or fine grading) will be completed before other construction activities would occur. For the anticipated opening year in 2014, Table 5.A lists the construction schedule created in the CalEEMod model (Version 2013.2.2) based on project plans. It is anticipated that the Building Construction and Architectural Coatings phases would overlap.

Table 5.A: Construction Schedule

Phase Number	Phase Name	Number of Days/Week	Number of Days
1	Site Preparation	5	2
2	Grading	5	4
3	Building Construction	5	200
4	Paving	5	114
5	Architectural Coating	5	10

Source: Project Plans and CalEEMod.

Table 5.B lists the anticipated equipment to be used on any one day for each phase. Table 5.C lists the peak daily emissions during project construction. Table 5.D lists the average annual emissions during project construction. The emissions rates shown in Tables 5.E and 5.F are from the CalEEMod output tables listed as "Mitigated Construction," even though the only mitigation measures that have been applied to the analysis are the construction emissions control measures required by MDAQMD Rule 403. They are also the combination of the on- and off-site emissions.

Table 5.B: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Graders	1	8	174	0.41
	Rubber Tired Dozers	1	7	255	0.4
	Tractors/Loaders/ Backhoes	1	8	97	0.37
	Forklifts	1	6	89	0.2
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/ Backhoes	1	6	97	0.37
Paving	Cement and Mortar Mixers	1	6	9	0.56
	Pavers	1	6	125	0.42
	Paving Equipment	1	8	130	0.36
	Rollers	1	7	80	0.38
	Tractors/Loaders/ Backhoes	1	8	97	0.37

Source: CalEEMod Defaults.

Table 5.C: Short-Term Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions, lbs/day								
	VOC	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	CO_2e
Site Preparation	2.6	27	18	0.018	2.3	1.5	1.2	1.4	1,900
Grading	2.1	22	15	0.015	2.0	1.2	1.0	1.1	1,600
Building Construction	4.0	23	20	0.028	0.35	1.5	0.094	1.5	2,600
Architectural Coating	5.9	2.6	2.4	0.0036	0.049	0.22	0.013	0.22	340
Paving	1.8	15	10	0.015	0.11	0.89	0.028	0.82	1,500
Peak Daily	9.9	27	22	0.032	3.8		2.6		2,900
MDAQMD Thresholds	**137**	**137**	**548**	**137**	**82**		**82**		**No Threshold**
Significant Emissions?	**No**	**No**	**No**	**No**	**No**		**No**		

Source: LSA Associates, Inc., May 2014.
Note: Peak daily emissions are based on a worst case assumption that the Building Construction and Architectural Coating phases would overlap.
CO = carbon monoxide
CO_2 = carbon dioxide
CO_{2e} = carbon dioxide equivalent
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
MDAQMD = Mojave Desert Air Quality Management District
SO_2 = sulfur dioxides
VOC = volatile organic compounds

Table 5.D: Annual Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions, tons/year							
	VOC	**NO_X**	**CO**	**SO_2**	**Fugitive PM_{10}**	**Exhaust PM_{10}**	**Fugitive $PM_{2.5}$**	**Exhaust $PM_{2.5}$**
Site Preparation	0.0026	0.027	0.018	0.00002	0.0059	0.0015	0.003	0.0014
Grading	0.0042	0.044	0.029	0.00003	0.01	0.0024	0.0051	0.0022
Building Construction	0.4	2.3	2	0.0028	0.034	0.15	0.0092	0.15
Architectural Coating	0.33	0.15	0.13	0.0002	0.0028	0.013	0.00073	0.013
Paving	0.009	0.074	0.051	0.00008	0.00052	0.0045	0.00014	0.0041
Total Annual Construction Emissions	0.75	2.6	2.2	0.0031	0.22		0.19	
MDAQMD Thresholds	**25**	**25**	**100**	**25**	**15**		**15**	
Significant Emissions?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: LSA Associates, Inc., May 2014.
Note: Emissions are based on a worst case assumption that the Building Construction and Architectural Coating phases would overlap.
CO = carbon monoxide
MDAQMD = Mojave Desert Air Quality Management District
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SO_2 = sulfur dioxides
VOC = volatile organic compounds

It is not expected that during construction phases, any criteria pollutant emissions will exceed the MDAQMD emissions thresholds for peak day or annual emissions. Thus, construction emissions control measures will be recommended only to minimize the project's construction emissions. Details of the emission factors and other assumptions are included in Appendix A.

5.1.2 Fugitive Dust

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. It is assumed that soil will be balanced on site to minimize the need for import or export of soil during project construction.

Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. The proposed project will be required to comply with MDAQMD Rules 402 and 403 to control fugitive dust. Tables 5.E and 5.F list total construction emissions (i.e., fugitive-dust emissions and construction-equipment exhausts) that have incorporated all required control measures to reduce PM_{10} emissions from construction. Tables 5.E and 5.F show that daily and annual total construction PM_{10} and $PM_{2.5}$ emissions with standard control measures would be below the daily and annual thresholds established by the MDAQMD.

Table 5.E: Opening Year Regional Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	1.9	0.00018	0.019	0	0.00007	0.00007
Energy Sources	0.042	0.39	0.32	0.0023	0.029	0.029
Mobile Sources	7.2	17	82	0.088	5.5	1.6
Total Project Emissions	9.1	17	82	0.09	5.5	1.6
MDAQMD Thresholds	137	137	548	137	82	82
Significant?	No	No	No	No	No	No

Source: LSA Associates, Inc., May 2014.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
MDAQMD = Mojave Desert Air Quality Management District
SO_x = sulfur oxides
VOC = volatile organic compounds

Table 5.F: Opening Year Regional Operational Emissions

Source	Pollutant Emissions, tons/year					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	0.35	0.00002	0.0017	0	0.00001	0.00001
Energy Sources	0.0077	0.07	0.059	0.00042	0.0053	0.0053
Mobile Sources	1.3	3.1	16	0.015	0.98	0.29
Total Annual Operational Emissions	**1.7**	**3.2**	**16**	**0.015**	**0.99**	**0.3**
MDAQMD Thresholds	**25**	**25**	**100**	**25**	**15**	**15**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA Associates, Inc., May 2014.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
MDAQMD = Mojave Desert Air Quality Management District
SO_x = sulfur oxides
VOC = volatile organic compounds

5.1.3 Architectural Coatings

Architectural coatings contain VOCs that are similar to ROCs and are part of the O_3 precursors. At this stage of project planning, no detailed architectural coatings information is available. Compliance with MDAQMD Rule 1113 on the use of architectural coatings will minimize emissions from any small touch-up coating required. No significant ROC emissions are expected, and no mitigation is required.

5.1.4 Odors

Heavy-duty equipment in the project area during construction would emit odors. However, the construction activity would be short-term and would cease to occur after construction is completed.

No other sources of objectionable odors have been identified for the proposed project. No mitigation measures are recommended.

MDAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.

5.1.5 Naturally Occurring Asbestos

The proposed project is located in San Bernardino County, which is not among the counties that are found to have serpentine and ultramafic rock in their soils. Therefore, the potential risk for naturally occurring asbestos during project construction is small and less than significant.

5.2 LONG TERM AIR QUALITY IMPACTS

5.2.1 Regional Project Operational Emissions

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving any project-related changes, and are shown in Tables 5.G and 5.H. Table 5.G shows the daily emissions and Table 5.H shows the annual emissions from the proposed project. Area sources include architectural coatings, consumer products, and landscaping. Energy sources include electricity for lighting. Based on trip generation factors, included in the traffic study (LSA Associates, Inc., May 2014) that are obtained from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition*, long-term operational emissions associated with the proposed project, calculated with the CalEEMod model, are shown in Tables 5.G and 5.H, which show that all criteria pollutant emissions as a result of the proposed project would be below the corresponding MDAQMD daily and annual, respectively, emission thresholds. Therefore, project-related long-term regional air quality impacts would be less than significant.

Table 5.G: Short-Term Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions, mt/yr			
	CO_2	CH_4	N_2O	CO_2e
Site Preparation	1.7	0.00049	0	1.7
Grading	2.8	0.00081	0	2.8
Building Construction		0.045	0	240
Architectural Coating	17	0.0021	0	17
Paving	6.7	0.0019	0	6.8

Source: LSA Associates, Inc., May 2014.
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
mt/yr = metric tons per year
N_2O = nitrous oxide

Total construction GHG emissions = 265 metric tons CO_2e

Table 5.H: Long-Term Operational Greenhouse Gas Emissions

Source	Pollutant Emissions, MT/year					
	Bio- CO_2	NBio- CO_2	Total CO_2	CH_4	N_2O	CO_2e
Construction emissions amortized over 30 years	0	8.8	8.8	0.0017	0	8.8
Operational Emissions						
Area Sources	0	0.0032	0.0032	0.00001	0	0.0034
Energy Sources	0	260	260	0.0097	0.0031	260
Mobile Sources	0	1,200	1,200	0.06	0	1,200
Waste Sources	12	0	12	0.69	0	26
Water Usage	0.59	7.9	8.4	0.061	0.0015	10
Total Project Emissions	13	1,500	1,500	0.82	0.0046	1,500

Source: LSA Associates, Inc., May 2014.
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT = metric tons
N_2O = nitrous oxide
NBio-CO_2 = Non-biologically generated CO_2

5.3 GREENHOUSE GAS EMISSIONS

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the State per year.[1]
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

[1] CEC, 2004. *Water Energy Use in California* (online information sheet) Sacramento, CA, August 24. Website: energy.ca.gov/pier/iaw/industry/water.html (accessed July 24, 2007).

- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

GHG emissions associated with the project would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. There would also be long-term regional emissions associated with project-related new vehicular trips and stationary-source emissions, such as natural gas used for heating and electricity usage for lighting. Preliminary guidance from OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. The calculation presented below includes construction emissions in terms of CO_2 and annual CO_2e GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the project.

GHG emissions generated by the proposed project would predominantly consist of CO_2. In comparison to criteria air pollutants such as O_3 and PM_{10}, CO_2 emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs, such as CH_4, are important with respect to GCC, emission levels of other GHGs are less dependent on the land use and circulation patterns associated with the proposed land use development project than are levels of CO_2.

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

The only GHG with well-studied emissions characteristics and published emissions factors for construction equipment is CO_2. Table 5.I lists the annual CO_2 emissions for the single highest year of each of the planned construction phases. In other words, the multi-year Phase 3 Building Construction will emit 240 MT of CO_2e during the peak year and something less for the other years of the Phase 3 Building Construction. Total construction GHG emissions over the entire construction period are estimated to be 265 MT of CO_2e.

Architectural coatings used in construction of the project may contain VOCs that are similar to ROGs and are part of O_3 precursors. However, there are no significant emissions of GHGs from architectural coatings.

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with on-site facilities and customers/visitors to the project site. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed uses.

Table 5.I: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Energy Efficiency Measures	
Energy Efficiency. Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities). **Renewables Portfolio Standard.** Achieve a 33 percent renewable energy mix statewide. **Green Building Strategy.** Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Compliant with Mitigation Incorporated.** The proposed project will comply with the updated Title 24 standards, including the 2010 CBC, for building construction. In addition, the project would implement Project Feature GCC-1, identified later, including measures to incorporate energy-efficient building design features.
Water Conservation and Efficiency Measures	
Water Use Efficiency. Continue efficiency programs and use cleaner energy sources to move and treat water. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	**Compliant.** The project would implement Project Feature GCC-1, identified later, including measures to increase water use efficiency.
Solid Waste Reduction Measures	
Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste. Increase waste diversion from landfills beyond the 50 percent mandate to provide for additional recovery of recyclable materials. Composting and commercial recycling could have substantial GHG reduction benefits. In the long term, zero-waste policies that would require manufacturers to design products to be fully recyclable may be necessary.	**Compliant.** Data available from the CIWMB indicate that the San Bernardino County has not achieved the 50 percent diversion rate. The proposed project would implement Project Feature GCC-1, identified later, including measures to increase solid waste diversion, composting, and recycling.
Transportation and Motor Vehicle Measures	
Vehicle Climate Change Standards. AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the ARB in September 2004. **Light-Duty Vehicle Efficiency Measures.** Implement additional measures that could reduce light-duty GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency. **Adopt Heavy- and Medium-Duty Fuel and Engine Efficiency Measures.** Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles. **Low Carbon Fuel Standard.** The ARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	**Compliant.** The project does not involve the manufacture of vehicles. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the ARB adopts.

Table 5.I: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Regional Transportation-Related Greenhouse Gas Targets. Develop regional GHG emissions reduction targets for passenger vehicles. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.	**Compliant.** Specific regional emission targets for transportation emissions do not directly apply to this project; regional GHG reduction target development is outside the scope of this project. The project will comply with any plans developed by the County of San Bernardino.
Measures to Reduce High-GWP Gases. The ARB has identified Discrete Early Action measures to reduce GHG emissions from the refrigerants used in car air conditioners, semiconductor manufacturing, and consumer products. The ARB has also identified potential reduction opportunities for future commercial and industrial refrigeration, changing the refrigerants used in auto air conditioning systems, and ensuring that existing car air conditioning systems do not leak.	**Compliant.** New products used or serviced on the project site (after implementation of the reduction of GHGs) would comply with ARB rules and regulations in place at the time of building permit issuance.

Source: LSA Associates, Inc., May 2014.
AB = Assembly Bill
ARB = California Air Resources Board
CBC = California Building Code
CIWMB = California Integrated Waste Management Board
GHG = greenhouse gas
GWP = Global Warming Potential

The GHG emission estimates presented in Table 5.J show the emissions associated with the level of development envisioned by the proposed project at build out. Appendix A includes the worksheets for the GHG emissions. Area sources include architectural coatings, consumer products, hearth, and landscaping. Energy sources include natural gas consumption for heating and cooking.

Table 5.J: Long-Term Operational Greenhouse Gas Emissions

	Pollutant Emissions, MT/year					
Source	**Bio- CO_2**	**NBio- CO_2**	**Total CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction emissions amortized over 30 years	0	8.8	8.8	0.0017	0	8.8
Operational Emissions						
Area Sources	0	0.0032	0.0032	0.00001	0	0.0034
Energy Sources	0	260	260	0.0097	0.0031	260
Mobile Sources	0	1,200	1,200	0.06	0	1,200
Waste Sources	12	0	12	0.69	0	26
Water Usage	0.59	7.9	8.4	0.061	0.0015	10
Total Project Emissions	**13**	**1,500**	**1,500**	**0.82**	**0.0046**	**1,500**

Source: LSA Associates, Inc., May 2014.
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.
Bio-CO_2 = biologically generated CO_2
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT = metric tons
N_2O = nitrous oxide
NBio-CO_2 = Non-biologically generated CO_2

As shown in Table 5.J, the project will produce 1,500 MT of CO_2e/yr, which is 0.0015 $MMTCO_2e$/yr. For comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 $MMTCO_2e$/yr, and the existing emissions for the entire State are estimated at approximately 496.95 $MMTCO_2e$/yr.

As described above, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Consequently, it is difficult to determine how project-related GHG emissions would contribute to GCC and how GCC may impact California. Therefore, project-related GHG emissions are not project-specific impacts to global warming but are instead the project's contribution to this cumulative impact. As stated previously, project-related CO_2 emissions and their contribution to GCC impacts in the State of California would be less than significant and less than cumulatively considerable because the project's impacts alone would not cause or significantly contribute to GCC.

Energy/Natural Gas Use. Buildings represent 39 percent of the United States' primary energy usage and 70 percent of its electricity consumption.[1] The proposed project would increase the demand for electricity and natural gas due to the increased building area and number of residents. The project would indirectly result in increased GHG emissions from off-site electricity generation at power plants and on-site natural gas consumption (260 MT of CO_2e/yr).

Area Sources. Area sources of GHG emissions include architectural coatings, consumer products, hearth, and landscaping. The project would result in increased GHG emissions from the area sources (0.0034 MT of CO_2e/yr).

Water Use. Water-related energy use consumes 19 percent of California's electricity every year.[2] Energy use and related GHG emissions are based on electricity used for water supply and conveyance, water treatment, water distribution, and wastewater treatment. The project would indirectly result in increased GHG emissions from the off-site electricity generation at power plants and on-site natural gas consumption (10 MT of CO_2e/yr).

Solid Waste Disposal. The proposed project would also generate solid waste during the operation phase of the project. Average waste generation rates from a variety of sources are available from the California Integrated Waste Management Board (CIWMB).[3] The project would indirectly result in increased GHG emissions from solid waste treatment at treatment plants (26 MT of CO_2e/yr).

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

2 State of California Code of Regulations (CCR), 2005. CEC. California's Water-Energy Relationship. November.

3 California Integrated Waste Management Board (CIWMB), 2009. Estimated Solid Waste Generation Rates for Residential Developments. Available at http://www.ciwmb.ca.gov/wastechar/wastegenrates/Residential.htm.

Mobile Sources. Mobile sources (vehicle trips and associated miles traveled) are the largest source of GHG emissions in California and represent approximately 38 percent of annual CO_2 emissions generated in the State. Like most land use development projects, VMT is the most direct indicator of CO_2 emissions from the proposed project, and associated CO_2 emissions function as the best indicator of total GHG emissions.

Mobile sources from the proposed project would generate up to 1,200 MT of CO_2e/yr of new emissions, as shown in Table 5.J. Emissions from vehicle exhaust would comprise approximately 80 percent of the project's total CO_2e emissions. Emissions from vehicle exhaust are controlled by the State and federal governments and are outside the control of the County.

The remaining CO_2e emissions are primarily associated with building heating systems and increased regional power plant electricity generation due to the project's electrical demands. Specific development projects proposed under the project would comply with existing State and federal regulations regarding the energy efficiency of buildings, appliances, and lighting, which would reduce the project's electricity demand. The new buildings constructed in accordance with current energy efficiency standards would be more energy efficient than older buildings. Beginning on January 1, 2011, several new Building Codes have been enforced in California. All structures other than one- and two-family dwellings and townhomes will be built under the new 2010 California Building Code (CBC) to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices.

At present, there is a federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed the project would not generate emissions of CFCs. The project may emit a small amount of HFCs from leakage and service of refrigeration and air-conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used at the project site are unknown at this time. PFCs and SF_6 are typically used in industrial applications, none of which would be used on the project site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

As shown in Table 5.J, the total net increase in GHG emissions of 1,500 tpy, or approximately 8,200 lbs/day, of CO_2e from the proposed project will be less than the MDAQMD GHG emissions threshold of 10,000 tpy or 548,000 lbs/day or CO_2e. This project total includes both direct (amortized construction, area source, and mobile) and indirect (electricity, solid waste, and water usage) GHG emissions. Therefore, the project will not result in significant generation of GHGs, either directly or indirectly, and will not have a significant impact on the environment due to GHG emissions.

This emissions level is also unlikely to result in GHG emission levels that would substantially conflict with implementation of the GHG reduction goals under AB 32 or other State regulations. The CAT and the ARB have developed several reports to achieve the Governor's GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentive and regulatory programs. These include the CAT's 2006 "*Report to Governor Schwarzenegger and the Legislature*," the ARB's 2007 "*Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,*" and the ARB's "*Climate Change Proposed Scoping Plan: a Framework for Change.*"

The reports identify strategies to reduce California's emissions to the levels proposed in EO S-3-05 and AB 32 that are applicable to the proposed project. The Proposed Scoping Plan is the most recent document, and the strategies included in the Scoping Plan that apply to the project are contained in Table 5.I, which also summarizes the extent to which the project would comply with the strategies to help California reach the emission reduction targets.

The strategies listed in Table 5.I are either part of the project, required mitigation measures, or requirements under local or State ordinances. With implementation of these strategies/measures, the project's contribution to cumulative GHG emissions would be reduced. In order to ensure that the proposed project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32, the Governor's EO S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor, Project Feature GCC-1 shall be implemented. Many of the individual elements of this measure are already included as part of the proposed project or are required as part of project-specific mitigation measures. Thus, the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

5.4 LONG-TERM MICROSCALE (CO HOT-SPOT) ANALYSIS

Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase in local areas as a result of the proposed project. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, school children, the elderly, hospital patients, etc.).

Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity are not available. Ambient CO levels monitored at the Barstow Station, the closest station with sufficient monitored CO data, showed a highest recorded 1-hour concentration of 5.3 ppm (State standard is 20 ppm) and a highest 8-hour concentration of 1.35 ppm (State standard is 9 ppm) during the past 3 years (see Table 3.E).

The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. The proposed project would contribute to increased CO concentrations at intersections in the project vicinity. However, since the project area shows records of 1-hour and 8-hour CO concentrations much lower than the federal and State standards, and the proposed project would not contribute any significant increase to the 1-hour and 8-hour CO concentrations at the intersections in the project vicinity. Because no CO hot spots

would occur, the proposed project would have a less than significant impact on local air quality for CO, and no mitigation measures would be required.

5.5 AIR QUALITY MANAGEMENT PLAN CONSISTENCY

An AQMP describes air pollution control strategies to be taken by a city, county, or region classified as a nonattainment area. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. CEQA requires that certain proposed projects be analyzed for consistency with the AQMP. For a project to be consistent with the AQMP adopted by the MDAQMD, the pollutants emitted from the project should not exceed the MDAQMD daily threshold or cause a significant impact on air quality, or the project must already have been included in the AQMP projection. However, if feasible mitigation measures are implemented and shown to reduce the impact level from significant to less than significant, a project may be deemed consistent with the AQMP. The AQMP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Since the AQMP is based on the local General Plan, projects that are deemed consistent with the General Plan are found to be consistent with the AQMP.

The proposed project consists of the construction of a travel center to accommodate the business growth in the project vicinity and is not a growth-inducing project. Since designations are consistent with the current General Plan, implementation of the project will not require any amendments to the County's zoning designations for the project site. Therefore, the proposed project would be within the County's General Plan projection. The proposed project is consistent with the adopted MDAQMD AQMP.

5.6 CUMULATIVE IMPACTS

The project would contribute criteria pollutants to the area during temporary project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. This would be a contribution to short-term cumulative air quality impacts.

Currently, the Basin is in nonattainment for PM_{10}, $PM_{2.5}$, and O_3. Construction of the proposed project, in conjunction with other planned developments within the cumulative study area, would contribute to the existing nonattainment status. Therefore, the proposed project would exacerbate nonattainment of air quality standards within the Basin and contribute to adverse cumulative air quality impacts. No feasible quantifiable mitigation measures have been identified to reduce this impact.

5.7 STANDARD CONDITIONS

5.7.1 Construction Impacts

The project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. MDAQMD Rule 403 requires that fugitive dust be controlled with best-available control

measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, MDAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors. As shown in Tables 5.C and 5.D, implementation of Rule 403 measures results in dust emissions below MDAQMD thresholds.

The applicable Rule 403 measures are as follows:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least twice daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 m (2 ft) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code (CVC) Section 23114.
- Pave construction access roads at least 30 m (100 ft) onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.

5.7.2 Project Operations

The project would not result in total (vehicular and stationary) daily emissions that exceed the daily or annual emissions thresholds established by the MDAQMD. However, the proposed project is required to comply with Title 24 of the CCR established by the CEC regarding energy conservation standards. The project applicant shall incorporate the following in building plans:

- Low emission water heaters shall be used. Solar water heaters are encouraged.
- Exterior windows shall utilize window treatments for efficient energy conservation.

5.8 PROJECT FEATURE

5.8.1 Global Climate Change Impacts

Project Feature GCC 1 To ensure reductions below the expected "Business As Usual" (BAU) scenario, the project will implement a variety of measures that will reduce its greenhouse gas (GHG) emissions. To the extent feasible, and to the satisfaction of the County of San Bernardino (County), the following measures will be incorporated into the design and construction of the project (including specific building projects):

Construction and Building Materials.

- Divert at least 50 percent of the demolished and/or grubbed construction materials (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

Energy Efficiency Measures.

- Design all project buildings to exceed the California Building Code's (CBC) Title 24 energy standard by 15 percent, such as installing energy efficient heating and cooling systems, appliances and equipment, and control systems.

Water Conservation and Efficiency Measures.

- Devise a comprehensive water conservation strategy appropriate for the project and its location. The strategy may include the following, plus other innovative measures that may be appropriate:
  - Create water efficient landscapes within the development.
  - Install water efficient irrigation systems and devices, such as soil moisture based irrigation controls.
  - Restrict watering methods (e.g., prohibit systems that apply water to nonvegetated surfaces) and control runoff.

In addition, the project would be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. With implementation of Project Feature GCC 1 and application of regulatory requirements, the project would have GHG emissions below those expected for a BAU project and would not conflict with or impede implementation of reduction goals identified in AB 32, the Governor's EO S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. Therefore, the project's contribution to cumulative GHG emissions would be less than significant.

5.9 MITIGATION MEASURES

5.9.1 Construction Impacts

A. The following additional dust suppression measures in the Mojave Desert Air Quality Management District (MDAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook are included to further reduce the project's emissions:

   - Revegetate disturbed areas as quickly as possible.
   - Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour (mph).

- Sweep all streets once per day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site.
- Pave, water, or chemically stabilize all on-site roads as soon as feasible.
- Minimize at all times the area disturbed by clearing, grading, earthmoving, or excavation operations.

B. The Construction Contractor should select the construction equipment used on site based on low emission factors and high energy efficiency. The Construction Contractor should ensure that construction grading plans include a statement that all construction equipment will be tuned and maintained in accordance with the manufacturer's specifications. In addition, all trucks should not idle continuously for more than 5 minutes at any one time.

C. The Construction Contractor should utilize electric or alternative fuel powered equipment in lieu of gasoline- or diesel-powered engines where feasible.

D. The Construction Contractor should ensure that construction grading plans include a statement that work crews will shut off equipment not in use. During smog season (May through October), the overall length of the construction period will be extended, thereby decreasing the size of the area prepared each day, to minimize vehicles and equipment operating at the same time.

E. The Construction Contractor should time the construction activities so as to not interfere with peak-hour traffic and minimize obstruction of through traffic lanes adjacent to the site; if necessary, a flagperson should be retained to maintain safety adjacent to existing roadways.

F. The Construction Contractor should support and encourage ridesharing and transit incentives for the construction crew.

G. To the extent practicable use required coatings and solvents with a volatile organic compounds (VOC) content lower than required under Rule 1113, or no VOC paints and architectural coatings should be employed. A list of low/no VOC paints is provided at the following MDAQMD website: www.aqmd.gov/prdas/brochures/paintguide.html. All paints shall be applied using either high volume, low pressure (HVLP) spray equipment or by hand application. Correlating notations shall appear on the project construction plans and construction documents.

5.9.2 Operational Impacts

A. Prohibit all diesel trucks from idling in excess of 5 minutes while on the project site.

B. Restrict overnight parking in residential areas.

C. Require all travel center facilities to operate the cleanest vehicles available.

5.10 SIGNIFICANCE AFTER MITIGATION

5.10.1 Construction Impacts

Emissions during project construction would not exceed any criteria pollutant threshold established by the MDAQMD. The project construction emissions would be less than significant.

5.10.2 Operational Impacts

Pollutant emissions from project operation would not exceed any of the MDAQMD thresholds for criteria pollutants. Therefore, project related, long term, regional, air quality impacts would be less than significant.

6.0 REFERENCES

California Air Resources Board website: http://www.arb.ca.gov.

California Department of Transportation (Caltrans). Transportation Project-Level Carbon Monoxide Protocol. 1997.

LSA Associates, Inc. *Traffic Impact Analysis*, May 2014.

Mojave Desert Air Quality Management District. Air Quality Management Plan.

Mojave Desert Air Quality Management District. *CEQA and Federal Conformity Guidelines*. 2011.

Mojave Desert Air Quality Management District. *Rule 403*.

Western Regional Climate Center website: http://www.wrcc.dri.edu.

APPENDIX A

CALEEMOD MODEL PRINTOUTS

Yermo Travel Stop Project

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	140.00	Space	1.26	56,000.00	0
Fast Food Restaurant w/o Drive Thru	5.00	1000sqft	0.11	5,000.00	0
Convenience Market With Gas Pumps	32.00	Pump	0.10	20,060.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Building is 25,060 sf with a convenience store, restaurant and storage.

Construction Phase - Assume architectural coatings are applied during the building construction phase.

Vehicle Trips - Used peak daily trip rates from traffic study for all days, 25.8 for convenience store, 100.88 for restaurant. Doubled the default trip lengths.

Construction Off-road Equipment Mitigation - Dust control measures per MDAQMD rules.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	114.00
tblConstructionPhase	PhaseEndDate	4/20/2016	11/12/2015
tblConstructionPhase	PhaseStartDate	11/13/2015	6/6/2015

tblLandUse	LandUseSquareFeet	4,517.60	20,060.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	ST_TR	204.47	25.80
tblVehicleTrips	ST_TR	696.00	100.88
tblVehicleTrips	SU_TR	166.88	25.80
tblVehicleTrips	SU_TR	500.00	100.88
tblVehicleTrips	WD_TR	542.60	25.80
tblVehicleTrips	WD_TR	716.00	100.88

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2015	9.8272	26.9459	22.3329	0.0317	5.8653	1.7389	7.3328	2.9711	1.6855	4.3213	0.0000	2,961.4433	2,961.4433	0.5425	0.0000	2,972.8366
Total	**9.8272**	**26.9459**	**22.3329**	**0.0317**	**5.8653**	**1.7389**	**7.3328**	**2.9711**	**1.6855**	**4.3213**	**0.0000**	**2,961.4433**	**2,961.4433**	**0.5425**	**0.0000**	**2,972.8366**

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	lb/day										lb/day					
2015	9.8272	26.9459	22.3329	0.0317	2.3276	1.7389	3.7951	1.1694	1.6855	2.5195	0.0000	2,961.4433	2,961.4433	0.5425	0.0000	2,972.8366
Total	**9.8272**	**26.9459**	**22.3329**	**0.0317**	**2.3276**	**1.7389**	**3.7951**	**1.1694**	**1.6855**	**2.5195**	**0.0000**	**2,961.4433**	**2,961.4433**	**0.5425**	**0.0000**	**2,972.8366**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.32**	**0.00**	**48.25**	**60.64**	**0.00**	**41.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Energy	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
Mobile	7.2227	15.8591	81.8795	0.0875	5.2737	0.2343	5.5080	1.4078	0.2150	1.6228		7,903.0400	7,903.0400	0.3624		7,910.6501
Total	**9.1714**	**16.2445**	**82.2218**	**0.0898**	**5.2737**	**0.2636**	**5.5373**	**1.4078**	**0.2444**	**1.6521**		**8,365.3154**	**8,365.3154**	**0.3714**	**8.4700e-003**	**8,375.7410**

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	lb/day										lb/day					
Area	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Energy	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
Mobile	7.2227	15.8591	81.8795	0.0875	5.2737	0.2343	5.5080	1.4078	0.2150	1.6228		7,903.0400	7,903.0400	0.3624		7,910.6501
Total	**9.1714**	**16.2445**	**82.2218**	**0.0898**	**5.2737**	**0.2636**	**5.5373**	**1.4078**	**0.2444**	**1.6521**		**8,365.3154**	**8,365.3154**	**0.3714**	**8.4700e-003**	**8,375.7410**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	1/31/2015	2/5/2015	5	4	
3	Building Construction	Building Construction	2/6/2015	11/12/2015	5	200	
4	Architectural Coating	Architectural Coating	6/6/2015	11/12/2015	5	114	
5	Paving	Paving	11/13/2015	11/26/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,110; Non-Residential Outdoor: 13,370 (Architectural Coating –

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**		**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0573	0.6666	8.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		71.0280	71.0280	4.6400e-003		71.1255
Total	**0.0413**	**0.0573**	**0.6666**	**8.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**71.0280**	**71.0280**	**4.6400e-003**		**71.1255**

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	lb/day										lb/day					
Fugitive Dust					2.2618	0.0000	2.2618	1.1519	0.0000	1.1519			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**2.2618**	**1.4671**	**3.7289**	**1.1519**	**1.3497**	**2.5016**	**0.0000**	**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0573	0.6666	8.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		71.0280	71.0280	4.6400e-003		71.1255
Total	**0.0413**	**0.0573**	**0.6666**	**8.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**71.0280**	**71.0280**	**4.6400e-003**		**71.1255**

3.3 Grading - 2015

Unmitigated Construction On-Site

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

Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.9143**	**1.1968**	**6.1110**	**2.5256**	**1.1011**	**3.6267**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0573	0.6666	8.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		71.0280	71.0280	4.6400e-003		71.1255
Total	**0.0413**	**0.0573**	**0.6666**	**8.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**71.0280**	**71.0280**	**4.6400e-003**		**71.1255**

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	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**1.9166**	**1.1968**	**3.1134**	**0.9850**	**1.1011**	**2.0860**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0573	0.6666	8.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		71.0280	71.0280	4.6400e-003		71.1255
Total	**0.0413**	**0.0573**	**0.6666**	**8.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**71.0280**	**71.0280**	**4.6400e-003**		**71.1255**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

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	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1887	1.1853	2.2607	2.8500e-003	0.0854	0.0306	0.1160	0.0242	0.0282	0.0524		286.9876	286.9876	1.8100e-003		287.0256
Worker	0.1650	0.2294	2.6665	3.3300e-003	0.2629	1.9700e-003	0.2648	0.0697	1.7900e-003	0.0715		284.1120	284.1120	0.0186		284.5018
Total	**0.3537**	**1.4147**	**4.9272**	**6.1800e-003**	**0.3483**	**0.0326**	**0.3809**	**0.0940**	**0.0300**	**0.1239**		**571.0996**	**571.0996**	**0.0204**		**571.5274**

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	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1887	1.1853	2.2607	2.8500e-003	0.0854	0.0306	0.1160	0.0242	0.0282	0.0524		286.9876	286.9876	1.8100e-003		287.0256
Worker	0.1650	0.2294	2.6665	3.3300e-003	0.2629	1.9700e-003	0.2648	0.0697	1.7900e-003	0.0715		284.1120	284.1120	0.0186		284.5018

Total	**0.3537**	**1.4147**	**4.9272**	**6.1800e-003**	**0.3483**	**0.0326**	**0.3809**	**0.0940**	**0.0300**	**0.1239**		**571.0996**	**571.0996**	**0.0204**		**571.5274**

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.4360					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**5.8426**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0309	0.0430	0.5000	6.2000e-004	0.0493	3.7000e-004	0.0497	0.0131	3.4000e-004	0.0134		53.2710	53.2710	3.4800e-003		53.3441
Total	**0.0309**	**0.0430**	**0.5000**	**6.2000e-004**	**0.0493**	**3.7000e-004**	**0.0497**	**0.0131**	**3.4000e-004**	**0.0134**		**53.2710**	**53.2710**	**3.4800e-003**		**53.3441**

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	lb/day										lb/day					
Archit. Coating	5.4360					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**5.8426**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0309	0.0430	0.5000	6.2000e-004	0.0493	3.7000e-004	0.0497	0.0131	3.4000e-004	0.0134		53.2710	53.2710	3.4800e-003		53.3441
Total	**0.0309**	**0.0430**	**0.5000**	**6.2000e-004**	**0.0493**	**3.7000e-004**	**0.0497**	**0.0131**	**3.4000e-004**	**0.0134**		**53.2710**	**53.2710**	**3.4800e-003**		**53.3441**

3.6 Paving - 2015

Unmitigated Construction On-Site

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

Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.3301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7342**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0932	1.0833	1.3500e-003	0.1068	8.0000e-004	0.1076	0.0283	7.3000e-004	0.0291		115.4205	115.4205	7.5400e-003		115.5789
Total	**0.0670**	**0.0932**	**1.0833**	**1.3500e-003**	**0.1068**	**8.0000e-004**	**0.1076**	**0.0283**	**7.3000e-004**	**0.0291**		**115.4205**	**115.4205**	**7.5400e-003**		**115.5789**

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	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.3301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7342**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0932	1.0833	1.3500e-003	0.1068	8.0000e-004	0.1076	0.0283	7.3000e-004	0.0291		115.4205	115.4205	7.5400e-003		115.5789
Total	**0.0670**	**0.0932**	**1.0833**	**1.3500e-003**	**0.1068**	**8.0000e-004**	**0.1076**	**0.0283**	**7.3000e-004**	**0.0291**		**115.4205**	**115.4205**	**7.5400e-003**		**115.5789**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.2227	15.8591	81.8795	0.0875	5.2737	0.2343	5.5080	1.4078	0.2150	1.6228		7,903.0400	7,903.0400	0.3624		7,910.6501
Unmitigated	7.2227	15.8591	81.8795	0.0875	5.2737	0.2343	5.5080	1.4078	0.2150	1.6228		7,903.0400	7,903.0400	0.3624		7,910.6501

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Convenience Market With Gas Pumps	825.60	825.60	825.60	862,880	862,880
Fast Food Restaurant w/o Drive Thru	504.40	504.40	504.40	1,618,250	1,618,250
Parking Lot	0.00	0.00	0.00		
Total	1,330.00	1,330.00	1,330.00	2,481,130	2,481,130

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Convenience Market With Gas Pumps	19.00	14.60	14.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive Thru	19.00	14.60	14.30	1.50	79.50	19.00	51	37	12
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.439326	0.070293	0.181647	0.159541	0.045271	0.007627	0.006435	0.073565	0.000871	0.001112	0.010186	0.000590	0.003534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
NaturalGas Unmitigated	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	127.505	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0006	15.0006	2.9000e-004	2.8000e-004	15.0918
Fast Food Restaurant w/o Drive Thru	3801.51	0.0410	0.3727	0.3131	2.2400e-003		0.0283	0.0283		0.0283	0.0283		447.2361	447.2361	8.5700e-003	8.2000e-003	449.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0424**	**0.3852**	**0.3236**	**2.3200e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**		**462.2367**	**462.2367**	**8.8600e-003**	**8.4800e-003**	**465.0497**

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/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	3.80151	0.0410	0.3727	0.3131	2.2400e-003		0.0283	0.0283		0.0283	0.0283		447.2361	447.2361	8.5700e-003	8.2000e-003	449.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	0.127505	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0006	15.0006	2.9000e-004	2.8000e-004	15.0918
Total		**0.0424**	**0.3852**	**0.3236**	**2.3200e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**		**462.2367**	**462.2367**	**8.8600e-003**	**8.4800e-003**	**465.0497**

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	lb/day										lb/day					
Mitigated	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Unmitigated	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411

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	lb/day										lb/day					
Architectural Coating	0.1698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8500e-003	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Total	**1.9063**	**1.8000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0387**	**0.0387**	**1.1000e-004**		**0.0411**

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	lb/day										lb/day					

Architectural Coating	0.1698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8500e-003	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Total	**1.9063**	**1.8000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0387**	**0.0387**	**1.1000e-004**		**0.0411**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Yermo Travel Stop Project

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	140.00	Space	1.26	56,000.00	0
Fast Food Restaurant w/o Drive Thru	5.00	1000sqft	0.11	5,000.00	0
Convenience Market With Gas Pumps	32.00	Pump	0.10	20,060.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Building is 25,060 sf with a convenience store, restaurant and storage.

Construction Phase - Assume architectural coatings are applied during the building construction phase.

Vehicle Trips - Used peak daily trip rates from traffic study for all days, 25.8 for convenience store, 100.88 for restaurant. Doubled the default trip lengths.

Construction Off-road Equipment Mitigation - Dust control measures per MDAQMD rules.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	114.00
tblConstructionPhase	PhaseEndDate	4/20/2016	11/12/2015
tblConstructionPhase	PhaseStartDate	11/13/2015	6/6/2015

tblLandUse	LandUseSquareFeet	4,517.60	20,060.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	ST_TR	204.47	25.80
tblVehicleTrips	ST_TR	696.00	100.88
tblVehicleTrips	SU_TR	166.88	25.80
tblVehicleTrips	SU_TR	500.00	100.88
tblVehicleTrips	WD_TR	542.60	25.80
tblVehicleTrips	WD_TR	716.00	100.88

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2015	9.8220	26.9487	22.0582	0.0312	5.8653	1.7392	7.3328	2.9711	1.6858	4.3213	0.0000	2,918.1748	2,918.1748	0.5425	0.0000	2,929.5681
Total	**9.8220**	**26.9487**	**22.0582**	**0.0312**	**5.8653**	**1.7392**	**7.3328**	**2.9711**	**1.6858**	**4.3213**	**0.0000**	**2,918.1748**	**2,918.1748**	**0.5425**	**0.0000**	**2,929.5681**

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	lb/day										lb/day					
2015	9.8220	26.9487	22.0582	0.0312	2.3276	1.7392	3.7951	1.1694	1.6858	2.5195	0.0000	2,918.1748	2,918.1748	0.5425	0.0000	2,929.5681
Total	**9.8220**	**26.9487**	**22.0582**	**0.0312**	**2.3276**	**1.7392**	**3.7951**	**1.1694**	**1.6858**	**2.5195**	**0.0000**	**2,918.1748**	**2,918.1748**	**0.5425**	**0.0000**	**2,929.5681**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.32**	**0.00**	**48.25**	**60.64**	**0.00**	**41.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Energy	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
Mobile	6.9358	16.5148	79.1170	0.0800	5.2737	0.2357	5.5094	1.4078	0.2163	1.6241		7,251.4828	7,251.4828	0.3631		7,259.1084
Total	**8.8845**	**16.9001**	**79.4593**	**0.0823**	**5.2737**	**0.2651**	**5.5388**	**1.4078**	**0.2457**	**1.6534**		**7,713.7582**	**7,713.7582**	**0.3721**	**8.4700e-003**	**7,724.1992**

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	lb/day										lb/day					
Area	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Energy	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
Mobile	6.9358	16.5148	79.1170	0.0800	5.2737	0.2357	5.5094	1.4078	0.2163	1.6241		7,251.4828	7,251.4828	0.3631		7,259.1084
Total	**8.8845**	**16.9001**	**79.4593**	**0.0823**	**5.2737**	**0.2651**	**5.5388**	**1.4078**	**0.2457**	**1.6534**		**7,713.7582**	**7,713.7582**	**0.3721**	**8.4700e-003**	**7,724.1992**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	1/31/2015	2/5/2015	5	4	
3	Building Construction	Building Construction	2/6/2015	11/12/2015	5	200	
4	Architectural Coating	Architectural Coating	6/6/2015	11/12/2015	5	114	
5	Paving	Paving	11/13/2015	11/26/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,110; Non-Residential Outdoor: 13,370 (Architectural Coating –

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**		**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0601	0.5447	7.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		62.4222	62.4222	4.6400e-003		62.5197
Total	**0.0367**	**0.0601**	**0.5447**	**7.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**62.4222**	**62.4222**	**4.6400e-003**		**62.5197**

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	lb/day										lb/day					
Fugitive Dust					2.2618	0.0000	2.2618	1.1519	0.0000	1.1519			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.7440	1,801.7440	0.5379		1,813.0398
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**2.2618**	**1.4671**	**3.7289**	**1.1519**	**1.3497**	**2.5016**	**0.0000**	**1,801.7440**	**1,801.7440**	**0.5379**		**1,813.0398**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0601	0.5447	7.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		62.4222	62.4222	4.6400e-003		62.5197
Total	**0.0367**	**0.0601**	**0.5447**	**7.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**62.4222**	**62.4222**	**4.6400e-003**		**62.5197**

3.3 Grading - 2015

Unmitigated Construction On-Site

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

Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.9143**	**1.1968**	**6.1110**	**2.5256**	**1.1011**	**3.6267**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0601	0.5447	7.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		62.4222	62.4222	4.6400e-003		62.5197
Total	**0.0367**	**0.0601**	**0.5447**	**7.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**62.4222**	**62.4222**	**4.6400e-003**		**62.5197**

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	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**1.9166**	**1.1968**	**3.1134**	**0.9850**	**1.1011**	**2.0860**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0601	0.5447	7.3000e-004	0.0657	4.9000e-004	0.0662	0.0174	4.5000e-004	0.0179		62.4222	62.4222	4.6400e-003		62.5197
Total	**0.0367**	**0.0601**	**0.5447**	**7.3000e-004**	**0.0657**	**4.9000e-004**	**0.0662**	**0.0174**	**4.5000e-004**	**0.0179**		**62.4222**	**62.4222**	**4.6400e-003**		**62.5197**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

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	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2053	1.2255	2.5653	2.8300e-003	0.0854	0.0309	0.1163	0.0242	0.0284	0.0526		284.5966	284.5966	1.8700e-003		284.6359
Worker	0.1466	0.2402	2.1786	2.9200e-003	0.2629	1.9700e-003	0.2648	0.0697	1.7900e-003	0.0715		249.6889	249.6889	0.0186		250.0787
Total	**0.3519**	**1.4657**	**4.7439**	**5.7500e-003**	**0.3483**	**0.0329**	**0.3811**	**0.0940**	**0.0302**	**0.1241**		**534.2854**	**534.2854**	**0.0204**		**534.7146**

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	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2053	1.2255	2.5653	2.8300e-003	0.0854	0.0309	0.1163	0.0242	0.0284	0.0526		284.5966	284.5966	1.8700e-003		284.6359
Worker	0.1466	0.2402	2.1786	2.9200e-003	0.2629	1.9700e-003	0.2648	0.0697	1.7900e-003	0.0715		249.6889	249.6889	0.0186		250.0787

Total	**0.3519**	**1.4657**	**4.7439**	**5.7500e-003**	**0.3483**	**0.0329**	**0.3811**	**0.0940**	**0.0302**	**0.1241**		**534.2854**	**534.2854**	**0.0204**		**534.7146**

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	5.4360					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**5.8426**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0275	0.0450	0.4085	5.5000e-004	0.0493	3.7000e-004	0.0497	0.0131	3.4000e-004	0.0134		46.8167	46.8167	3.4800e-003		46.8898
Total	**0.0275**	**0.0450**	**0.4085**	**5.5000e-004**	**0.0493**	**3.7000e-004**	**0.0497**	**0.0131**	**3.4000e-004**	**0.0134**		**46.8167**	**46.8167**	**3.4800e-003**		**46.8898**

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	lb/day										lb/day					
Archit. Coating	5.4360					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**5.8426**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0275	0.0450	0.4085	5.5000e-004	0.0493	3.7000e-004	0.0497	0.0131	3.4000e-004	0.0134		46.8167	46.8167	3.4800e-003		46.8898
Total	**0.0275**	**0.0450**	**0.4085**	**5.5000e-004**	**0.0493**	**3.7000e-004**	**0.0497**	**0.0131**	**3.4000e-004**	**0.0134**		**46.8167**	**46.8167**	**3.4800e-003**		**46.8898**

3.6 Paving - 2015

Unmitigated Construction On-Site

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

Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.3301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7342**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0596	0.0976	0.8851	1.1900e-003	0.1068	8.0000e-004	0.1076	0.0283	7.3000e-004	0.0291		101.4361	101.4361	7.5400e-003		101.5945
Total	**0.0596**	**0.0976**	**0.8851**	**1.1900e-003**	**0.1068**	**8.0000e-004**	**0.1076**	**0.0283**	**7.3000e-004**	**0.0291**		**101.4361**	**101.4361**	**7.5400e-003**		**101.5945**

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	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.3301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7342**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0596	0.0976	0.8851	1.1900e-003	0.1068	8.0000e-004	0.1076	0.0283	7.3000e-004	0.0291		101.4361	101.4361	7.5400e-003		101.5945
Total	**0.0596**	**0.0976**	**0.8851**	**1.1900e-003**	**0.1068**	**8.0000e-004**	**0.1076**	**0.0283**	**7.3000e-004**	**0.0291**		**101.4361**	**101.4361**	**7.5400e-003**		**101.5945**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.9358	16.5148	79.1170	0.0800	5.2737	0.2357	5.5094	1.4078	0.2163	1.6241		7,251.4828	7,251.4828	0.3631		7,259.1084
Unmitigated	6.9358	16.5148	79.1170	0.0800	5.2737	0.2357	5.5094	1.4078	0.2163	1.6241		7,251.4828	7,251.4828	0.3631		7,259.1084

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Convenience Market With Gas Pumps	825.60	825.60	825.60	862,880	862,880
Fast Food Restaurant w/o Drive Thru	504.40	504.40	504.40	1,618,250	1,618,250
Parking Lot	0.00	0.00	0.00		
Total	1,330.00	1,330.00	1,330.00	2,481,130	2,481,130

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Convenience Market With Gas Pumps	19.00	14.60	14.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive Thru	19.00	14.60	14.30	1.50	79.50	19.00	51	37	12
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.439326	0.070293	0.181647	0.159541	0.045271	0.007627	0.006435	0.073565	0.000871	0.001112	0.010186	0.000590	0.003534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497
NaturalGas Unmitigated	0.0424	0.3852	0.3236	2.3100e-003		0.0293	0.0293		0.0293	0.0293		462.2367	462.2367	8.8600e-003	8.4700e-003	465.0497

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	127.505	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0006	15.0006	2.9000e-004	2.8000e-004	15.0918
Fast Food Restaurant w/o Drive Thru	3801.51	0.0410	0.3727	0.3131	2.2400e-003		0.0283	0.0283		0.0283	0.0283		447.2361	447.2361	8.5700e-003	8.2000e-003	449.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0424**	**0.3852**	**0.3236**	**2.3200e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**		**462.2367**	**462.2367**	**8.8600e-003**	**8.4800e-003**	**465.0497**

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/yr	lb/day										lb/day					
Fast Food Restaurant w/o Drive Thru	3.80151	0.0410	0.3727	0.3131	2.2400e-003		0.0283	0.0283		0.0283	0.0283		447.2361	447.2361	8.5700e-003	8.2000e-003	449.9579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market With Gas Pumps	0.127505	1.3800e-003	0.0125	0.0105	8.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004		15.0006	15.0006	2.9000e-004	2.8000e-004	15.0918
Total		**0.0424**	**0.3852**	**0.3236**	**2.3200e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**		**462.2367**	**462.2367**	**8.8600e-003**	**8.4800e-003**	**465.0497**

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	lb/day										lb/day					
Mitigated	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Unmitigated	1.9063	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411

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	lb/day										lb/day					
Architectural Coating	0.1698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8500e-003	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Total	**1.9063**	**1.8000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0387**	**0.0387**	**1.1000e-004**		**0.0411**

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	lb/day										lb/day					

Architectural Coating	0.1698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7347					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8500e-003	1.8000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0387	0.0387	1.1000e-004		0.0411
Total	**1.9063**	**1.8000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0387**	**0.0387**	**1.1000e-004**		**0.0411**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Yermo Travel Stop Project

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	140.00	Space	1.26	56,000.00	0
Fast Food Restaurant w/o Drive Thru	5.00	1000sqft	0.11	5,000.00	0
Convenience Market With Gas Pumps	32.00	Pump	0.10	20,060.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2015
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Building is 25,060 sf with a convenience store, restaurant and storage.

Construction Phase - Assume architectural coatings are applied during the building construction phase.

Vehicle Trips - Used peak daily trip rates from traffic study for all days, 25.8 for convenience store, 100.88 for restaurant. Doubled the default trip lengths.

Construction Off-road Equipment Mitigation - Dust control measures per MDAQMD rules.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	114.00
tblConstructionPhase	PhaseEndDate	4/20/2016	11/12/2015
tblConstructionPhase	PhaseStartDate	11/13/2015	6/6/2015

tblLandUse	LandUseSquareFeet	4,517.60	20,060.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CC_TL	7.30	14.60
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CNW_TL	7.30	14.30
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	CW_TL	9.50	19.00
tblVehicleTrips	ST_TR	204.47	25.80
tblVehicleTrips	ST_TR	696.00	100.88
tblVehicleTrips	SU_TR	166.88	25.80
tblVehicleTrips	SU_TR	500.00	100.88
tblVehicleTrips	WD_TR	542.60	25.80
tblVehicleTrips	WD_TR	716.00	100.88

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.7461	2.6009	2.2495	3.1000e-003	0.0533	0.1727	0.2260	0.0182	0.1667	0.1849	0.0000	264.0773	264.0773	0.0501	0.0000	265.1296
Total	**0.7461**	**2.6009**	**2.2495**	**3.1000e-003**	**0.0533**	**0.1727**	**0.2260**	**0.0182**	**0.1667**	**0.1849**	**0.0000**	**264.0773**	**264.0773**	**0.0501**	**0.0000**	**265.1296**

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					
2015	0.7461	2.6009	2.2495	3.1000e-003	0.0438	0.1727	0.2165	0.0133	0.1667	0.1800	0.0000	264.0770	264.0770	0.0501	0.0000	265.1294
Total	**0.7461**	**2.6009**	**2.2495**	**3.1000e-003**	**0.0438**	**0.1727**	**0.2165**	**0.0133**	**0.1667**	**0.1800**	**0.0000**	**264.0770**	**264.0770**	**0.0501**	**0.0000**	**265.1294**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**17.88**	**0.00**	**4.22**	**26.91**	**0.00**	**2.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Energy	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	255.5028	255.5028	9.6900e-003	3.1100e-003	256.6690
Mobile	1.2630	3.0968	15.6672	0.0149	0.9418	0.0427	0.9845	0.2518	0.0392	0.2910	0.0000	1,221.3680	1,221.3680	0.0598	0.0000	1,222.6240
Waste						0.0000	0.0000		0.0000	0.0000	11.6903	0.0000	11.6903	0.6909	0.0000	26.1986
Water						0.0000	0.0000		0.0000	0.0000	0.5877	7.8621	8.4497	0.0607	1.5000e-003	10.1898
Area	0.3477	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003
Total	**1.6184**	**3.1672**	**15.7280**	**0.0153**	**0.9418**	**0.0481**	**0.9899**	**0.2518**	**0.0445**	**0.2963**	**12.2779**	**1,484.7360**	**1,497.0139**	**0.8211**	**4.6100e-003**	**1,515.6847**

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					
Energy	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	255.5028	255.5028	9.6900e-003	3.1100e-003	256.6690
Mobile	1.2630	3.0968	15.6672	0.0149	0.9418	0.0427	0.9845	0.2518	0.0392	0.2910	0.0000	1,221.3680	1,221.3680	0.0598	0.0000	1,222.6240
Waste						0.0000	0.0000		0.0000	0.0000	11.6903	0.0000	11.6903	0.6909	0.0000	26.1986
Water						0.0000	0.0000		0.0000	0.0000	0.5877	7.8621	8.4497	0.0607	1.5000e-003	10.1888
Area	0.3477	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003
Total	**1.6184**	**3.1672**	**15.7280**	**0.0153**	**0.9418**	**0.0481**	**0.9899**	**0.2518**	**0.0445**	**0.2963**	**12.2779**	**1,484.7360**	**1,497.0139**	**0.8211**	**4.6100e-003**	**1,515.6838**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	1/31/2015	2/5/2015	5	4	
3	Building Construction	Building Construction	2/6/2015	11/12/2015	5	200	
4	Architectural Coating	Architectural Coating	6/6/2015	11/12/2015	5	114	
5	Paving	Paving	11/13/2015	11/26/2015	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,110; Non-Residential Outdoor: 13,370 (Architectural Coating –

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0269	0.0170	2.0000e-005		1.4700e-003	1.4700e-003		1.3500e-003	1.3500e-003	0.0000	1.6345	1.6345	4.9000e-004	0.0000	1.6448
Total	**2.5400e-003**	**0.0269**	**0.0170**	**2.0000e-005**	**5.8000e-003**	**1.4700e-003**	**7.2700e-003**	**2.9500e-003**	**1.3500e-003**	**4.3000e-003**	**0.0000**	**1.6345**	**1.6345**	**4.9000e-004**	**0.0000**	**1.6448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	5.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0584	0.0584	0.0000	0.0000	0.0585

Total	**4.0000e-005**	**6.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0584**	**0.0584**	**0.0000**	**0.0000**	**0.0585**

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					2.2600e-003	0.0000	2.2600e-003	1.1500e-003	0.0000	1.1500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0269	0.0170	2.0000e-005		1.4700e-003	1.4700e-003		1.3500e-003	1.3500e-003	0.0000	1.6345	1.6345	4.9000e-004	0.0000	1.6448
Total	**2.5400e-003**	**0.0269**	**0.0170**	**2.0000e-005**	**2.2600e-003**	**1.4700e-003**	**3.7300e-003**	**1.1500e-003**	**1.3500e-003**	**2.5000e-003**	**0.0000**	**1.6345**	**1.6345**	**4.9000e-004**	**0.0000**	**1.6448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	6.0000e-005	5.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0584	0.0584	0.0000	0.0000	0.0585
Total	**4.0000e-005**	**6.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0584**	**0.0584**	**0.0000**	**0.0000**	**0.0585**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1300e-003	0.0439	0.0282	3.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	2.6849	2.6849	8.0000e-004	0.0000	2.7017
Total	**4.1300e-003**	**0.0439**	**0.0282**	**3.0000e-005**	**9.8300e-003**	**2.3900e-003**	**0.0122**	**5.0500e-003**	**2.2000e-003**	**7.2500e-003**	**0.0000**	**2.6849**	**2.6849**	**8.0000e-004**	**0.0000**	**2.7017**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	1.3000e-004	1.1800e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1168	0.1168	1.0000e-005	0.0000	0.1170
Total	**7.0000e-005**	**1.3000e-004**	**1.1800e-003**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1168**	**0.1168**	**1.0000e-005**	**0.0000**	**0.1170**

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					3.8300e-003	0.0000	3.8300e-003	1.9700e-003	0.0000	1.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1300e-003	0.0439	0.0282	3.0000e-005		2.3900e-003	2.3900e-003		2.2000e-003	2.2000e-003	0.0000	2.6849	2.6849	8.0000e-004	0.0000	2.7017
Total	**4.1300e-003**	**0.0439**	**0.0282**	**3.0000e-005**	**3.8300e-003**	**2.3900e-003**	**6.2200e-003**	**1.9700e-003**	**2.2000e-003**	**4.1700e-003**	**0.0000**	**2.6849**	**2.6849**	**8.0000e-004**	**0.0000**	**2.7017**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	1.3000e-004	1.1800e-003	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1168	0.1168	1.0000e-005	0.0000	0.1170
Total	**7.0000e-005**	**1.3000e-004**	**1.1800e-003**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1168**	**0.1168**	**1.0000e-005**	**0.0000**	**0.1170**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3600	2.1564	1.5004	2.2000e-003		0.1485	0.1485		0.1434	0.1434	0.0000	186.4831	186.4831	0.0430	0.0000	187.3864
Total	**0.3600**	**2.1564**	**1.5004**	**2.2000e-003**		**0.1485**	**0.1485**		**0.1434**	**0.1434**	**0.0000**	**186.4831**	**186.4831**	**0.0430**	**0.0000**	**187.3864**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0213	0.1252	0.2827	2.9000e-004	8.4000e-003	3.0700e-003	0.0115	2.3900e-003	2.8300e-003	5.2200e-003	0.0000	25.9440	25.9440	1.7000e-004	0.0000	25.9475
Worker	0.0145	0.0256	0.2353	3.0000e-004	0.0258	2.0000e-004	0.0260	6.8500e-003	1.8000e-004	7.0300e-003	0.0000	23.3601	23.3601	1.6800e-003	0.0000	23.3955
Total	**0.0358**	**0.1508**	**0.5180**	**5.9000e-004**	**0.0342**	**3.2700e-003**	**0.0375**	**9.2400e-003**	**3.0100e-003**	**0.0123**	**0.0000**	**49.3041**	**49.3041**	**1.8500e-003**	**0.0000**	**49.3429**

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	0.3600	2.1564	1.5004	2.2000e-003		0.1485	0.1485		0.1434	0.1434	0.0000	186.4829	186.4829	0.0430	0.0000	187.3862
Total	**0.3600**	**2.1564**	**1.5004**	**2.2000e-003**		**0.1485**	**0.1485**		**0.1434**	**0.1434**	**0.0000**	**186.4829**	**186.4829**	**0.0430**	**0.0000**	**187.3862**

Mitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0213	0.1252	0.2827	2.9000e-004	8.4000e-003	3.0700e-003	0.0115	2.3900e-003	2.8300e-003	5.2200e-003	0.0000	25.9440	25.9440	1.7000e-004	0.0000	25.9475
Worker	0.0145	0.0256	0.2353	3.0000e-004	0.0258	2.0000e-004	0.0260	6.8500e-003	1.8000e-004	7.0300e-003	0.0000	23.3601	23.3601	1.6800e-003	0.0000	23.3955
Total	**0.0358**	**0.1508**	**0.5180**	**5.9000e-004**	**0.0342**	**3.2700e-003**	**0.0375**	**9.2400e-003**	**3.0100e-003**	**0.0123**	**0.0000**	**49.3041**	**49.3041**	**1.8500e-003**	**0.0000**	**49.3429**

3.5 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3099					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0232	0.1465	0.1084	1.7000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	14.5536	14.5536	1.9000e-003	0.0000	14.5933
Total	**0.3330**	**0.1465**	**0.1084**	**1.7000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**14.5536**	**14.5536**	**1.9000e-003**	**0.0000**	**14.5933**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	2.7400e-003	0.0252	3.0000e-005	2.7600e-003	2.0000e-005	2.7800e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4966	2.4966	1.8000e-004	0.0000	2.5004

Total	**1.5500e-003**	**2.7400e-003**	**0.0252**	**3.0000e-005**	**2.7600e-003**	**2.0000e-005**	**2.7800e-003**	**7.3000e-004**	**2.0000e-005**	**7.5000e-004**	**0.0000**	**2.4966**	**2.4966**	**1.8000e-004**	**0.0000**	**2.5004**

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	0.3099					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0232	0.1465	0.1084	1.7000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	14.5535	14.5535	1.9000e-003	0.0000	14.5933
Total	**0.3330**	**0.1465**	**0.1084**	**1.7000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**14.5535**	**14.5535**	**1.9000e-003**	**0.0000**	**14.5933**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	2.7400e-003	0.0252	3.0000e-005	2.7600e-003	2.0000e-005	2.7800e-003	7.3000e-004	2.0000e-005	7.5000e-004	0.0000	2.4966	2.4966	1.8000e-004	0.0000	2.5004
Total	**1.5500e-003**	**2.7400e-003**	**0.0252**	**3.0000e-005**	**2.7600e-003**	**2.0000e-005**	**2.7800e-003**	**7.3000e-004**	**2.0000e-005**	**7.5000e-004**	**0.0000**	**2.4966**	**2.4966**	**1.8000e-004**	**0.0000**	**2.5004**

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0200e-003	0.0730	0.0459	7.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	6.2708	6.2708	1.8400e-003	0.0000	6.3094
Paving	1.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6700e-003**	**0.0730**	**0.0459**	**7.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**6.2708**	**6.2708**	**1.8400e-003**	**0.0000**	**6.3094**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9000e-004	5.2000e-004	4.7800e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4745	0.4745	3.0000e-005	0.0000	0.4752
Total	**2.9000e-004**	**5.2000e-004**	**4.7800e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4745**	**0.4745**	**3.0000e-005**	**0.0000**	**0.4752**

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	7.0200e-003	0.0730	0.0459	7.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	6.2708	6.2708	1.8400e-003	0.0000	6.3094
Paving	1.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6700e-003**	**0.0730**	**0.0459**	**7.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**6.2708**	**6.2708**	**1.8400e-003**	**0.0000**	**6.3094**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9000e-004	5.2000e-004	4.7800e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4745	0.4745	3.0000e-005	0.0000	0.4752
Total	**2.9000e-004**	**5.2000e-004**	**4.7800e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4745**	**0.4745**	**3.0000e-005**	**0.0000**	**0.4752**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2630	3.0968	15.6672	0.0149	0.9418	0.0427	0.9845	0.2518	0.0392	0.2910	0.0000	1,221.3680	1,221.3680	0.0598	0.0000	1,222.6240
Unmitigated	1.2630	3.0968	15.6672	0.0149	0.9418	0.0427	0.9845	0.2518	0.0392	0.2910	0.0000	1,221.3680	1,221.3680	0.0598	0.0000	1,222.6240

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	825.60	825.60	825.60	862,880	862,880
Fast Food Restaurant w/o Drive Thru	504.40	504.40	504.40	1,618,250	1,618,250
Parking Lot	0.00	0.00	0.00		
Total	1,330.00	1,330.00	1,330.00	2,481,130	2,481,130

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
Convenience Market With Gas	19.00	14.60	14.30	0.80	80.20	19.00	14	21	65
Fast Food Restaurant w/o Drive	19.00	14.60	14.30	1.50	79.50	19.00	51	37	12
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.439326	0.070293	0.181647	0.159541	0.045271	0.007627	0.006435	0.073565	0.000871	0.001112	0.010186	0.000590	0.003534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	178.9744	178.9744	8.2300e-003	1.7000e-003	179.6748
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	178.9744	178.9744	8.2300e-003	1.7000e-003	179.6748
NaturalGas Mitigated	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	76.5285	76.5285	1.4700e-003	1.4000e-003	76.9942
NaturalGas Unmitigated	7.7300e-003	0.0703	0.0591	4.2000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	76.5285	76.5285	1.4700e-003	1.4000e-003	76.9942

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	46539.2	2.5000e-004	2.2800e-003	1.9200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4835	2.4835	5.0000e-005	5.0000e-005	2.4986
Fast Food Restaurant w/o Drive Thru	1.38755e+006	7.4800e-003	0.0680	0.0571	4.1000e-004		5.1700e-003	5.1700e-003		5.1700e-003	5.1700e-003	0.0000	74.0450	74.0450	1.4200e-003	1.3600e-003	74.4956
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7300e-003**	**0.0703**	**0.0591**	**4.2000e-004**		**5.3400e-003**	**5.3400e-003**		**5.3400e-003**	**5.3400e-003**	**0.0000**	**76.5285**	**76.5285**	**1.4700e-003**	**1.4100e-003**	**76.9942**

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/yr	tons/yr										MT/yr					
Convenience Market With Gas Pumps	46539.2	2.5000e-004	2.2800e-003	1.9200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4835	2.4835	5.0000e-005	5.0000e-005	2.4986
Fast Food Restaurant w/o Drive Thru	1.38755e+006	7.4800e-003	0.0680	0.0571	4.1000e-004		5.1700e-003	5.1700e-003		5.1700e-003	5.1700e-003	0.0000	74.0450	74.0450	1.4200e-003	1.3600e-003	74.4956

Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7300e-003**	**0.0703**	**0.0591**	**4.2000e-004**		**5.3400e-003**	**5.3400e-003**		**5.3400e-003**	**5.3400e-003**	**0.0000**	**76.5285**	**76.5285**	**1.4700e-003**	**1.4100e-003**	**76.9942**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	314140	89.8964	4.1300e-003	8.5000e-004	90.2482
Fast Food Restaurant w/o Drive Thru	262000	74.9757	3.4500e-003	7.1000e-004	75.2691
Parking Lot	49280	14.1023	6.5000e-004	1.3000e-004	14.1575
Total		**178.9744**	**8.2300e-003**	**1.6900e-003**	**179.6748**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	314140	89.8964	4.1300e-003	8.5000e-004	90.2482
Fast Food Restaurant w/o Drive Thru	262000	74.9757	3.4500e-003	7.1000e-004	75.2691
Parking Lot	49280	14.1023	6.5000e-004	1.3000e-004	14.1575
Total		**178.9744**	**8.2300e-003**	**1.6900e-003**	**179.6748**

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	0.3477	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003
Unmitigated	0.3477	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003

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	0.0310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7000e-004	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003
Total	**0.3477**	**2.0000e-005**	**1.6800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.1600e-003**	**3.1600e-003**	**1.0000e-005**	**0.0000**	**3.3600e-003**

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	0.0310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7000e-004	2.0000e-005	1.6800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1600e-003	3.1600e-003	1.0000e-005	0.0000	3.3600e-003
Total	**0.3477**	**2.0000e-005**	**1.6800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.1600e-003**	**3.1600e-003**	**1.0000e-005**	**0.0000**	**3.3600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.4497	0.0607	1.5000e-003	10.1888
Unmitigated	8.4497	0.0607	1.5000e-003	10.1898

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.33463 / 0.205096	2.0051	0.0110	2.8000e-004	2.3213

Fast Food Restaurant w/o Drive Thru	1.51767 / 0.0968725	6.4446	0.0497	1.2200e-003	7.8684
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**8.4497**	**0.0607**	**1.5000e-003**	**10.1898**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.33463 / 0.205096	2.0051	0.0110	2.8000e-004	2.3212
Fast Food Restaurant w/o Drive Thru	1.51767 / 0.0968725	6.4446	0.0497	1.2200e-003	7.8677
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**8.4497**	**0.0607**	**1.5000e-003**	**10.1888**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.6903	0.6909	0.0000	26.1986
Unmitigated	11.6903	0.6909	0.0000	26.1986

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	57.59	11.6903	0.6909	0.0000	26.1986
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.6903**	**0.6909**	**0.0000**	**26.1986**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant w/o Drive Thru	57.59	11.6903	0.6909	0.0000	26.1986
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.6903**	**0.6909**	**0.0000**	**26.1986**

9.0 Operational Offroad

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

10.0 Vegetation