AFTON ROAD COMMERCIAL CENTER PROJECT

AIR QUALITY/GREENHOUSE GAS STUDY

Prepared for:

Happy Highway, Inc.

Prepared by:

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May, 2016

AIR QUALITY AND GREENHOUSE GAS STUDY

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AFTON ROAD COMMERCIAL CENTER PROJECT

AIR QUALITY and GREENHOUSE GAS STUDY

This report is an analysis of the potential air quality and greenhouse gas impacts associated with the proposed project, Afton Road Commercial Center, in the County of San Bernardino. The report has been prepared by Birdseye Planning Group, LLC under contract to Happy Highways, Inc., to support preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA) by the County of San Bernardino. This study analyzes the potential for temporary impacts associated with construction activity and long-term impacts associated with operation of the proposed project.

PROJECT DESCRIPTION

The Afton Road Commercial Center Project is located on a vacant parcel(s) approximately 2.5 acres in size at the southwest corner of the Afton Road/Interstate 15 interchange in unincorporated San Bernardino County. The project includes development of the following:

- One 12-position auto fueling center with roof canopy;
- One 7, 000 square foot truck stop with a convenience/retail store, restaurant, shower/laundry facility;
- One 4-position commercial truck fueling center with roof canopy; and
- One 2-bay auto repair facility (approximately 2,950 square feet).

A total of 103 parking spaces would be provided on-site. Landscaping and related grading, drainage, stormwater retention and access improvements would also be constructed per San Bernardino County standards. Access would be provided from Afton Road; a two-lane road. Currently, the I-15 off/on ramp intersections at Afton Road are unsignalized. No improvements are proposed at these intersections. Project construction is estimated to begin in early 2017 and be completed in late 2017.

SETTING

Air Pollution Regulation

The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate emissions of airborne pollutants and have established ambient air quality standards for the protection of public health. The EPA is the federal agency designated to administer air quality regulation, while the California Air Resources Board (ARB) is the state equivalent in California. Federal and state standards have been established for six criteria pollutants, including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), and lead (Pb). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Table 1 lists the current federal and state standards for each of these pollutants. Standards have been set at levels intended to be protective of public health. California standards are more restrictive than federal standards for each of these pollutants except lead and the eight-hour average for CO.

Table 1
Current Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standards
Ozone	1-Hour	—	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	0.075 ppm	—
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	—	20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
$PM_{2.5}$	Annual	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	—
Lead	30-Day Average	—	1.5 µg/m³
	Rolling 3-Month Average	0.15 µg/m³	—

ppm = parts per million
µg/m³ = micrograms per cubic meter
Source: California Air Resources Board/US Environmental Protection Agency

Local control in air quality management is provided by the ARB through county-level or regional (multi-county) APCDs. The ARB establishes air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing

standards and regulating stationary sources. The ARB has established 14 air basins statewide. The project site is located within the Mojave Desert Air Basin (Basin) and is comprised of four air districts, the Kern County Air Pollution Control District (APCD), the Antelope Valley Air Quality Management District (AQMD), the Mojave Desert AQMD, and the eastern portion of the South Coast AQMD. Air quality conditions in the portion of the Basin where the project is located, are under the jurisdiction of the Mojave Desert AQMD, which is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment." The Basin, in which the project area is located, is a non-attainment area for both the federal and state standards for ozone and PM_{10}. The Basin is in attainment for the state and federal standards for nitrogen dioxide, and for carbon monoxide. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)[1]. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

[1] *Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).*

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Regional Climate and Local Air Quality

During the summer a Pacific Subtropical High cell that sits off the coast generally influences the MDAB, inhibiting cloud formation and encouraging daytime solar heating. The MDAB 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 MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4° F.

Local meteorological conditions are greatly affected by the topography of the region. Wind direction is primarily from the west/southwest. Prevailing winds result from what is referred to as an orographic effect. As air is forced over mountain ranges, it loses moisture as it rises. When it descends, it also compresses and heats up. The speed of the wind is aided by "desert heat lows," which routinely form over the eastern Mojave Desert area. The prevailing winds are due to the proximity of the MDAB to coastal and central regions and the effect of the Sierra Nevada Mountains to the north. Air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet). Mountain passes provide channels for these air masses to pass through.

The southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a common condition in southern California. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air that acts as a lid through which the marine layer cannot rise. When the inversion layer is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland over the mountains. At a

height of 1,200 feet, the inversion concentrates pollutants in a shallow layer. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight.

The inversion conditions in the MDAB are much less favorable for the buildup of high ozone concentrations than in the coastal areas of Southern California. When subsidence inversions occur, they are generally at 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is often much lower. As a result, meteorology in the MDAB is less conducive for the chemical mixing characteristic of typical ozone formation.

The MDAQMD operates a network of 8 ambient air monitoring stations throughout the MDAB. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the California and federal standards. The air quality monitoring station located nearest to the project site is in Barstow, located approximately 50 miles to the southwest. Table 2 provides a summary of monitoring data at the Barstow station for ozone and PM_{10}. As referenced, the MDAB is a nonattainment area for these two pollutants.

As shown, both the federal and state ozone standards were exceeded at the Barstow monitoring station during each of the last three years. The PM_{10} concentration exceeded the federal standard zero times in 2013 and one time during 2014. Insufficient data was available to determine whether the state standard were exceeded.

Table 2
Ambient Air Quality Data

Pollutant	2013	2014	2015
Ozone, ppm - Worst Hour	0.093	0.087	0.083
Number of days of State exceedances (>0.09 ppm)	31	37	20
Number of days of Federal exceedances (>0.070 ppm)	10	17	5
Particulate Matter <10 microns, □g/m³ Worst 24 Hours	86	*	*
Number of samples of State exceedances (>50 □g/m³)	*	*	*
Number of samples of Federal exceedances (>150 □g/m³)	0	1	*

Barstow Monitoring Station
Source: California Air Resources Board, 2013, 2014, 2015 Annual Air Quality Data Summaries available at http://www.arb.ca.gov/adam/topfour/topfour1.php

MDAQMD Rules and Regulation

The MDAQMD is responsible for limiting the amount of emissions that can be generated throughout the MDAB by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the MDAQMD Governing Board, which limit the emissions that can be generated by various uses/activities and that identify specific pollution reduction

measures which must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and state criteria pollutants but also toxic air contaminants and acutely hazardous materials. The rules are also subject to ongoing refinement by the MDAQMD. The following rules listed below are several of the key rules that are generally applicable to land development projects.

• **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust emissions to be minimized beyond the property line of the source. This rule also requires that every reasonable precaution be made to prevent visible particulate matter from being deposited on public roadways.

• **Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area)** – This rule requires fugitive dust sources to implement best management practices to reduce to reduce fugitive dust emissions during construction/demolition, unpaved road travel, weed abatement, limestone processing, and other dust-generating activities.

• **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories. Stationary sources are subject to MDAQMD rules are regulated through the MDAQMD's permitting process. Through this permitting process, the MDAQMD monitors the amount of stationary emissions being generated and uses this information in developing air quality attainment plans. The proposed project would be subject to MDAQMD rules and regulations to reduce specific emissions and to mitigate potential air quality impacts; however, the project would not include any permitted stationary sources. The Southern California Association of Governments is a council of governments for the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura and serves as the region's Metropolitan Planning Organization (MPO). Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. Specifically, as the designated MPO for the Southern California region, it is responsible, pursuant to Section 176(c) of the 1990 amendments to the Clean Air Act, for providing current population, employment, travel, and congestion projections for regional air quality planning efforts.

MDAQMD Air Quality Attainment Plans

The MDAQMD has adopted state and federal attainment plans for the region within its jurisdiction. The most recent such plan that was approved by U.S. EPA is the MDAQMD *2004 Ozone Attainment Plan* adopted in 2004. The MDAQMD has reviewed and updated all elements of the ozone plan in its *2008 Federal 8-Hour Ozone Attainment Plan*. The revised plan demonstrates that the portion of the MDAQMD designated as a federal 8-hour ozone non-attainment area (FONA) will be in attainment of the 8-hour NAAQS for ozone by 2021. The plan includes the latest planning assumptions regarding population, vehicle activity and industrial activity and addresses all existing and forecast ozone precursor producing activities within the MDAQMD through the year 2020. The plan includes all necessary information to allow general and transportation conformity findings to be made within the MDAQMD.

The MDAQMD adopted its *Mojave Desert Planning Area Federal Particulate Matter (PM10)*

Attainment Plan in 1995. The U.S. EPA designated a major portion of the San Bernardino County area as a PM10 nonattainment area. The designation was based on a number of violations which occurred in the populated areas of the MDAQMD during the period 1989-1991. In consideration of the location of the observed violations and the sources of PM10, this Plan identifies a smaller nonattainment area surrounding the heavily populated cities and towns in the MDAQMD. This region includes the Victor Valley, Morongo Basin, Barstow, and Lucerne Valley, and is referred to as the Mojave Desert Planning Area (MDPA). Fugitive dust from local sources and occasionally by region-wide wind blown dust during moderate to high wind episodes contribute to the region's PM10 issues. The Plan requires local sources to be controlled with strategies that focus on unpaved road travel, construction, and local disturbed areas in the populated areas, and certain stationary sources operating in the rural Lucerne Valley. According to the Plan, it is not feasible to implement control measures to reduce dust from regional wind events.

Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The nearest sensitive receptor to the site is a business/residence located approximately ½ mile north of the project site on the north side of the I-15/Afton Road interchange. The MDAQMD CEQA Guidelines (August, 2009) recommends that sensitive receptors located within 300 feet of a gasoline dispensing facility be evaluated for health risk associated with exposure to toxic constituents. The nearest receptor is located greater than 300 feet from the site; thus, no health risk assessment was performed.

AIR QUALITY IMPACT ANALYIS

Methodology and Significance Thresholds

This air quality analysis conforms to the methodologies recommended in the SCAQMD's *CEQA Air Quality Handbook* (1993) and *MDAQMD CEQA Guidelines* (2011). The documents provide general guidance on methods to perform air quality impact analyses and specific criteria for projects within the MDAQMD including thresholds for emissions associated with both construction and operation of proposed projects. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2013.2.2.

Construction activities such as clearing, grading and excavation would generate diesel and dust emissions. Construction equipment that would generate criteria air pollutants includes excavators, graders, dump trucks, and loaders. It was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with development of the proposed project by estimating the types of equipment (including the number) that would be used on-site during each of the construction phases.

Operational emissions include mobile source emissions, energy emissions, and area source emissions. Mobile source emissions are generated by motor vehicle trips associated with operation of the project. Emissions attributed to energy use include electricity and natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, consumer products and architectural coating. To determine whether a regional air quality impact would occur, construction and operational emissions are compared to the MDAQMD's recommended daily emission thresholds.

Regional Thresholds. Based on Appendix G of the *CEQA Guidelines*, a project would have a significant air quality impact if it would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*
b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*
d) *Expose sensitive receptors to substantial pollutant concentrations; or*
e) *Create objectionable odors affecting a substantial number of people.*

The MDAQMD has developed specific quantitative thresholds that apply to projects within the MDAB. The following significance thresholds apply to construction and operation:

- *137 pounds per day of ROG*
- *137 pounds per day of NO_X*
- *548 pounds per day of CO*
- *137 pounds per day of SO_X*
- *82 pounds per day of PM_{10}*
- *82 pounds per day of $PM_{2.5}$*

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to ROG that would be released during the drying phase upon application of architectural coatings. Construction would generally consist of site preparation, grading, construction of the proposed buildings, paving, and architectural coating.

The site preparation phase would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions. This analysis assumes that graded soils would be balanced on the project site and that no soil import or export would be required. The project would be required to comply with MDAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located within the MDAB. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with MDAQMD Rule 403.2 referenced above address ground disturbing activities and were included in CalEEMod for site preparation and grading phases of construction:

(1) The owner or operator of a source in an affected source category shall comply with the applicable requirements contained in this subsection unless and until the owner or operator has applied for and obtained a District-approved ACP pursuant to section (G).

(2) The owner or operator of any Construction/Demolition source shall:

(a) Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;

(b) Take actions sufficient to prevent project-related Trackout onto paved surfaces;

(c) Cover loaded haul vehicles while operating on Publicly Maintained paved surfaces;

(d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions;

(e) Cleanup project-related Trackout or spills on Publicly Maintained paved surfaces within twenty-four hours; and

(f) Reduce non-essential Earth-Moving Activity under High Wind conditions. For purposes of this Rule, a reduction in Earth-Moving Activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.

Construction emissions modeling for site preparation, grading, building construction, paving, and application of architectural coatings is based on the overall scope of the proposed development and construction phasing, which is expected to begin in early 2017 and extend

through late 2017. In addition to MDAQMD Rule 403 requirements, emissions modeling also accounts for the use of low-VOC paint (150 g/L for nonflat coatings) as required by MDAQMD Rule 1113. Table 3 summarizes the estimated maximum daily emissions of pollutants occurring during 2017.

Table 3
Estimated Maximum Daily Construction Emissions and Regional Thresholds

Construction Phase	Maximum Emissions (lbs/day)				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
2017 Maximum lbs/day	28	24	17	4	2.4
MDAQMD Regional Thresholds	*137*	*137*	*548*	*82*	*82*
Threshold Exceeded 2017	No	No	No	No	No

Construction of the proposed project would not generate emissions exceeding the MDAQMD regional thresholds.

MDAQMD's fugitive dust requirements have been incorporated into the calculations shown above.

Mitigation Measures. No mitigation would be required to reduce construction emissions to less than significant.

Long-Term Regional Impacts

Regional Pollutant Emissions. Table 4 summarizes emissions associated with operation of the proposed project. Operational emissions include emissions from electricity consumption (energy sources), vehicle trips (mobile sources), and area source, landscaping equipment and architectural coating emissions as the structures are repainted over the life of the project. The majority of operational emissions are associated with vehicle trips to and from the project site. Based on the remote location of the project, is it assumed the majority of trips will be pass by trips diverted from I-15 rather than new trips generated by the facility. However, to provide a conservative estimate of operational emissions, calculations assumed use of CalEEMod default trip lengths.

Table 4
Estimated Operational Emissions

Emission Source	Estimated Emissions (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	1.18	<0.1	0.012	<0.1	<0.1	<0.1
Energy	<0.1	0.03	0.03	<0.1	<0.1	<0.1
Mobile	41	52	342.5	0.23	13.3	3.9
Maximum lbs/day	42.2	52.6	342.5	0.23	13.2	3.9
MDAQMD Thresholds	*137*	*137*	*548*	*137*	*82*	*82*
Threshold Exceeded?	No	No	No	No	No	No

See Appendix A for CalEEMod ver.2013.2.2 computer model output for emissions calculations. Summer emissions shown.

Project-related emissions would not exceed the MDAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10} or $PM_{2.5}$.

Therefore, the project's regional air quality impacts (including impacts related to criteria pollutants, sensitive receptors and violations of air quality standards) would be less than significant.

Objectionable Odors. The proposed residential project would not be expected to create or emit objectionable odors. Therefore, this impact would be less than significant.

Attainment Plan Consistency. A project may be inconsistent with the approved attainment plans if it would generate population, housing or employment growth and/or cause an unforeseen increase in particulate or ozone precursor emissions exceeding forecasts used in the development of the plans. As noted above, the project is in a remote location and will divert existing trips off I-15 rather than generate new trips. Further, the project will not generate emissions that exceed the MDAQMD thresholds for ROG or NOx. Rule 1113 will be implemented during construction to minimize VOC emissions from painting. Thus, it will not contribute significantly to regional ozone precursor emissions. With respect to particulate matter, the project will implement Rule 403 during construction to minimize emissions. The project will not exceed MDAQMD thresholds for particulate matter during construction or operation. Based on these facts, the project will not impede attainment of either ozone or particulate matter standards.

GREENHOUSE GAS EMISSION BACKGROUND

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). 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 climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is 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.

GHGs are emitted by both natural processes and human activities. Of these gases, human activities emit CO_2 and CH_4 in the greatest quantities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane (CH_4) has a GWP of 21, meaning its global warming effect is 21 times greater than that of CO_2on a molecule per molecule basis (IPCC, 1997).

Total U.S. GHG emissions were 6,821.8 MMT CO_2E in 2009 (U.S. EPA, April 2012). Total U.S. emissions have increased by 10.5 percent since 1990; emissions rose by 3.2 percent from 2009 to 2010 (U.S. EPA, April 2012). This increase was due in part to (1) an increase in economic output resulting in greater energy consumption across all sectors; and (2) warmer summer conditions resulting in an increase in electricity demand for air conditioning. In 2010, the transportation and industrial end-use sectors accounted for 32 percent and 26 percent of CO_2 emissions from fossil fuel combustion, respectively. The residential and commercial end-use sectors accounted for 22 percent and 19 percent of CO_2 emissions from fossil fuel combustion, respectively, during 2010 (U.S. EPA, April 2012). U.S. GHG emissions were 6,673 MMT of CO_2E in 2013 which was a 2% increase over 2012 emissions but 9% below 2005 levels. In 2013, the transportation and industrial end-use sectors accounted for 27 percent and 21 percent of CO_2 emissions from fossil fuel combustion, respectively. Meanwhile, the residential and commercial end-use sectors accounted for 12 percent of CO_2 emissions from fossil fuel combustion (U.S. EPA, April 2015).

Based upon the California Air Resources Board (ARB) California Greenhouse Gas Inventory for 2000-2009 (ARB, October 2011), California produced 453 MMT CO_2E in 2009. The major source of GHG in California is transportation, contributing 38 percent of the state's total GHG emissions. Electricity generation is the second largest source, contributing 23 percent of the state's GHG emissions (ARB, October 2011). In 2013, the GHG emissions were 459.3 MMT of CO_2E. The major source of GHG in California continues to be transportation, contributing 37 percent of the state's total GHG emissions. Industrial emissions replaced electricity generation as the second largest source, contributing 23 percent of the state's GHG emissions (ARB, June 2015).

California Regulations

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 provides that by 2010, emissions shall be

reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the Statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under S-3-05), and requires ARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2E. The Scoping Plan was approved by 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. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms.

In May 2014, ARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines ARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 goals set forth in EO S-3-05. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (ARB, 2014).

EO S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

CARB Resolution 07-54 establishes 25,000 MT of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

Senate Bill (SB) 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing ARB to develop regional GHG emission reduction targets to be achieved from vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, CARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Monterey Bay Unified Air Pollution Control District (MBUAPCD) was assigned targets of a 0% reduction in GHGs from transportation sources from 2005 levels by 2020 and a 5% reduction in GHGs from transportation sources from 2005 levels by 2035.

In April 2011, Governor Brown signed SB 2X requiring California to generate 33% of its electricity from renewable energy by 2020.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Local Regulations and CEQA Requirements

SCAG Sustainable Communities Strategy. San Bernardino is a member agency of the Southern California Association of Governments (SCAG). In April 2012, SCAG adopted the 2012-2035 *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). SCAG's RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development in order to comply with SB 375.

State CEQA Guidelines. Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, they give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. However, in March 2013 the Bay Area's thresholds were overruled by the Alameda County Superior Court (*California Building Industry Association v. Bay Area Air Quality Management District*), on the basis that

adoption of the thresholds constitutes a "project" under CEQA, but did not receive the appropriate environmental review. As a result, BAAQMD has elected to not recommend specific GHG thresholds for use in CEQA documents.

South Coast Air Quality Management District CEQA Guidelines. SCAQMD is currently in the process of updating its Air Quality CEQA Guidelines, and has developed an Air Quality Guidance document for addressing air quality issues in general plans. At the present time, the SCAQMD has not adopted thresholds for non-industrial projects such as the one analyzed in this Draft EIR. In the latest guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, SCAQMD has considered a tiered approach to determine the significance of residential and commercial projects. The draft-tiered approach is outlined in the meeting minutes, dated September 29, 2010.

- **Tier 1** - If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.

- **Tier 2** - Consists of determining whether the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in *CEQA Guidelines* section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.

- **Tier 3** - Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 tons of CO_2e per year for commercial projects.

Mojave Desert Air Quality Management District Thresholds. The MDAQMD has not yet adopted guidance for assessing the significance of GHG emissions from land use development projects. Therefore, project emissions are estimated and potentially significant impacts are assessed based on both a consistency evaluation with the County of San Bernardino Greenhouse Gas Emissions Reduction Plan discussed below and the 3,000 annual MT threshold referenced under Tier 3 above.

Greenhouse Gas Emissions Reduction Plan. The County of San Bernardino adopted a Greenhouse Gas Emissions Reduction Plan (GHG Plan), which includes reducing 159,423 metric tons (MT) of Carbon Dioxide Equivalents (CO2e) per year from new development by 2020 as compared to the 2020 unmitigated conditions. As part of the implementation of the County GHG Plan, a uniform set of performance standards will be applied to development projects. The complete Development Review Process, including the use of performance standards for assessing and mitigating GHGs is outlined as follows:

a) *County Performance Standards.* All development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as

the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MT CO_2E per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions.

b) *Regulatory Agency Performance Standards.* When, and if, SCAQMD or Mojave Basin Air Quality Management District adopts standards, the County will consider such guidance and incorporate all applicable standards.

c) *Projects Using Screening Table.* For projects exceeding 3,000 MT CO_2E per year of GHG emissions, the County uses Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that achieve 100 or greater points would not require quantification of project specific GHG emissions or a significant impact finding under CEQA. The point system was devised to ensure Project compliance with the reduction measures in the GHG Plan such that the GHG emissions from new development, when considered together with existing development, will allow the County to meet its 2020 target and support reductions in GHG emissions beyond 2020. Consistent with the CEQA Guidelines, such projects are consistent with the Plan; and therefore, will have a less than significant individual and cumulative GHG impact.

d) *Projects Not Using Screening Tables.* Projects exceeding 3,000 MT per year of GHG emissions that do not use the Screening Tables, will be required to quantify project-specific GHG emissions and achieve the equivalent level of GHG emissions efficiency as a 100-point project. Consistent with the CEQA Guidelines, such projects are consistent with the Plan; and therefore, will be determined to have a less than significant individual and cumulative impact for GHG emissions.

e) *Residential Projects Located Outside City Sphere of Influence.* Residential Projects (or mixed use projects with a residential component) in excess of 250 residential dwelling units that are located in unincorporated area not within a City Sphere of Influence (SOI) will not be eligible to use the Screening Tables or rely on the Plan for a determination of less than significant on individual or cumulative impact for GHG emissions. These projects must perform an independent project-specific evaluation of GHG emissions and present project-specific conclusions regarding the significance of GHG emissions impacts.

CLIMATE CHANGE IMPACT ANALYSIS

Thresholds of Significance

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted CEQA Guidelines, impacts related to GHG emissions would be significant if the project would:

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

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

The proposed project is evaluated based on the County of San Bernardino's GHG Plan, in which the applicable threshold is 3,000 MT annually. To determine whether GHG emissions associated with the proposed project are "cumulatively considerable," consistency with applicable GHG emissions reductions strategies recommended by the RTP/SCS, 2006 CAT Report and the California Attorney General's Office is also discussed herein.

Methodology

GHG emissions associated with construction and operation of the proposed project and existing development have been estimated using California Emissions Estimator Model (CalEEMod) version 2013.2.2

Construction Emissions. Construction of the proposed project would generate temporary GHG emissions primarily associated with the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest emission quantities because the use of heavy equipment is greatest during this phase of construction. Emissions associated with the construction period were estimated based on the projected maximum amount of equipment that would be used onsite at one time. The SCAQMD recommends amortizing construction-related emissions over a 30-year period to calculate annual emissions. Complete CalEEMod results and assumptions can be viewed in Appendix A.

Operational Emissions. Default values used in CalEEMod version 2013.2.2 are based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod provides operational emissions of CO_2, N_2O and CH_4. This methodology has been subjected to peer review by numerous public and private stakeholders, and in particular by the CEC and therefore, is considered reasonable and reliable for use in GHG impact analysis pursuant to CEQA. It is also recommended by CAPCOA (January 2008).

Emissions associated with area sources (i.e., consumer products, landscape maintenance, and architectural coating) were calculated in CalEEMod based on standard emission rates from CARB, USEPA, and district supplied emission factor values (CalEEMod User Guide, 2013). Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2013). Waste disposal rates by land use and overall composition of

municipal solid waste in California were primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California. Emissions from mobile sources were quantified based on trip generation estimates included in CalEEMod version 2013.2.2 for residential projects.

Estimate of GHG Emissions

Construction Emissions. Construction activity is assumed to occur over a period of approximately 12 months beginning in January 2017 and concluding in December 2017. Based on CalEEMod results, construction activity for the project would generate an estimated 227 metric tons of CO_2E, as shown in Table 5. Amortized over a 30-year period (the assumed life of the project), construction of the proposed project would generate 8 metric tons of CO_2E per year.

Table 5
Estimated Construction Related
Greenhouse Gas Emissions

Year	Annual Emissions (metric tons CO_2E)
2017	227
Total	227
Amortized over 30 years	8 metric tons per year

See Appendix A for CalEEMod software program output for new construction.

Operational Indirect and Stationary Direct Emissions. Long-term emissions relate to energy use, solid waste, water use, and transportation. Each source is discussed below and includes the emissions associated with existing development and the anticipated emissions that would result from the proposed project.

Energy Use. Operation of onsite development would consume both electricity and natural gas (see Appendix A for CalEEMod results). The generation of electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent, N_2O and CH_4. Natural gas emissions can be calculated using default values from the CEC sponsored CEUS and RASS studies which are built into CalEEMod. As shown in Table 6, increased energy use at the project site would generate approximately 60 metric tons of CO_2E per year.

Table 6
Estimated Annual Energy-Related
Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Electricity	53 metric tons
Natural Gas	7 metric tons

Total	60 metric tons

See Appendix A for CalEEMod software program output.

Area Emissions. CalEEMod was used to calculate direct sources of air emissions for the proposed project. This includes consumer product use, architectural coatings, and landscape maintenance equipment. As shown in Table 7, area emissions associated with operation of the proposed project would generate approximately 2 metric tons of CO_2E per year.

Table 7
Estimated Annual Area
Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Landscaping	2 metric tons
Total Area Emissions	2 metric tons

See Appendix A for CalEEMod software program output.

Solid Waste Emissions. For solid waste generated onsite, it was assumed that the project would be involved in a municipal recycling program that would achieve a 50% diversion rate, as required by the California Integrated Waste Management Act of 1989 (AB 939). As shown in Table 8, the CalEEMod results indicate that the project would result in approximately 8 metric tons of CO_2E per year associated with solid waste disposed within landfills.

Table 8
Estimated Annual
Solid Waste Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Total Waste	16 metric tons
Waste Diverted	8 metric tons
Total Waste Disposed at Landfill	8 metric tons

See Appendix A for CalEEMod software program output (demolition and new construction).
Based on a 50% diversion rate, as required by the California Integrated Waste Management Act (AB 939).

Water Use Emissions. CalEEMod results indicate that the project would use approximately 1.05 million gallons of water per year. Based on the amount of electricity generated to supply and convey this amount of water, as shown in Table 9, the project would generate approximately 5 metric tons of CO_2E per year.

Table 9
Estimated Annual Water Use
Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Water Use	5 metric tons

See Appendix A for CalEEMod software program output (demolition and new construction).

Transportation Emissions. Mobile source GHG emissions were estimated using the average daily trips calculated by CalEEMod. Table 13 shows the estimated mobile emissions of GHGs for the project based on the estimated annual VMT. CalEEMod does not calculate N_2O emissions related to mobile sources. As such, N_2O emissions were calculated based on the project's VMT using calculation methods provided by the California Climate Action Registry General Reporting Protocol (January 2009). As shown in Table 10, the project would generate approximately 3,544 metric tons of CO_2E associated with vehicle trips.

Table 10
Estimated Annual Mobile Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO_2E)
Mobile Emissions (CO_2 & CH_4)	2,230 metric tons
Mobile Emissions (N_2O)[1]	93 metric tons
Total	2,323 metric tons

See Appendix A for CalEEMod software program output.
[1] California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009, page 30-35. See Appendix A for calculations.

Combined Construction, Stationary and Mobile Source Emissions. Table 11 combines the net new construction, operational, and mobile GHG emissions associated with the proposed project. As discussed above, temporary emissions associated with construction activity (approximately 227 MT CO_2E) are amortized over 30 years (the anticipated life of the project).

Table 11
Combined Annual
Greenhouse Gas Emissions

Emission Source	Annual Emissions (CO_2E)
Construction	8 metric tons
Operational	
Energy	60 metric tons
Area	2 metric tons
Solid Waste	8 metric tons
Water	5 metric tons
Mobile	2,323 metric tons
Total	2,406 metric tons

See Appendix A for CalEEMod software program output

The combined annual emissions would total 2,406 metric tons per year of CO_2E. This total represents less than 0.001% of California's total 2013 emissions of 459.3 million metric tons. The majority (96%) of the project's GHG emissions are associated with motor vehicular trips. As discussed, it is likely that the majority would be diverted pass by trips rather than new trips; thus, project-related GHG emissions are conservative. The proposed project would not exceed 3,000 MT CO_2E per year of GHG emissions; thus, it would be consistent with the County of San Bernardino GHG Reduction Plan such that the GHG emissions from the proposed project, when considered together with existing development, would allow the County to meet its 2020 GHG reduction target and support reductions in GHG emissions beyond 2020. Consistent with the CEQA Guidelines, this project would consistent with the GHG Plan and would have a less than significant individual and cumulative impact with respect to GHG emissions.

As indicated above, the CAT published the Climate Action Team Report to Governor Schwarzenegger and the Legislature (the "2006 CAT Report") in March 2006. The CAT Report identifies a recommended list of strategies that the State could pursue to reduce GHG emissions. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05. These are strategies that could be implemented by various State agencies to ensure that the Governor's targets are met and can be met with existing authority of the State agencies. In addition, in 2008 the California Attorney General published *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level* (Office of the California Attorney General, Global Warming Measures Updated May 21, 2008). This document provides information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project. Tables 12 and 13 illustrate that the proposed project would be consistent with applicable GHG reduction strategies set forth by the 2006 CAT Report as well as the 2008 Attorney General's Greenhouse Gas Reduction Measures.

Table 12
Project Consistency with Applicable Climate Action Team
Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
California Air Resources Board	
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 climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	Consistent The vehicles that travel to and from the project site on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	Consistent Current State law restricts diesel truck idling to five minutes or less. Diesel trucks stopping at and making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	Consistent This strategy applies to consumer products. All applicable products would be required to comply with the regulations that are in effect at the time of manufacture.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	Consistent The diesel vehicles such as construction vehicles or delivery trucks that travel to and from the project site on public roadways could utilize this fuel once commercially available.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	Consistent Customers could choose to purchase flex-fuel vehicles and utilize this fuel once commercially available.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	Consistent The heavy-duty vehicles for construction activities that travel to and from the project site on public roadways as well as those stopping at the project would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.

Table 12
Project Consistency with Applicable Climate Action Team
Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Achieve 50% Statewide Recycling Goal Achieving the State's 50% waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	Consistent The Count has enacted numerous programs to achieve the mandated 50% diversion. It is anticipated that the proposed project would participate in waste diversion programs and would similarly divert at least 50% of its solid waste. The project would also be subject to all applicable State and County requirements for solid waste reduction as they change in the future.
Department of Water Resources	
Water Use Efficiency Approximately 19% of all electricity, 30% 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 greenhouse gas emissions.	Consistent The proposed project would not be precluded from incorporating water saving features, such as the use of gray water for landscape irrigation and providing low flow plumbing fixtures. In addition, the project would be required to comply with all State and local measures that address water use and conservation.
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	Consistent The proposed project would need to comply with the standards of Title 24 that are in effect at the time of development.
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	Consistent Under State law, appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture.
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	Consistent Customers could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Municipal Utility Energy Efficiency Programs/Demand Response Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	*Not applicable*, but project development would not preclude implementation of this strategy by municipal utility providers.

Table 12
Project Consistency with Applicable Climate Action Team
Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Municipal Utility Renewable Portfolio Standard California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20% of retail electricity sales from renewable energy sources by 2017, within certain cost constraints	*Not applicable*, but the project would not preclude the implementation of this strategy by Southern California Edison.
Municipal Utility Combined Heat and Power Cost effective reduction from fossil fuel consumption in the commercial and industrial sector through the application of on-site power production to meet both heat and electricity loads.	*Not applicable* since this strategy addresses incentives that could be provided by utility providers such as Southern California Edison and The Gas Company.
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	Consistent Employees and visitors of the project site could purchase alternative fuel vehicles and utilize these fuels once they are commercially available regionally and locally.
Green Buildings Initiative Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20% by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20% target.	Consistent As discussed previously, the project would be required to be constructed in compliance with the standards of Title 24 that are in effect at the time of development. The 2008 Title 24 standards are approximately 15% more efficient than those of the 2005 standards.
Business, Transportation and Housing	
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. The Governor is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity and a quality environment.	Consistent *Not applicable*. The project site is in a rural area of San Bernardino County and is not served by transit.

Table 12
Project Consistency with Applicable Climate Action Team
Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33% renewable in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33% goal.	*Not applicable*, but project development would not preclude the implementation of this strategy by energy providers.

Table 15
Project Consistency with Applicable Attorney General
Greenhouse Gas Reduction Measures

Strategy	***Project Consistency***
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	Consistent Currently, the California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks stopping at the site to fuel, use the truck stop and/or making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Transportation Emissions Reduction Provide shuttle service to public transportation.	*Not applicable.* The project site is in a rural area and not subject to transit service. located near transit services provided by OmniTrans. The closest stop is along Nevada Street south Interstate 10, approximately ½ mile from the project site.
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Project construction shall require reuse and recycling of construction and demolition waste.	Consistent It is anticipated that the proposed project would participate in a waste diversion programs and would divert at least 50% of its solid waste from construction.

Table 15
Project Consistency with Applicable Attorney General
Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Water Use Efficiency Require measures that reduce the amount of water sent to the sewer system – see examples in CAT standard above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.	Consistent As described above, the proposed project would not be precluded from incorporating include water saving features such as the use of gray water for landscape irrigation and low flow plumbing fixtures. In addition, the project would be required to comply with all State and local measures that address water use and conservation.
Land Use Measures, Smart Growth Strategies and Carbon Offsets	
Smart Land Use and Intelligent Transportation Systems Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling.	*Not applicable.* The project site is located in a rural area and not served by transit.

As indicated in Tables 12 and 13, the proposed project would be consistent with the applicable CAT strategies and the 2008 Attorney General Greenhouse Gas Reduction Measures.

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Appendix A

CalEEMod Air Quality and Greenhouse Gas Emissions Model Results – Summer, Annual and N_2O from Mobile Emissions Sources

Afton Road Commercial Center

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	103.00	Space	0.93	41,200.00	0
Convenience Market With Gas Pumps	7.00	1000sqft	0.16	7,000.00	0
Automobile Care Center	2.95	1000sqft	0.07	2,950.00	0
Gasoline/Service Station	4.00	Pump	0.01	564.70	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2017
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 - Square footage for buildings, pump area and parking. Does not include drive ailse, perimeter landscaping, loading areas and related features that do not generate trips.
Construction emissions assume the entire 2.5 acre site would be disturbed.

Construction Phase - Schedule approximate

Grading - Assumes 100% site disturbance.

Architectural Coating - No residential structures.

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	1.50	2.50
tblGrading	AcresOfGrading	1.00	2.50
tblProjectCharacteristics	OperationalYear	2014	2017

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					
2017	27.5797	24.2748	16.8522	0.0259	6.6607	1.3072	7.9678	3.0570	1.2026	4.2596	0.0000	2,378.6422	2,378.6422	0.5407	0.0000	2,389.9968
Total	27.5797	24.2748	16.8522	0.0259	6.6607	1.3072	7.9678	3.0570	1.2026	4.2596	0.0000	2,378.6422	2,378.6422	0.5407	0.0000	2,389.9968

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					
2017	27.5797	24.2748	16.8522	0.0259	2.6378	1.3072	3.9449	1.2029	1.2026	2.4055	0.0000	2,378.6422	2,378.6422	0.5407	0.0000	2,389.9968
Total	27.5797	24.2748	16.8522	0.0259	2.6378	1.3072	3.9449	1.2029	1.2026	2.4055	0.0000	2,378.6422	2,378.6422	0.5407	0.0000	2,389.9968

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.40	0.00	50.49	60.65	0.00	43.53	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	1.1825	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271
Energy	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003		42.9474	42.9474	8.2000e-004	7.9000e-004	43.2088
Mobile	41.0391	52.6432	342.5107	0.2387	12.7518	0.5453	13.2970	3.4046	0.5006	3.9052		20,308.6455	20,308.6455	1.0356		20,330.3923
Total	42.2255	52.6791	342.5529	0.2390	12.7518	0.5481	13.2998	3.4046	0.5033	3.9079		20,351.6185	20,351.6185	1.0365	7.9000e-004	20,373.6282

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	1.1825	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271
Energy	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003		42.9474	42.9474	8.2000e-004	7.9000e-004	43.2088
Mobile	41.0391	52.6432	342.5107	0.2387	12.7518	0.5453	13.2970	3.4046	0.5006	3.9052		20,308.6455	20,308.6455	1.0356		20,330.3923
Total	42.2255	52.6791	342.5529	0.2390	12.7518	0.5481	13.2998	3.4046	0.5033	3.9079		20,351.6185	20,351.6185	1.0365	7.9000e-004	20,373.6282

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

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	1/1/2017	1/3/2017	5	2	
2	Grading	Grading	1/4/2017	1/9/2017	5	4	
3	Building Construction	Building Construction	1/10/2017	10/16/2017	5	200	
4	Paving	Paving	10/17/2017	10/30/2017	5	10	
5	Architectural Coating	Architectural Coating	10/31/2017	11/13/2017	5	10	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 17,626; Non-Residential Outdoor: 5,875 (Architectural Coating – sqft)

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	8.00	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
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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
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	21.00	8.00	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
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2017

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					6.5950	0.0000	6.5950	3.0396	0.0000	3.0396			0.0000			0.0000
Off-Road	2.3109	24.2288	15.9299	0.0171		1.3067	1.3067		1.2022	1.2022		1,752.1239	1,752.1239	0.5369		1,763.3977
Total	2.3109	24.2288	15.9299	0.0171	6.5950	1.3067	7.9017	3.0396	1.2022	4.2418		1,752.1239	1,752.1239	0.5369		1,763.3977

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
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	0.0313	0.0460	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813
Total	0.0313	0.0460	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813

3.2 Site Preparation - 2017

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					2.5720	0.0000	2.5720	1.1854	0.0000	1.1854			0.0000			0.0000
Off-Road	2.3109	24.2288	15.9299	0.0171		1.3067	1.3067		1.2022	1.2022	0.0000	1,752.1239	1,752.1239	0.5369		1,763.3977
Total	2.3109	24.2288	15.9299	0.0171	2.5720	1.3067	3.8788	1.1854	1.2022	2.3876	0.0000	1,752.1239	1,752.1239	0.5369		1,763.3977

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	0.0313	0.0480	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813
Total	0.0313	0.0480	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813

3.3 Grading - 2017

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					5.1794	0.0000	5.1794	2.5542	0.0000	2.5542			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0861	1.0861		0.9808	0.9808		1,439.1894	1,439.1894	0.4410		1,448.4496
Total	1.8844	19.7889	13.1786	0.0141	5.1794	1.0861	6.2455	2.5542	0.9808	3.5351		1,439.1894	1,439.1894	0.4410		1,448.4496

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	0.0313	0.0460	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813
Total	0.0313	0.0460	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813

3.3 Grading - 2017

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					2.0200	0.0000	2.0200	0.9962	0.0000	0.9962			0.0000			0.0000
Off-Road	1.8844	19.7889	13.1786	0.0141		1.0661	1.0661		0.9808	0.9808	0.0000	1,439.1894	1,439.1894	0.4410		1,448.4496
Total	1.8844	19.7889	13.1786	0.0141	2.0200	1.0661	3.0861	0.9962	0.9808	1.9770	0.0000	1,439.1894	1,439.1894	0.4410		1,448.4496

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	0.0313	0.0480	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813
Total	0.0313	0.0480	0.5275	8.3000e-004	0.0657	4.4000e-004	0.0662	0.0174	4.0000e-004	0.0178		65.8005	65.8005	3.8500e-003		65.8813

3.4 Building Construction - 2017

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	2.9548	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823		2,034.2860	2,034.2860	0.4268		2,043.2497
Total	2.9548	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823		2,034.2860	2,034.2860	0.4268		2,043.2497

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	0.0927	0.5805	1.1585	1.7500e-003	0.0526	0.0147	0.0673	0.0149	0.0135	0.0285		171.6297	171.6297	9.5000e-004		171.8498
Worker	0.0821	0.1208	1.3847	2.1800e-003	0.1725	1.1600e-003	0.1737	0.0458	1.0600e-003	0.0468		172.7264	172.7264	0.0101		172.9384
Total	0.1747	0.6813	2.5412	3.9300e-003	0.2251	0.0159	0.2410	0.0607	0.0146	0.0753		344.3562	344.3562	0.0111		344.5882

3.4 Building Construction - 2017

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	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823	0.0000	2,034.2860	2,034.2860	0.4268		2,043.2497
Total	2.9546	19.1088	14.3110	0.0220		1.2257	1.2257		1.1823	1.1823	0.0000	2,034.2860	2,034.2860	0.4268		2,043.2497

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	0.0927	0.5605	1.1565	1.7500e-003	0.0526	0.0147	0.0673	0.0149	0.0135	0.0285		171.6297	171.6297	9.5000e-004		171.6498
Worker	0.0821	0.1208	1.3847	2.1800e-003	0.1725	1.1800e-003	0.1737	0.0458	1.0600e-003	0.0468		172.7264	172.7264	0.0101		172.9384
Total	0.1747	0.6813	2.5412	3.9300e-003	0.2251	0.0159	0.2410	0.0607	0.0146	0.0753		344.3562	344.3562	0.0111		344.5882

3.5 Paving - 2017

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	1.1857	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755		1,347.6575	1,347.6575	0.4052		1,358.1677
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4293	12.0981	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755		1,347.6575	1,347.6575	0.4052		1,358.1677

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	0.0508	0.0748	0.8572	1.3500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		106.9259	106.9259	6.2500e-003		107.0571
Total	0.0508	0.0748	0.8572	1.3500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		106.9259	106.9259	6.2500e-003		107.0571

3.5 Paving - 2017

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	1.1857	12.0861	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755	0.0000	1,347.6575	1,347.6575	0.4052		1,356.1677
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.4293	12.0861	9.0308	0.0133		0.7333	0.7333		0.6755	0.6755	0.0000	1,347.6575	1,347.6575	0.4052		1,356.1677

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	0.0508	0.0748	0.8572	1.3500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		106.9259	106.9259	6.2500e-003		107.0571
Total	0.0508	0.0748	0.8572	1.3500e-003	0.1068	7.2000e-004	0.1075	0.0283	6.6000e-004	0.0290		106.9259	106.9259	6.2500e-003		107.0571

3.6 Architectural Coating - 2017

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	27.2318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	27.5641	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721

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	0.0156	0.0230	0.2638	4.2000e-004	0.0329	2.2000e-004	0.0331	8.7200e-003	2.0000e-004	8.9200e-003		32.9003	32.9003	1.9200e-003		32.9407
Total	0.0156	0.0230	0.2638	4.2000e-004	0.0329	2.2000e-004	0.0331	8.7200e-003	2.0000e-004	8.9200e-003		32.9003	32.9003	1.9200e-003		32.9407

3.6 Architectural Coating - 2017

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	27.2318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	27.5641	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721

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	0.0156	0.0230	0.2638	4.2000e-004	0.0329	2.2000e-004	0.0331	8.7200e-003	2.0000e-004	8.9200e-003		32.9003	32.9003	1.9200e-003		32.9407
Total	0.0156	0.0230	0.2638	4.2000e-004	0.0329	2.2000e-004	0.0331	8.7200e-003	2.0000e-004	8.9200e-003		32.9003	32.9003	1.9200e-003		32.9407

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	41.0391	52.6432	342.5107	0.2387	12.7518	0.5453	13.2970	3.4046	0.5006	3.9052		20,308.6455	20,308.6455	1.0356		20,330.3923
Unmitigated	41.0391	52.6432	342.5107	0.2387	12.7518	0.5453	13.2970	3.4046	0.5006	3.9052		20,308.6455	20,308.6455	1.0356		20,330.3923

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	5,919.20	10,138.31	8274.56	3,678,880	3,678,880
Automobile Care Center	182.90	182.90	182.90	182,202	182,202
Parking Lot	0.00	0.00	0.00		
Gasoline/Service Station	651.12	651.12	651.12	375,155	375,155
Total	6,753.22	10,972.33	9,108.58	4,236,237	4,236,237

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	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Gasoline/Service Station	9.50	7.30	7.30	2.00	79.00	19.00	14	27	59

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.435336	0.069414	0.182577	0.159271	0.045516	0.007670	0.006726	0.077089	0.000846	0.001121	0.010234	0.000591	0.003610

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	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003		42.9474	42.9474	8.2000e-004	7.9000e-004	43.2088
NaturalGas Unmitigated	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003		42.9474	42.9474	8.2000e-004	7.9000e-004	43.2088

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				
Automobile Care Center	269.056	2.9000e-003	0.0264	0.0222	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003		31.6537	31.6537	6.1000e-004	5.8000e-004	31.8463
Convenience Market With Gas Pumps	44.4932	4.8000e-004	4.3600e-003	3.6600e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2345	5.2345	1.0000e-004	1.0000e-004	5.2683
Gasoline/Service Station	51.5037	5.6000e-004	5.0500e-003	4.2400e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		6.0593	6.0593	1.2000e-004	1.1000e-004	6.0961
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		**3.9400e-003**	**0.0358**	**0.0301**	**2.2000e-004**		**2.7100e-003**	**2.7100e-003**		**2.7100e-003**	**2.7100e-003**		**42.9474**	**42.9474**	**8.3000e-004**	**7.9000e-004**	**43.2088**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market With Gas Pumps	0.0444932	4.8000e-004	4.3600e-003	3.6600e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004		5.2345	5.2345	1.0000e-004	1.0000e-004	5.2683
Gasoline/Service Station	0.0515037	5.6000e-004	5.0500e-003	4.2400e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004		6.0593	6.0593	1.2000e-004	1.1000e-004	6.0961
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
Automobile Care Center	0.269056	2.9000e-003	0.0264	0.0222	1.6000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003		31.6537	31.6537	6.1000e-004	5.8000e-004	31.8463
Total		**3.9400e-003**	**0.0358**	**0.0301**	**2.2000e-004**		**2.7100e-003**	**2.7100e-003**		**2.7100e-003**	**2.7100e-003**		**42.9474**	**42.9474**	**8.3000e-004**	**7.9000e-004**	**43.2088**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1825	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271
Unmitigated	1.1825	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271

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	0.0748					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1067					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1700e-003	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271
Total	**1.1825**	**1.2000e-004**	**0.0122**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0256**	**0.0256**	**7.0000e-005**		**0.0271**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0746					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1700e-003	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271
Total	1.1825	1.2000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0256	0.0256	7.0000e-005		0.0271

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Afton Road Commercial Center

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	103.00	Space	0.93	41,200.00	0
Convenience Market With Gas Pumps	7.00	1000sqft	0.16	7,000.00	0
Automobile Care Center	2.95	1000sqft	0.07	2,950.00	0
Gasoline/Service Station	4.00	Pump	0.01	564.70	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2017
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 - Square footage for buildings, pump area and parking. Does not include drive ailse, perimeter landscaping, loading areas and related features that do not generate trips.
Construction emissions assume the entire 2.5 acre site would be disturbed.

Construction Phase - Schedule approximate

Grading - Assumes 100% site disturbance.

Architectural Coating - No residential structures.

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	1.50	2.50
tblGrading	AcresOfGrading	1.00	2.50
tblProjectCharacteristics	OperationalYear	2014	2017

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					
2017	0.4645	2.1193	1.8041	2.7000e-003	0.0399	0.1321	0.1721	0.0144	0.1271	0.1415	0.0000	226.5863	226.5863	0.0430	0.0000	227.4900
Total	0.4645	2.1193	1.8041	2.7000e-003	0.0399	0.1321	0.1721	0.0144	0.1271	0.1415	0.0000	226.5863	226.5863	0.0430	0.0000	227.4900

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					
2017	0.4645	2.1193	1.8041	2.7000e-003	0.0296	0.1321	0.1617	9.3800e-003	0.1271	0.1365	0.0000	226.5861	226.5861	0.0430	0.0000	227.4898
Total	0.4645	2.1193	1.8041	2.7000e-003	0.0296	0.1321	0.1617	9.3800e-003	0.1271	0.1365	0.0000	226.5861	226.5861	0.0430	0.0000	227.4898

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	25.90	0.00	6.01	34.83	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2157	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-003
Energy	7.2000e-004	6.5300e-003	5.4900e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	59.9894	59.9894	2.5700e-003	6.3000e-004	60.2396
Mobile	5.0206	7.1376	53.0054	0.0290	1.6091	0.0704	1.6795	0.4303	0.0646	0.4949	0.0000	2,227.8702	2,227.8702	0.1206	0.0000	2,230.4029
Waste						0.0000	0.0000		0.0000	0.0000	6.9971	0.0000	6.9971	0.4135	0.0000	15.6810
Water						0.0000	0.0000		0.0000	0.0000	0.2694	4.8189	5.0883	0.0279	7.0000e-004	5.8908
Total	**5.2370**	**7.1442**	**53.0120**	**0.0290**	**1.6091**	**0.0709**	**1.6800**	**0.4303**	**0.0651**	**0.4954**	**7.2665**	**2,292.6806**	**2,299.9471**	**0.5648**	**1.3300e-003**	**2,312.2165**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2157	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-003
Energy	7.2000e-004	6.5300e-003	5.4900e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	59.9894	59.9894	2.5700e-003	6.3000e-004	60.2396
Mobile	5.0206	7.1376	53.0054	0.0290	1.6091	0.0704	1.6795	0.4303	0.0646	0.4949	0.0000	2,227.8702	2,227.8702	0.1206	0.0000	2,230.4029
Waste						0.0000	0.0000		0.0000	0.0000	3.4986	0.0000	3.4986	0.2068	0.0000	7.8405
Water						0.0000	0.0000		0.0000	0.0000	0.2155	4.0851	4.3006	0.0223	5.6000e-004	4.9432
Total	5.2370	7.1442	53.0120	0.0290	1.6091	0.0709	1.6800	0.4303	0.0651	0.4954	3.7141	2,291.9468	2,295.6609	0.3523	1.1900e-003	2,303.4284

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.89	0.03	0.19	37.61	10.53	0.38

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	1/1/2017	1/3/2017	5	2	
2	Grading	Grading	1/4/2017	1/9/2017	5	4	
3	Building Construction	Building Construction	1/10/2017	10/16/2017	5	200	
4	Paving	Paving	10/17/2017	10/30/2017	5	10	
5	Architectural Coating	Architectural Coating	10/31/2017	11/13/2017	5	10	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 17,626; Non-Residential Outdoor: 5,875 (Architectural Coating – sqft)

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
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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
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	21.00	8.00	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
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2017

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					6.5900e-003	0.0000	6.5900e-003	3.0400e-003	0.0000	3.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3100e-003	0.0242	0.0159	2.0000e-005		1.3100e-003	1.3100e-003		1.2000e-003	1.2000e-003	0.0000	1.5895	1.5895	4.8000e-004	0.0000	1.5997
Total	**2.3100e-003**	**0.0242**	**0.0159**	**2.0000e-005**	**6.5900e-003**	**1.3100e-003**	**7.9000e-003**	**3.0400e-003**	**1.2000e-003**	**4.2400e-003**	**0.0000**	**1.5895**	**1.5895**	**4.9000e-004**	**0.0000**	**1.5997**

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	3.0000e-005	5.0000e-005	4.6000e-004	0.0000	6.0000e-006	0.0000	6.0000e-006	2.0000e-006	0.0000	2.0000e-006	0.0000	0.0541	0.0541	0.0000	0.0000	0.0542
Total	**3.0000e-005**	**5.0000e-005**	**4.6000e-004**	**0.0000**	**6.0000e-006**	**0.0000**	**6.0000e-006**	**2.0000e-006**	**0.0000**	**2.0000e-006**	**0.0000**	**0.0541**	**0.0541**	**0.0000**	**0.0000**	**0.0542**

3.2 Site Preparation - 2017

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					2.5700e-003	0.0000	2.5700e-003	1.1900e-003	0.0000	1.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3100e-003	0.0242	0.0159	2.0000e-005		1.3100e-003	1.3100e-003		1.2000e-003	1.2000e-003	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997
Total	2.3100e-003	0.0242	0.0159	2.0000e-005	2.5700e-003	1.3100e-003	3.8800e-003	1.1900e-003	1.2000e-003	2.3900e-003	0.0000	1.5895	1.5895	4.9000e-004	0.0000	1.5997

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	3.0000e-005	5.0000e-005	4.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0541	0.0541	0.0000	0.0000	0.0542
Total	3.0000e-005	5.0000e-005	4.6000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0541	0.0541	0.0000	0.0000	0.0542

3.3 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0104	0.0000	0.0104	5.1100e-003	0.0000	5.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7700e-003	0.0396	0.0264	3.0000e-005		2.1300e-003	2.1300e-003		1.9600e-003	1.9600e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280
Total	3.7700e-003	0.0396	0.0264	3.0000e-005	0.0104	2.1300e-003	0.0125	5.1100e-003	1.9600e-003	7.0700e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280

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	5.0000e-005	1.0000e-004	9.2000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1082	0.1082	1.0000e-005	0.0000	0.1083
Total	5.0000e-005	1.0000e-004	9.2000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1082	0.1082	1.0000e-005	0.0000	0.1083

3.3 Grading - 2017

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					4.0400e-003	0.0000	4.0400e-003	1.9900e-003	0.0000	1.9900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7700e-003	0.0396	0.0264	3.0000e-005		2.1300e-003	2.1300e-003		1.9600e-003	1.9600e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280
Total	3.7700e-003	0.0396	0.0264	3.0000e-005	4.0400e-003	2.1300e-003	6.1700e-003	1.9900e-003	1.9600e-003	3.9500e-003	0.0000	2.6112	2.6112	8.0000e-004	0.0000	2.6280

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	5.0000e-005	1.0000e-004	9.2000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1082	0.1082	1.0000e-005	0.0000	0.1083
Total	5.0000e-005	1.0000e-004	9.2000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1082	0.1082	1.0000e-005	0.0000	0.1083

3.4 Building Construction - 2017

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	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5473	184.5473	0.0387	0.0000	185.3605
Total	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5473	184.5473	0.0387	0.0000	185.3605

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	0.0105	0.0591	0.1487	1.7000e-004	5.1800e-003	1.4700e-003	6.6500e-003	1.4700e-003	1.3600e-003	2.8300e-003	0.0000	15.5151	15.5151	9.0000e-005	0.0000	15.5169
Worker	7.1200e-003	0.0135	0.1213	2.0000e-004	0.0169	1.2000e-004	0.0170	4.5000e-003	1.1000e-004	4.6000e-003	0.0000	14.1968	14.1968	9.2000e-004	0.0000	14.2160
Total	0.0176	0.0725	0.2699	3.7000e-004	0.0221	1.5900e-003	0.0237	5.9700e-003	1.4700e-003	7.4300e-003	0.0000	29.7119	29.7119	1.0100e-003	0.0000	29.7329

3.4 Building Construction - 2017

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	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5471	184.5471	0.0387	0.0000	185.3803
Total	0.2955	1.9109	1.4311	2.2000e-003		0.1226	0.1226		0.1182	0.1182	0.0000	184.5471	184.5471	0.0387	0.0000	185.3803

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	0.0105	0.0591	0.1487	1.7000e-004	5.1600e-003	1.4700e-003	6.6500e-003	1.4700e-003	1.3600e-003	2.8300e-003	0.0000	15.5151	15.5151	9.0000e-005	0.0000	15.5169
Worker	7.1200e-003	0.0135	0.1213	2.0000e-004	0.0169	1.2000e-004	0.0170	4.5000e-003	1.1000e-004	4.6000e-003	0.0000	14.1968	14.1968	9.2000e-004	0.0000	14.2160
Total	0.0176	0.0725	0.2699	3.7000e-004	0.0221	1.5900e-003	0.0237	5.9700e-003	1.4700e-003	7.4300e-003	0.0000	29.7119	29.7119	1.0100e-003	0.0000	29.7329

3.5 Paving - 2017

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	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.1500e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515

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	2.2000e-004	4.2000e-004	3.7500e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4394	0.4394	3.0000e-005	0.0000	0.4400
Total	2.2000e-004	4.2000e-004	3.7500e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4394	0.4394	3.0000e-005	0.0000	0.4400

3.5 Paving - 2017

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	5.9300e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515
Paving	1.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.1500e-003	0.0605	0.0452	7.0000e-005		3.6700e-003	3.6700e-003		3.3800e-003	3.3800e-003	0.0000	6.1129	6.1129	1.8400e-003	0.0000	6.1515

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	2.2000e-004	4.2000e-004	3.7500e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4394	0.4394	3.0000e-005	0.0000	0.4400
Total	2.2000e-004	4.2000e-004	3.7500e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4394	0.4394	3.0000e-005	0.0000	0.4400

3.6 Architectural Coating - 2017

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	0.1362					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	0.1378	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795

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	1.1500e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1352	0.1352	1.0000e-005	0.0000	0.1354
Total	7.0000e-005	1.3000e-004	1.1500e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1352	0.1352	1.0000e-005	0.0000	0.1354

3.6 Architectural Coating - 2017

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	0.1362					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	0.1378	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795

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	1.1500e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1352	0.1352	1.0000e-005	0.0000	0.1354
Total	7.0000e-005	1.3000e-004	1.1500e-003	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1352	0.1352	1.0000e-005	0.0000	0.1354

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	5.0206	7.1376	53.0054	0.0290	1.6091	0.0704	1.6795	0.4303	0.0648	0.4949	0.0000	2,227.8702	2,227.8702	0.1206	0.0000	2,230.4029
Unmitigated	5.0206	7.1376	53.0054	0.0290	1.6091	0.0704	1.6795	0.4303	0.0648	0.4949	0.0000	2,227.8702	2,227.8702	0.1206	0.0000	2,230.4029

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	5,919.20	10,138.31	8274.56	3,678,880	3,678,880
Automobile Care Center	182.90	182.90	182.90	182,202	182,202
Parking Lot	0.00	0.00	0.00		
Gasoline/Service Station	651.12	651.12	651.12	375,155	375,155
Total	6,753.22	10,972.33	9,108.58	4,236,237	4,236,237

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	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Gasoline/Service Station	9.50	7.30	7.30	2.00	79.00	19.00	14	27	59

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.435336	0.069414	0.182577	0.159271	0.045516	0.007670	0.006726	0.077089	0.000846	0.001121	0.010234	0.000591	0.003610

5.0 Energy Detail

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	52.8790	52.8790	2.4300e-003	5.0000e-004	53.0859
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52.8790	52.8790	2.4300e-003	5.0000e-004	53.0859
NaturalGas Mitigated	7.2000e-004	6.5300e-003	5.4900e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1104	7.1104	1.4000e-004	1.3000e-004	7.1537
NaturalGas Unmitigated	7.2000e-004	6.5300e-003	5.4900e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1104	7.1104	1.4000e-004	1.3000e-004	7.1537

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					
Automobile Care Center	98205.5	5.3000e-004	4.8100e-003	4.0400e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2406	5.2406	1.0000e-004	1.0000e-004	5.2725
Convenience Market With Gas Pumps	16240	9.0000e-005	8.0000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8668	0.8668	2.0000e-005	2.0000e-005	0.8719
Gasoline/Service Station	18798.9	1.0000e-004	9.2000e-004	7.7000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	1.0032	1.0032	2.0000e-005	2.0000e-005	1.0093
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		7.2000e-004	6.5300e-003	5.4800e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1104	7.1104	1.4000e-004	1.4000e-004	7.1537

5.2 Energy by Land Use - NaturalGas

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					
Automobile Care Center	98205.5	5.3000e-004	4.8100e-003	4.0400e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2408	5.2408	1.0000e-004	1.0000e-004	5.2725
Convenience Market With Gas Pumps	16240	9.0000e-005	8.0000e-004	6.7000e-004	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.8666	0.8666	2.0000e-005	2.0000e-005	0.8719
Gasoline/Service Station	18798.9	1.0000e-004	9.2000e-004	7.7000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	1.0032	1.0032	2.0000e-005	2.0000e-005	1.0093
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		**7.2000e-004**	**6.5300e-003**	**5.4800e-003**	**4.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**7.1104**	**7.1104**	**1.4000e-004**	**1.4000e-004**	**7.1537**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	32656.5	9.3452	4.3000e-004	9.0000e-005	9.3818
Convenience Market With Gas Pumps	109820	31.3886	1.4400e-003	3.0000e-004	31.4924
Gasoline/Service Station	6251.23	1.7889	8.0000e-005	2.0000e-005	1.7959
Parking Lot	36256	10.3753	4.8000e-004	1.0000e-004	10.4159
Total		**52.8790**	**2.4300e-003**	**5.1000e-004**	**53.0859**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	32658.5	9.3452	4.3000e-004	9.0000e-005	9.3818
Convenience Market With Gas Pumps	109620	31.3896	1.4400e-003	3.0000e-004	31.4924
Gasoline/Service Station	6251.23	1.7889	8.0000e-005	2.0000e-005	1.7959
Parking Lot	36258	10.3753	4.8000e-004	1.0000e-004	10.4159
Total		**52.8790**	**2.4300e-003**	**5.1000e-004**	**53.0859**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2157	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-003
Unmitigated	0.2157	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-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	0.0136					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1300e-004	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-003
Total	**0.2157**	**1.0000e-005**	**1.0900e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0900e-003**	**2.0900e-003**	**1.0000e-005**	**0.0000**	**2.2100e-003**

6.2 Area by SubCategory

Mitigated

SubCategory	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
	tons/yr										MT/yr					
Architectural Coating	0.0136					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.0900e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0900e-003	2.0900e-003	1.0000e-005	0.0000	2.2100e-003
Total	**0.2157**	**1.0000e-005**	**1.0900e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0900e-003**	**2.0900e-003**	**1.0000e-005**	**0.0000**	**2.2100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.3008	0.0223	5.6000e-004	4.9432
Unmitigated	5.0883	0.0279	7.0000e-004	5.8908

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.277539 / 0.170105	1.6630	9.1200e-003	2.3000e-004	1.9253
Convenience Market With Gas Pumps	0.518508 / 0.317795	3.1069	0.0170	4.3000e-004	3.5969
Gasoline/Service Station	0.0531278 / 0.0325621	0.3183	1.7500e-003	4.0000e-005	0.3686
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		5.0883	0.0279	7.0000e-004	5.8908

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.4986	0.2068	0.0000	7.8405
Unmitigated	6.9971	0.4135	0.0000	15.6810

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	11.27	2.2877	0.1352	0.0000	5.1269
Convenience Market With Gas Pumps	21.04	4.2709	0.2524	0.0000	9.5714
Gasoline/Service Station	2.16	0.4385	0.0259	0.0000	0.9826
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		6.9971	0.4135	0.0000	15.6810

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	5.655	1.1439	0.0676	0.0000	2.5635
Convenience Market With Gas Pumps	10.52	2.1355	0.1262	0.0000	4.7857
Gasoline/Service Station	1.08	0.2192	0.0130	0.0000	0.4913
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**3.4985**	**0.2068**	**0.0000**	**7.8405**

9.0 Operational Offroad

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

10.0 Vegetation

Greenhouse Gas Emission Worksheet

N20 Mobile Emissions

Afton Commercial Center

From URBEMIS 2007 Vehicle Fleet Mix Output:

Annual VMT: 4,236,237

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	46.0%	0.04	0.04	0.0184
Light Truck < 3750 lbs	10.3%	0.05	0.06	0.00618
Light Truck 3751-5750 lbs	23.2%	0.05	0.06	0.01392
Med Truck 5751-8500 lbs	12.2%	0.12	0.2	0.0244
Lite-Heavy Truck 8501-10,000 lbs	2.1%	0.12	0.2	0.0042
Lite-Heavy Truck 10,001-14,000 lbs	0.5%	0.09	0.125	0.000625
Med-Heavy Truck 14,001-33,000 lbs	1.0%	0.06	0.05	0.0005
Heavy-Heavy Truck 33,001-60,000 lbs	2.9%	0.06	0.05	0.00145
Other Bus	0.1%	0.06	0.05	0.00005
Urban Bus	0.1%	0.06	0.05	0.00005
Motorcycle	1.1%	0.09	0.01	0.00011
School Bus	0.1%	0.06	0.05	0.00005
Motor Home	0.4%	0.09	0.125	0.0005
Total	100.0%			0.070435

Total Emissions (metric tons) =
Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4	21 GWP
N2O	310 GWP
1 ton (short, US) =	0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
N20 Emissions:	*0.2984 metric tons N2O*	*92.50 metric tons CO2e*
	Project Total:	***92.50 metric tons CO2e***

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
In California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

*** From URBEMIS 2007 results for mobile sources