Cactus Trail Improvements Project

Air Quality and Greenhouse Gas Assessment

Rialto, California

Prepared For:

CITY OF RIALTO
335 W. RIALTO AVENUE
RIALTO, CA 92376

August 2018

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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1.0 INTRODUCTION

This report documents the results of an assessment of both air quality and greenhouse gas emissions (GHG) completed for the Cactus Trail Improvement Project (Project), which includes the construction of a 1.49-mile long multi-use path along the west side of Cactus Avenue, from Rialto Avenue to Baseline Road in Rialto. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the South Coast Air Quality Management District (SCAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment.

1.1 Project Description and Location

The Project Site is located in the City of Rialto, located in southwestern San Bernardino County (see **Figure 1**). The City of Rialto proposes to construct an approximately 1.49-mile-long multi-use path along the west side of Cactus Avenue, from Rialto Avenue to Baseline Road within the City of Rialto (see **Figure 2**). The bi-directional path would be buffered (separated) from automobiles and would connect with other pedestrian/bicycle pathways in the City. The buffer area would span 5 feet between Cactus Avenue and the proposed new path. Next to this buffer area would lie a 5-foot wide asphalt pedestrian pathway followed by an additional 2-foot of buffer beyond, separating the pedestrian path and an 8-foot wide bike lane. On the west side of the bike lane would lie a 2-foot compacted shoulder consisting of decomposed granite. In addition to this new pathway, the Project proposes to reconstruct curb ramps to be ADA compliant, construct small parking lot facilities at both the southwest corner of Cactus Avenue and Foothill Boulevard and southwest corner of Cactus Avenue and Baseline Road, modify fencing to provide trail access, and install a flashing beacon system with in-roadway warning lights for trail crossing.

In general, construction activities associated with development of the trail would include excavation and grading; construction of paved parking areas, curbs and gutters; installation of fencing, railing, trail delineators, and signage; painting of pavement striping and pavement markings; and construction of appurtenant features.

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Figure 1. Project Vicinity Map

2018-105 Cactus Trail Improvement Project

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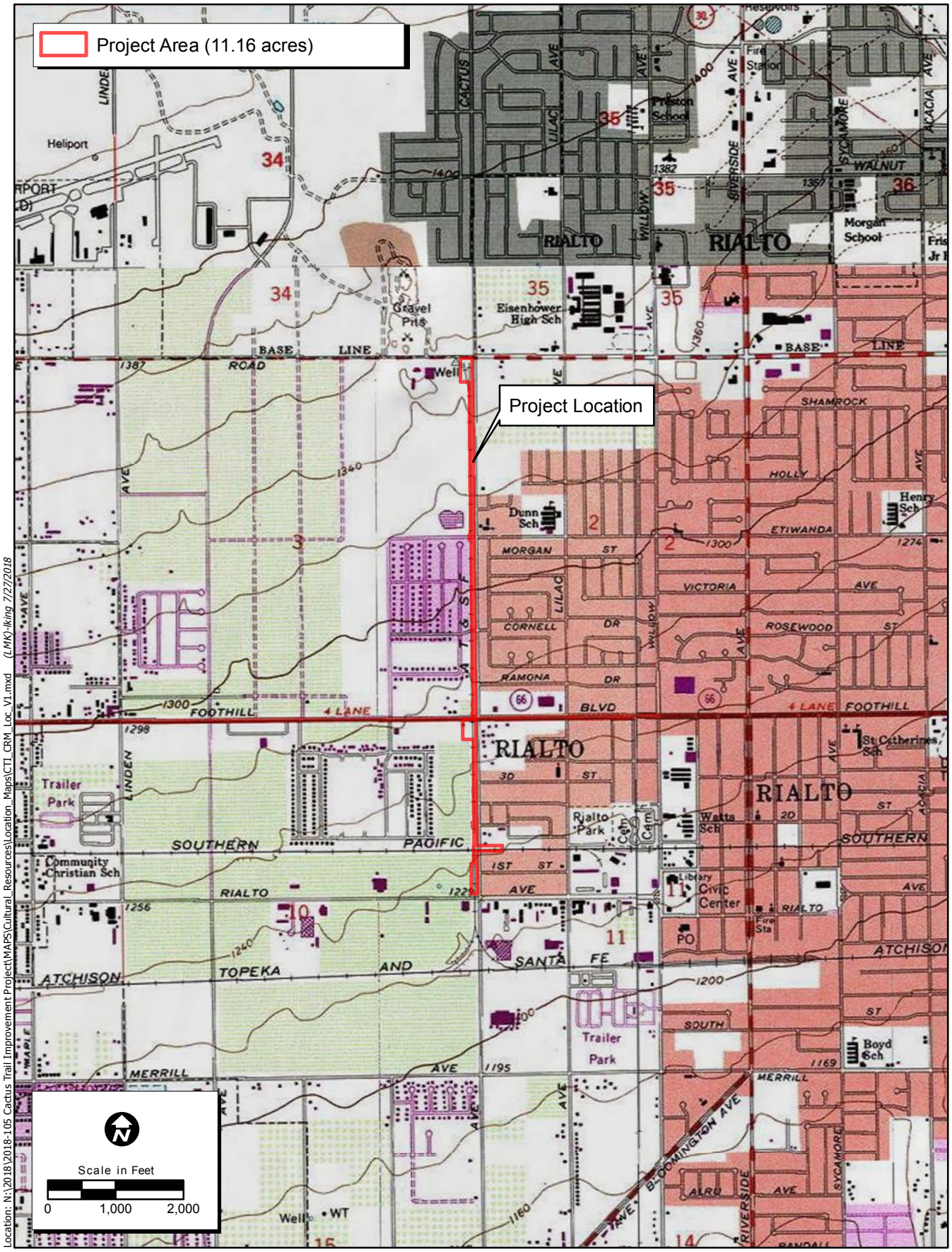

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Figure 2. Project Location Map

2018-105 Cactus Trail Improvement Project

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2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the South Coast Air Basin (SoCAB), which encompasses the Project site, pursuant to the regulatory authority of the South Coast Air Quality Management District (SCAQMD).

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

South Coast Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. Rialto lies in the SoCAB, which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The air basin is on a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean on the southwest, with high mountains forming the remainder of the perimeter (SCAQMD 1993).

Temperature and Precipitation

The air basin is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds. The annual average temperature varies little throughout the 6,645-square-mile SoCAB, ranging from the low 60s to the high 80s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas (SCAQMD 1993).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rains fall between November and April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains.

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent, and low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 1993).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is higher during the dry summer months than during the rainy winter.

Between periods of wind, air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 1993).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two similarly distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." The combination of winds and inversions is a critical determinant leading to highly degraded air quality in the summer and generally good air quality in the winter in the region (SCAQMD 1993).

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), course particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in **Table 2-1**.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects		
Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: CAPCOA 2011

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

According to the California Air Resources Board's (CARB) *California Almanac of Emissions and Air Quality* (2005), the majority of the estimated health risk from TACs can be attributed to relatively few compounds,

the most important being PM from diesel-fueled engines (diesel PM). Diesel PM has been identified as a human carcinogen and contains hundreds of different gaseous and particulate components, many of which are toxic. Diesel particles are so small that they penetrate deep into the lungs. Studies show that diesel PM concentrations are much higher near heavily traveled highways and intersections. Off-road construction equipment and heavy-duty trucks are considered major sources of diesel-related emissions.

Ambient Air Quality

Ambient air quality at the Project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains over 60 monitoring stations throughout California. The Fontana – Arrow Highway air quality monitoring station, located approximately 16 miles southwest of the development site, is the closest station to the site. Fontana – Arrow Highway monitoring station monitors ambient concentrations of O_3, $PM_{2.5}$, PM_{10}. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the development area.

Table 2-2 summarizes the published data concerning O_3, $PM_{2.5}$, PM_{10} since 2015 from the Fontana – Arrow Highway monitoring station for each year that the monitoring data is provided.

Table 2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2015	2016	2017
O_3			
Max 1-hour concentration (ppm)	0.133	0.139	0.137
Max 8-hour concentration (ppm) (state/federal)	59 / 57	51 / 49	51 / 49
Number of days above state 1-hour standard	36 / 3	34 / 3	33 / 2
Number of days above 8-hour standard (state/federal)	0.111 / 0.111	0.105 / 0.105	0.119 / 0.118
PM_{10}			
Max 24-hour concentration (µg/m3) (state/federal)	92.0 / 96.0	* / 94.0	* / 75.3
Number of days above 24-hour standard (state/federal)	* / *	* / 0	* / 0
$PM_{2.5}$			
Max 24-hour concentration (µg/m3) (state/federal)	50.5 / 50.5	58.8 / 58.8	39.2 / 39.2
Number of days above federal 24-hour standard	10.4	3.2	3.0

Source: CARB 2018
$\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million
** = Insufficient data available*

The attainment status for the SoCAB is included in **Table 2-3.** Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. Areas for which there is insufficient data available are designated unclassified. The

region is designated as a nonattainment area for the federal ozone and $PM_{2.5}$ standards, and is also a nonattainment area for the state standards for state ozone, PM_{10}, and $PM_{2.5}$ standards (CARB 2017a).

Table 2-3. Attainment Status of Criteria Pollutants in the San Bernardino County Portion of South Coast Air Basin

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment

Source: CARB 2017a

2.2 Regulatory Framework

Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the US Environmental Protection Agency (EPA) to establish the National Ambient Air Quality Standards (NAAQS), with states retaining the option to adopt more stringent standards or to include other specific pollutants. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The EPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. **Table 2-3** lists the federal attainment status of the SoCAB for the criteria pollutants.

State

California Clean Air Act

The California Clean Air Act (CCAA) allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal

and state air pollution control programs within California, including setting the California ambient air quality standards. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal Clean Air Act (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the national ambient air quality standards revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the Clean Air Act. The EPA has the responsibility to review all State Implementation Plans to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register. The "2016 Air Quality Management Plan" (2016 AQMP) is the SIP for the SoCAB. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air in the SoCAB and those portions of the Salton Sea Air Basin (SSAB) that are under SCAQMD's jurisdiction. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts is to reduce emissions from mobile sources. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, state, regional, and local level. These agencies (EPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's latest Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS.

Local

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The agency's primary responsibility is ensuring that the

federal and state ambient air quality standards are attained and maintained in the SoCAB. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The following is a list of noteworthy SCAQMD rules that are required of construction activities associated with the proposed Project:

- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression techniques are summarized below.
    a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.
    b) All on-site roads will be paved as soon as feasible or watered periodically or chemically stabilized.
    c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.
    d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.
    e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the work day to remove soil tracked onto the paved surface.
- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce reactive organic gas (ROG) emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.

2.3 Air Quality Emissions Impact Assessment

Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would:

1) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

2) Conflict with or obstruct implementation of any applicable air quality plan.

3) Expose sensitive receptors to substantial pollutant concentrations.

4) Create objectionable odors affecting a substantial number of people.

5) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

SCAQMD Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (SCAQMD) may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if the proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in **Table 2-4.**

Table 2-4. SCAQMD Regional Significance Thresholds – Pounds per Day

Air Pollutant	Construction Activities	Operations
Reactive Organic Gas	75	55
Carbon Monoxide	550	550
Nitrogen Oxide	100	55
Sulfur Oxide	150	150
Coarse Particulate Matter	150	150
Fine Particulate Matter	55	55

Source: SCAQMD 1993 ($PM_{2.5}$ threshold adopted June 1, 2007)

Localized Significance Thresholds

In response to the SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4) the SCAQMD developed localized significance thresholds (LSTs) for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a project site without expecting to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb 5 acres or less on a single day. Rialto is located within SCAQMD SRA 34 (Central San Bernardino Valley). **Table 2-5** shows the LSTs for a 1-acre, 2-acre, and 5-acre project site in SRA 34 with sensitive receptors located within 25 meters of the Project site.

Table 2-5. Local Significance Thresholds (Construction / Operations)

Project Size	Pollutant (pounds per day)			
	NO_X Construction/ Operations	CO Construction/ Operations	PM_{10} Construction/ Operations	$PM_{2.5}$ Construction/ Operations
1 Acre	118 / 118	667 / 667	4 / 1	3 / 1
2 Acres	170 / 170	972 / 972	7 / 2	4 / 1
5 Acres	270 / 270	1,746 / 1,746	14 / 4	8 / 2

Source: SCAQMD 2009

Methodology

Air quality impacts were assessed in accordance with methodologies recommended by CARB and the SCAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were primarily calculated using CalEEMod model defaults for San Bernardino County. However, the specific construction equipment anticipated to be used has been provided by the City and accounted for in the emissions model predictions.

Impact Analysis

PROJECT CONSTRUCTION-GENERATED CRITERIA AIR QUALITY EMISSIONS

Regional Construction Significance Analysis

Construction-generated emissions are temporary and short term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through

construction of the proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive particulate matter emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SCAQMD Rule 403, which requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated the proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See **Attachment A** for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the proposed Project are summarized in **Table 2-6**. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Table 2-6. Construction-Related Emissions (Regional Significance Analysis)

Construction Year	Maximum Pollutants (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2019	2.96	66.67	18.83	0.17	5.34	1.53
SCAQMD Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Exceed SCAQMD Threshold?	No	No	No	No	No	No

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.*

Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: water exposed surfaces three times daily; Sweep and wash down of streets where vehicles leave the construction site, daily, to remove soil tracked onto the paved surface; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

Emission projections account for 2,407 tons of demolished material excavated and hauled from the site.

Emission projections account for the import of 7,000 cubic yards of soil and the export of 7,500 cubic yards of soil during site preparation and grading activities.

As shown in **Table 2-6**, emissions generated during construction would not exceed the SCAQMD's regional thresholds of significance. This would be considered a less than significant impact.

Localized Construction Significance Analysis

The nearest sensitive receptors to the Project site are the residences adjacent to the proposed path. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing Localized Significance Thresholds (LSTs) for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific level proposed projects.

For this Project, the appropriate source receptor area (SRA) for the localized significance thresholds is the Central San Bernardino Valley source receptor area (SRA 34) as this source receptor area includes the Project site. The proposed Project would disturb approximately 4.6 acres during construction. As previously described, the SCAQMD has produced look-up tables for projects that disturb less than or equal to 5 acres daily. Thus, the LST threshold value for a 4.6-acre construction was interpolated from the LST lookup tables. The nearest sensitive receptors to the Project site are the residences adjacent to the proposed trail. LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. Notwithstanding, the SCAQMD Methodology explicitly states: "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.*" Therefore, LSTs for receptors located at 25 meters were utilized in this analysis.

The SCAQMD's methodology clearly states that "off-site mobile emissions from a project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered. **Table 2-7,** presents the results of localized emissions during the grading and construction phases, which are construction activities that disturbs the most acreage daily. The LSTs reflect a maximum disturbance of 4.6 acres daily at 25 meters for the proposed Project.

Table 2-7. Construction-Related Emissions (Localized Significance Analysis)				
Activity	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Demolition	13.11	10.00	4.66	1.22
Site Preparation	8.91	4.14	0.63	0.36
Grading	18.78	11.40	1.02	0.72
Paving/Construction	16.02	12.52	0.76	0.70
Finishing	10.65	7.68	0.46	0.43
SCAQMD Localized Significance Threshold	*256.67*	*1,642.80*	*13.07*	*7.47*
Exceed SCAQMD Threshold?	No	No	No	No

*Source: CalEEMod version 2016.3.2. Refer to **Attachment A** for Model Data Outputs.*

Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: water exposed surfaces three times daily; Sweep and wash down of streets where vehicles leave the construction site daily to remove soil tracked onto the paved surface; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

Emission projections account for 2,407 tons of demolished material excavated and hauled from the site.

Emission projections account for the import of 7,000 cubic yards of soil and the export of 7,500 cubic yards of soil during site preparation and grading activities.

Table 2-7 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during construction activities.

PROJECT OPERATIONS CRITERIA AIR QUALITY EMISSIONS

Regional Operational Significance Analysis

The proposed Project involves the construction of an approximately 1.49-mile-long multi-use (pedestrian and bicycle) pathway. The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable air quality emissions from Project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. While it is anticipated that the Project would instigate some automobile trips as certain local residents drive to one of the parking areas in order to access the pathway, traffic trips are anticipated to be small and the resultant traffic-related emissions negligible. Furthermore, the Project could actually be expected to reduce traffic trips in the area, and thus air pollutant emissions, due to the proposed construction of an alternative transportation facility. According to the *2017 Active Transportation Program Greenhouse Gas Reduction Funds Supplemental Application Material* (City of Rialto 2017), which employed CARB's *Calculator for the California Transportation Commission Active Transportation Program Greenhouse Gas Reduction Quantification Methodology*, vehicle

commuter trips can be expected to decrease due to installation of the Project. This reduction of automobile trips attributable to the Project would reduce the amount of daily criteria air pollutants currently being generated. Thus, there would be no operational impact related to air quality.

Localized Operational Significance Analysis

According to the SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed Project includes the construction of a 1.49-mile-long multi-use pathway. Therefore, in the case of the proposed Project, the operational phase LST protocol is not applied.

CONFLICT WITH THE 2016 AIR QUALITY MANAGEMENT PLAN

As part of its enforcement responsibilities, the EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the California Clean Air Act requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project site is located within the SoCAB, which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment. In order to reduce such emissions, the SCAQMD drafted the 2016 Air Quality Management Plan. The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, the California Air Resources Board (CARB), the Southern California Association of Governments (SCAG), and the US Environmental Protection Agency (EPA). The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) The Project is subject to the SCAQMD's Air Quality Management Plan.

According to the SCAQMD, in order to determine consistency with SCAQMD's air quality planning two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations?

As shown in **Tables 2-6** and **2-7**, the proposed Project would result in emissions that would be below the SCAQMD regional and localized thresholds during construction. Furthermore, as previously described the Project would not generate quantifiable criteria emissions from Project operations. The Project is actually anticipated to reduce local traffic and thus, criteria air pollutants. Therefore, the proposed Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards.

b) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

As shown in **Table 2-6**, the Project will not exceed the applicable SCAQMD regional thresholds for construction. Additionally, the Project will not generate quantifiable criteria emissions from Project operations. Since the Project would result in no regional emission impacts, it would not delay the timely attainment of air quality standards or AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SoCAB focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining Project consistency focuses on whether or not the proposed Project exceeds the assumptions utilized in preparing the forecasts presented its air quality planning documents. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the 2016 AQMP?*

A project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans. Generally, three sources of data form the basis for the projections of air pollutant emissions in Rialto, which encompasses the Project site: *Rialto General Plan*, SCAG's *Growth Management* Chapter of the *Regional Comprehensive Plan and Guide* (*RCPG*), and SCAG's *2016 Regional Transportation Plan/Sustainable Communities Strategy* (*RTP/SCS*). The *RTP/SCS* also provides socioeconomic forecast projections of regional population growth.

The proposed Project does not include development of new housing or employment centers, and would not induce population or employment growth. Therefore, the Project would not affect local plans for population growth. Therefore, the proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP.

b) Would the project implement all feasible air quality mitigation measures?

In order to further reduce emissions, the Project would be required to comply with emission reduction measures promulgated by the SCAQMD, such as SCAQMD Rules 402, 403, and 1113. SCAQMD Rule 402 prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. SCAQMD Rule 403 requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD 1113 requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories. As such, the proposed Project meets this consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth by SCAQMD air quality planning efforts?

The AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The proposed Project is consistent with the land use designation and development density presented in the City of Rialto General Plan and therefore would not exceed the population or job growth projections used by the SCAQMD to develop the AQMP.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality. The proposed Project would not result in a long-term impact on the region's ability to meet State and Federal air quality standards as it is not projected to exceed SCAQMD regional thresholds. As a result, this impact is less than significant.

EXPOSURE OF SENSITIVE RECEPTORS TO TOXIC AIR CONTAMINANTS

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-

cancer chronic risk, short-term acute risk) and health impacts from other TACs. Accordingly, DPM is the focus of this discussion.

Based on the emission modeling conducted the maximum construction-related emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be 0.85 pounds per day (see **Attachment A**) during construction activity ($PM_{2.5}$ is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$), according to CARB. Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) Furthermore, even during the most intense month of construction, emissions of DPM would be generated from different locations on the Project site, rather than a single location, because different types of construction activities (e.g., site preparation, grading, paving) would not occur at the same place at the same time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-, 30-, or 9-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed Project. Consequently, an important consideration is the fact that construction of the proposed Project is anticipated to last less than 8 months. Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense season of construction, the relatively short duration of construction activities (less than a year) required to develop the site, and the highly dispersive properties of DPM, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics.

Operational Air Contaminants

The proposed Project involves the construction of an approximately 1.49-mile-long multi-use pathway. The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable air toxic emissions from Project operations.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to

operate at unacceptable levels of service during the peak commute hours. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Project vicinity have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The analysis prepared for CO attainment in the SCAQMD *1992 Federal Attainment Plan for Carbon Monoxide* (1992 CO Plan) in Los Angeles County can be used to demonstrate the potential for CO exceedances. The SCAQMD CO hot spot analysis was conducted for four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the level of service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be level of service (LOS) E at peak morning traffic and LOS F at peak afternoon traffic (LOS E and F are the two least efficient traffic LOS ratings). Even with the inefficient LOS and volume of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992).

The Project would not increase traffic volumes at any intersection to more than 100,000 vehicles per day, there is no likelihood of the Project traffic exceeding CO values.

ODORS

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Construction

During construction, the proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, under CEQA, construction odors would result in a less than significant impact related to odor emissions.

Operations

The SCAQMD *CEQA Air Quality Handbook* (1993) identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The proposed Project would not include any of the land uses that have been identified by the SCAQMD as odor sources. Therefore, there would be no operational odor impacts from the proposed Project.

CUMULATIVE AIR QUALITY IMPACTS

The cumulative setting for air quality includes San Bernardino County portion of the SoCAB. The San Bernardino County portion of SoCAB is designated as a nonattainment area for state standards of ozone, PM_{10}, and $PM_{2.5}$. The region is also designated as a nonattainment area for federal standards of ozone and $PM_{2.5}$ (CARB 2017a). Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the San Bernardino County portion of SoCAB and associated growth and development anticipated in the region.

The SCAQMD's approach to assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and California Clean Air Acts. As discussed earlier, the proposed Project is consistent with the 2016 AQMP, which is intended to bring the SoCAB into attainment for all criteria pollutants. In addition, the SCAQMD recommends that any given project's potential contribution to cumulative impacts be assessed using the same significance criteria as for project-specific impacts. Therefore, individual projects that do not generate operational or construction emissions that exceed the SCAQMD's daily thresholds for project-specific impacts would also

not cause a cumulatively considerable increase in emissions for those pollutants for which the air basin is in nonattainment and therefore would not be considered to have a significant, adverse air quality impact. Alternatively, individual Project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the Project would not exceed the applicable SCAQMD regional thresholds. As such, the Project will not result in a cumulatively significant impact.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (IPCC 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1] EPA 2016a, [2] EPA 2016b, [3] EPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Sources of Greenhouse Gas Emissions

In June 2017, CARB released the 2017 edition of the California GHG inventory covering calendar year 2015 emissions. In 2015, California emitted 440.4 million gross metric tons of CO_2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2015, accounting for approximately 37 percent of total GHG emissions in the state. This sector was followed by the industrial sector (21 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent) (CARB 2017b).

Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing carbon dioxide from the atmosphere.

3.2 Regulatory Framework

State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

While dated, this executive order remains relevant because a more recent California Appellate Court decision, Cleveland National Forest Foundation v. San Diego Association of Governments (November 24, 2014) 231 Cal.App.4th 1056, examined whether it should be viewed as having the equivalent force of a legislative mandate for specific emissions reductions. While the California Supreme Court ruled that the San Diego Association of Governments did not abuse its discretion by declining "to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal, the decision also recognized that the goal of a 40 percent reduction in 1990 GHG levels by 2030 is "widely acknowledged" as a "necessary interim target to ensure that California meets its longer-range goal of reducing greenhouse gas emissions 80 percent below 1990 levels by the year 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also requires that these reductions "…shall remain in effect unless otherwise amended or repealed. (b) It is the intent of the Legislature that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (c) The [Air Resources Board] shall make recommendations to the Governor and the Legislature on how to continue reductions of greenhouse gas emissions beyond 2020." [California Health and Safety Code, Division 25.5, Part 3, Section 38551]

Assembly Bill 32 Climate Change Scoping Plan and Updates

In December 2008, CARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons of CO_2e emissions, or approximately 21.7 percent from the State's projected 2020 emission level of 545 million metric tons of CO_2e under a business-as-usual scenario (this is a reduction of 47 million metric tons of CO_2e, or almost 10 percent, from 2008 emissions). In May 2014, CARB released and subsequently adopted the First Update to the Climate Change Scoping Plan to identify the next steps in reaching AB 32 goals and evaluate progress that has been made between 2000 and 2012. According to the update, California is on track to meet the near-term 2020 GHG limit and is well positioned to maintain and continue reductions beyond 2020. The update also reports the trends in GHG emissions from various emissions sectors (e.g., transportation, building energy, agriculture).

In 2017, CARB released its 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update), which lays out the framework for achieving the 2030 reductions as established in more recent legislation (discussed below). The 2017 Scoping Plan Update identifies the GHG reductions needed by each emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels before 2030.

The update also identifies how GHGs associated with proposed projects could be evaluated under CEQA. Specifically, it states that achieving "no net increase" in GHG emissions is the correct overall objective of projects evaluated under CEQA if conformity with an applicable local GHG reduction plan cannot be demonstrated. CARB recognizes that it may not be appropriate or feasible for every development project to mitigate its GHG emissions to no net increase and that this may not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change.

Executive Order B-30-15

On April 20, 2015 Governor Brown signed Executive Order B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011 and Senate Bill 350 of 2015

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011-2013 compliance period, at least 65 percent for the 2014-2016 compliance period, and at least 75 percent for 2016 and beyond. In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly-owned utilities to procure 50 percent of their electricity from renewable resources by 2030.

Local

South Coast Air Quality Management District

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff is convening an ongoing GHG CEQA Significance Threshold Working Group. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that provide input to SCAQMD staff on developing the significance thresholds. On October 8, 2008, the SCAQMD released the Draft AQMD Staff CEQA GHG Significance Thresholds. These thresholds have not been finalized and continue to be developed through the working group.

On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including an interim numeric "bright-line" threshold of 3,000 metric tons of CO_2e annually and an efficiency-based threshold of 4.8 metric tons of CO_2e per service population (defined as the people that work, study, live, patronize and/or congregate on the Project site) per year in 2020 and 3.0 metric tons of CO_2e per service population per year in 2035. The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the governing board. The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions; however, these rules are currently applicable only to boilers and process heaters, forestry, and manure management projects.

Southern California Association of Governments

On April 7, 2016, the Southern California Association of Governments (SCAG) Regional Council adopted the *2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy* (2016 RTP/SCS). The 2016 RTP/SCS charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The SCAG

region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions.

3.3 Greenhouse Gas Emissions Impact Assessment

Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to GHG emissions if it would:

1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Project GHG Thresholds

As noted earlier, AB 32 is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020. In adopting AB 32, the legislature determined the necessary GHG reductions for the state to make in order to sufficiently offset its contribution to the cumulative climate change problem. AB 32 is a legally mandated requirement for the reduction of GHGs. As such, compliance with AB 32 is the current adopted basis upon which an agency can base its significance threshold for evaluating a project's GHG impacts. However, it is acknowledged that the recently signed legislation of SB 32 has established in GHG emission reduction targets for years beyond 2020.

While statewide goals for GHG reductions in the years beyond 2020 have been recently codified into state law with the passage of SB 32, at the time of writing this document, no specific policies or emissions reduction mechanisms have been established. Therefore, while Project design can contribute to reducing potential GHG emissions from the proposed Project, achievement of future GHG efficiency standards is also dependent on regulatory controls applied to all sectors of the California economy. Thus, the ability of this Project—and all land use development—to achieve GHG reduction goals beyond 2020 is partially out of the control of the Project.

For the purposes of this evaluation, the Project is compared to the SCAQMD interim numeric bright-line threshold of 3,000 metric tons of CO_2e annually. This threshold was developed as part of the SCAQMD GHG CEQA Significance Threshold Working Group. The working group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the state Office of Planning and Research (OPR), CARB, the Attorney General's Office, a variety of city and county planning departments in the SoCAB, various utilities such as sanitation and power companies throughout the basin, industry groups, and environmental and professional organizations. The numeric bright line threshold was developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to

CEQA practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

Methodology

GHG impacts were assessed in accordance with methodologies recommended by CARB and the SCAQMD. Where quantification was required, GHG emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were primarily calculated using CalEEMod model defaults for San Bernardino County. However, the specific construction equipment anticipated to be used has been provided by the City and accounted for in the emissions model predictions.

Impact Analysis

CONTRIBUTION OF GREENHOUSE GAS EMISSIONS

The proposed Project is also compared to the SCAQMD interim numeric bright-line threshold of 3,000 metric tons of CO_2e annually.

Construction

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Projected GHG emissions from construction have been quantified and amortized over the life of the Project (amortized over 30 years pursuant to SCAQMD guidance). **Table 3-2** illustrates the specific construction-generated GHG emissions that would result from construction of the Project.

Table 3-2. Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/ Year)
Year 2019	220
Construction Amortized over 30 Years	7.3
SCAQMD Threshold	3,000
Exceed Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

Notes: Emission projections account for 2,407 tons of demolished material excavated and hauled from the site.

Emission projections account for the import of 7,000 cubic yards of soil and the export of 7,500 cubic yards of soil during site preparation and grading activities.

As shown in **Table 3-2**, Project construction would result in the generation of approximately 220 metric tons of CO_2e over the course of construction. Amortized construction emissions equate to 7.3 CO_2e per

year. Neither value would exceed the SCAQMD's interim screening level numeric bright-line threshold of 3,000 metric tons of CO_2e annually. Therefore, the impact is less than significant.

Operations

In terms of operational GHG emissions, the proposed Project involves the construction of an approximately 1.49-mile-long multi-use (pedestrian and bicycle) pathway. The proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable air quality emissions from Project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. While it is anticipated that the Project would instigate some automobile trips as certain local residents drive to one of the parking areas in order to access the pathway, traffic trips are anticipated to be small and the resultant traffic-related GHG emissions negligible. Furthermore, the Project could actually be expected to reduce traffic trips in the area, and thus GHG emissions, due to the proposed construction of an alternative transportation facility. According to the *2017 Active Transportation Program Greenhouse Gas Reduction Funds Supplemental Application Material* (City of Rialto 2017), which employed CARB's *Calculator for the California Transportation Commission Active Transportation Program Greenhouse Gas Reduction Quantification Methodology*, vehicle commuter trips can be expected to decrease due to installation of the Project resulting in 235 *less* metric tons of CO_2e generated in Rialto annually. This reduction of automobile-generated GHG emissions would represent a beneficial impact.

CONFLICT WITH ANY APPLICABLE PLAN, POLICY, OR REGULATION OF AN AGENCY ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES

The City of Rialto does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, as previously described the State of California promulgates several mandates and goals to reduce statewide GHG emissions, including the goal to reduce statewide GHG emissions to 1990 levels by the year 2020 (AB 32), and the goal to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (SB 32). As previously described, the Project could actually be expected to reduce traffic trips in the area, and thus GHG emissions, due to the proposed construction of an alternative transportation facility. According to the *2017 Active Transportation Program Greenhouse Gas Reduction Funds Supplemental Application Material* (City of Rialto 2017), which employed CARB's *Calculator for the California Transportation Commission Active Transportation Program Greenhouse Gas Reduction Quantification Methodology*, vehicle commuter trips can be expected to decrease due to installation of the Project resulting in 235 *less* metric tons of CO_2e generated in Rialto annually. This reduction of automobile-generated GHG emissions would represent a beneficial impact.

The proposed Project would reduce GHG emissions in a manner consistent with AB 32 and other California GHG-reducing legislation by creating an alternative to automobile transportation and thereby reducing mobile-source GHG emissions. Therefore, no impact would occur. No mitigation is necessary.

CUMULATIVE GHG IMPACTS

Climate change is a global problem. And GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe.

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed Project as well as other cumulative related projects would also be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As previously discussed, the proposed Project would not exceed SCAQMD significance thresholds and would actually assist to reduce automobile-generated GHG emissions. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant.

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4.0 REFERENCES

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CalEEMod Output Files

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Cactus Trail Improvement Project

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	200.00	1000sqft	4.59	200,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Trail Improvement Project - San Bernardino-South Coast County, Summer

Project Characteristics -

Land Use -

Construction Phase - Phase duration per City

Off-road Equipment - Equipment per applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Grading -

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Consumer Products - No degreaser emissions

Area Coating - Not a true parking lot

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12000	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	8.00	5.00
tblConstructionPhase	NumDays	18.00	70.00
tblConstructionPhase	NumDays	5.00	48.00
tblConstructionPhase	PhaseEndDate	8/29/2018	1/8/2019
tblConstructionPhase	PhaseEndDate	9/24/2018	1/22/2019
tblConstructionPhase	PhaseEndDate	10/18/2018	4/30/2019
tblConstructionPhase	PhaseEndDate	9/5/2018	1/15/2019
tblConstructionPhase	PhaseEndDate	9/12/2018	7/5/2019

tblConstructionPhase	PhaseStartDate	8/2/2018	1/2/2019
tblConstructionPhase	PhaseStartDate	9/13/2018	1/16/2019
tblConstructionPhase	PhaseStartDate	9/25/2018	1/23/2019
tblConstructionPhase	PhaseStartDate	8/30/2018	1/9/2019
tblConstructionPhase	PhaseStartDate	9/6/2018	5/1/2019
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	MaterialExported	0.00	3,750.00
tblGrading	MaterialExported	0.00	3,750.00
tblGrading	MaterialImported	0.00	3,500.00
tblGrading	MaterialImported	0.00	3,500.00
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00

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					
2019	2.9626	66.6793	18.8263	0.1730	11.2240	0.9193	11.9137	1.8119	0.8516	2.4663	0.0000	18,144.1720	18,144.1720	1.7221	0.0000	18,187.2240
Maximum	**2.9626**	**66.6793**	**18.8263**	**0.1730**	**11.2240**	**0.9193**	**11.9137**	**1.8119**	**0.8516**	**2.4663**	**0.0000**	**18,144.1720**	**18,144.1720**	**1.7221**	**0.0000**	**18,187.2240**

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					
2019	2.9626	66.6793	18.8263	0.1730	4.6573	0.9193	5.3469	0.7910	0.8516	1.5380	0.0000	18,144.1720	18,144.1720	1.7221	0.0000	18,187.2240
Maximum	**2.9626**	**66.6793**	**18.8263**	**0.1730**	**4.6573**	**0.9193**	**5.3469**	**0.7910**	**0.8516**	**1.5380**	**0.0000**	**18,144.1720**	**18,144.1720**	**1.7221**	**0.0000**	**18,187.2240**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.51**	**0.00**	**55.12**	**56.34**	**0.00**	**37.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.9500e-003**	**1.9000e-004**	**0.0206**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.2000e-004**	**0.0000**	**0.0467**

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	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.9500e-003**	**1.9000e-004**	**0.0206**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.2000e-004**	**0.0000**	**0.0467**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2019	1/8/2019	5	5	
2	Site Preparation	Site Preparation	1/9/2019	1/15/2019	5	5	
3	Grading	Grading	1/16/2019	1/22/2019	5	5	
4	Paving	Paving	1/23/2019	4/30/2019	5	70	
5	Landscaping & Cleanup	Site Preparation	5/1/2019	7/5/2019	5	48	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 4.59

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Cactus Trail Improvement Project - San Bernardino-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Landscaping & Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Landscaping & Cleanup	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Landscaping & Cleanup	Skid Steer Loaders	1	8.00	65	0.37
Landscaping & Cleanup	Off-Highway Trucks	1	8.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	6.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Off-Highway Trucks	1	8.00	402	0.38
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Off-Highway Trucks	1	8.00	402	0.38
Paving	Off-Highway Trucks	1	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	238.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	906.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	906.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping & Cleanup	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					10.3015	0.0000	10.3015	1.5597	0.0000	1.5597			0.0000			0.0000
Off-Road	1.4047	13.1155	10.0017	0.0226		0.6469	0.6469		0.6135	0.6135		2,207.9391	2,207.9391	0.5528		2,221.7583
Total	**1.4047**	**13.1155**	**10.0017**	**0.0226**	**10.3015**	**0.6469**	**10.9484**	**1.5597**	**0.6135**	**2.1733**		**2,207.9391**	**2,207.9391**	**0.5528**		**2,221.7583**

3.2 Demolition - 2019

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	0.3187	12.5703	1.8197	0.0377	0.8331	0.0422	0.8752	0.2284	0.0403	0.2688		4,004.3643	4,004.3643	0.2200		4,009.8633
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	0.0474	0.0316	0.3988	9.4000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		93.3133	93.3133	3.1300e-003		93.3915
Total	**0.3661**	**12.6018**	**2.2185**	**0.0387**	**0.9225**	**0.0428**	**0.9653**	**0.2521**	**0.0409**	**0.2930**		**4,097.6775**	**4,097.6775**	**0.2231**		**4,103.2548**

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					4.0176	0.0000	4.0176	0.6083	0.0000	0.6083			0.0000			0.0000
Off-Road	1.4047	13.1155	10.0017	0.0226		0.6469	0.6469		0.6135	0.6135	0.0000	2,207.9391	2,207.9391	0.5528		2,221.7583
Total	**1.4047**	**13.1155**	**10.0017**	**0.0226**	**4.0176**	**0.6469**	**4.6645**	**0.6083**	**0.6135**	**1.2218**	**0.0000**	**2,207.9391**	**2,207.9391**	**0.5528**		**2,221.7583**

3.2 Demolition - 2019

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	0.3187	12.5703	1.8197	0.0377	0.5813	0.0422	0.6235	0.1666	0.0403	0.2070		4,004.3643	4,004.3643	0.2200		4,009.8633
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	0.0474	0.0316	0.3988	9.4000e-004	0.0583	6.0000e-004	0.0589	0.0161	5.5000e-004	0.0166		93.3133	93.3133	3.1300e-003		93.3915
Total	**0.3661**	**12.6018**	**2.2185**	**0.0387**	**0.6397**	**0.0428**	**0.6824**	**0.1827**	**0.0409**	**0.2236**		**4,097.6775**	**4,097.6775**	**0.2231**		**4,103.2548**

3.3 Site Preparation - 2019

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					0.6942	0.0000	0.6942	0.0821	0.0000	0.0821			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378		965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.6942**	**0.3672**	**1.0614**	**0.0821**	**0.3378**	**0.4199**		**965.1690**	**965.1690**	**0.3054**		**972.8032**

3.3 Site Preparation - 2019

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	1.2132	47.8515	6.9271	0.1437	3.1713	0.1605	3.3318	0.8695	0.1536	1.0231		15,243.5043	15,243.5043	0.8373		15,264.4376
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	0.0296	0.0197	0.2492	5.9000e-004	0.0559	3.8000e-004	0.0563	0.0148	3.5000e-004	0.0152		58.3208	58.3208	1.9600e-003		58.3697
Total	**1.2428**	**47.8712**	**7.1763**	**0.1443**	**3.2271**	**0.1609**	**3.3880**	**0.8843**	**0.1539**	**1.0382**		**15,301.8251**	**15,301.8251**	**0.8393**		**15,322.8073**

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					0.2708	0.0000	0.2708	0.0320	0.0000	0.0320			0.0000			0.0000
Off-Road	0.7195	8.9170	4.1407	9.7500e-003		0.3672	0.3672		0.3378	0.3378	0.0000	965.1690	965.1690	0.3054		972.8032
Total	**0.7195**	**8.9170**	**4.1407**	**9.7500e-003**	**0.2708**	**0.3672**	**0.6380**	**0.0320**	**0.3378**	**0.3698**	**0.0000**	**965.1690**	**965.1690**	**0.3054**		**972.8032**

3.3 Site Preparation - 2019

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	1.2132	47.8515	6.9271	0.1437	2.2130	0.1605	2.3735	0.6343	0.1536	0.7878		15,243.5043	15,243.5043	0.8373		15,264.4376
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	0.0296	0.0197	0.2492	5.9000e-004	0.0365	3.8000e-004	0.0368	0.0101	3.5000e-004	0.0104		58.3208	58.3208	1.9600e-003		58.3697
Total	**1.2428**	**47.8712**	**7.1763**	**0.1443**	**2.2494**	**0.1609**	**2.4103**	**0.6443**	**0.1539**	**0.7982**		**15,301.8251**	**15,301.8251**	**0.8393**		**15,322.8073**

3.4 Grading - 2019

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					0.6942	0.0000	0.6942	0.0821	0.0000	0.0821			0.0000			0.0000
Off-Road	1.6902	18.7884	11.4007	0.0281		0.7580	0.7580		0.6974	0.6974		2,784.0261	2,784.0261	0.8808		2,806.0470
Total	**1.6902**	**18.7884**	**11.4007**	**0.0281**	**0.6942**	**0.7580**	**1.4522**	**0.0821**	**0.6974**	**0.7794**		**2,784.0261**	**2,784.0261**	**0.8808**		**2,806.0470**

3.4 Grading - 2019

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	1.2132	47.8515	6.9271	0.1437	3.1713	0.1605	3.3318	0.8695	0.1536	1.0231		15,243.5043	15,243.5043	0.8373		15,264.4376
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	0.0593	0.0394	0.4985	1.1700e-003	0.1118	7.5000e-004	0.1125	0.0296	6.9000e-004	0.0303		116.6416	116.6416	3.9100e-003		116.7394
Total	**1.2724**	**47.8909**	**7.4256**	**0.1449**	**3.2830**	**0.1613**	**3.4443**	**0.8991**	**0.1543**	**1.0534**		**15,360.1459**	**15,360.1459**	**0.8412**		**15,381.1770**

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					0.2708	0.0000	0.2708	0.0320	0.0000	0.0320			0.0000			0.0000
Off-Road	1.6902	18.7884	11.4007	0.0281		0.7580	0.7580		0.6974	0.6974	0.0000	2,784.0261	2,784.0261	0.8808		2,806.0470
Total	**1.6902**	**18.7884**	**11.4007**	**0.0281**	**0.2708**	**0.7580**	**1.0287**	**0.0320**	**0.6974**	**0.7294**	**0.0000**	**2,784.0261**	**2,784.0261**	**0.8808**		**2,806.0470**

3.4 Grading - 2019

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	1.2132	47.8515	6.9271	0.1437	2.2130	0.1605	2.3735	0.6343	0.1536	0.7878		15,243.5043	15,243.5043	0.8373		15,264.4376
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	0.0593	0.0394	0.4985	1.1700e-003	0.0729	7.5000e-004	0.0737	0.0201	6.9000e-004	0.0208		116.6416	116.6416	3.9100e-003		116.7394
Total	**1.2724**	**47.8909**	**7.4256**	**0.1449**	**2.2859**	**0.1613**	**2.4472**	**0.6544**	**0.1543**	**0.8086**		**15,360.1459**	**15,360.1459**	**0.8412**		**15,381.1770**

3.5 Paving - 2019

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	1.5601	16.0246	12.5242	0.0260		0.7650	0.7650		0.7038	0.7038		2,578.0239	2,578.0239	0.8157		2,598.4154
Paving	0.1718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7319**	**16.0246**	**12.5242**	**0.0260**		**0.7650**	**0.7650**		**0.7038**	**0.7038**		**2,578.0239**	**2,578.0239**	**0.8157**		**2,598.4154**

3.5 Paving - 2019

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	0.0771	0.0513	0.6480	1.5200e-003	0.1453	9.8000e-004	0.1463	0.0385	9.0000e-004	0.0394		151.6341	151.6341	5.0800e-003		151.7612
Total	**0.0771**	**0.0513**	**0.6480**	**1.5200e-003**	**0.1453**	**9.8000e-004**	**0.1463**	**0.0385**	**9.0000e-004**	**0.0394**		**151.6341**	**151.6341**	**5.0800e-003**		**151.7612**

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	1.5601	16.0246	12.5242	0.0260		0.7650	0.7650		0.7038	0.7038	0.0000	2,578.0239	2,578.0239	0.8157		2,598.4154
Paving	0.1718					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7319**	**16.0246**	**12.5242**	**0.0260**		**0.7650**	**0.7650**		**0.7038**	**0.7038**	**0.0000**	**2,578.0239**	**2,578.0239**	**0.8157**		**2,598.4154**

3.5 Paving - 2019

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	0.0771	0.0513	0.6480	1.5200e-003	0.0948	9.8000e-004	0.0958	0.0261	9.0000e-004	0.0270		151.6341	151.6341	5.0800e-003		151.7612
Total	**0.0771**	**0.0513**	**0.6480**	**1.5200e-003**	**0.0948**	**9.8000e-004**	**0.0958**	**0.0261**	**9.0000e-004**	**0.0270**		**151.6341**	**151.6341**	**5.0800e-003**		**151.7612**

3.6 Landscaping & Cleanup - 2019

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0273	10.6535	7.6896	0.0184		0.4691	0.4691		0.4316	0.4316		1,819.8861	1,819.8861	0.5758		1,834.2809
Total	**1.0273**	**10.6535**	**7.6896**	**0.0184**	**0.0000**	**0.4691**	**0.4691**	**0.0000**	**0.4316**	**0.4316**		**1,819.8861**	**1,819.8861**	**0.5758**		**1,834.2809**

3.6 Landscaping & Cleanup - 2019

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	0.0474	0.0316	0.3988	9.4000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		93.3133	93.3133	3.1300e-003		93.3915
Total	**0.0474**	**0.0316**	**0.3988**	**9.4000e-004**	**0.0894**	**6.0000e-004**	**0.0900**	**0.0237**	**5.5000e-004**	**0.0243**		**93.3133**	**93.3133**	**3.1300e-003**		**93.3915**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.0273	10.6535	7.6896	0.0184		0.4691	0.4691		0.4316	0.4316	0.0000	1,819.8861	1,819.8861	0.5758		1,834.2809
Total	**1.0273**	**10.6535**	**7.6896**	**0.0184**	**0.0000**	**0.4691**	**0.4691**	**0.0000**	**0.4316**	**0.4316**	**0.0000**	**1,819.8861**	**1,819.8861**	**0.5758**		**1,834.2809**

3.6 Landscaping & Cleanup - 2019

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	0.0474	0.0316	0.3988	9.4000e-004	0.0583	6.0000e-004	0.0589	0.0161	5.5000e-004	0.0166		93.3133	93.3133	3.1300e-003		93.3915
Total	**0.0474**	**0.0316**	**0.3988**	**9.4000e-004**	**0.0583**	**6.0000e-004**	**0.0589**	**0.0161**	**5.5000e-004**	**0.0166**		**93.3133**	**93.3133**	**3.1300e-003**		**93.3915**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.541740	0.038987	0.178620	0.126833	0.019742	0.005671	0.017070	0.060066	0.001326	0.001715	0.006244	0.000823	0.001163

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	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467
Unmitigated	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467
Total	**1.9500e-003**	**1.9000e-004**	**0.0206**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.2000e-004**		**0.0467**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9500e-003	1.9000e-004	0.0206	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0438	0.0438	1.2000e-004		0.0467
Total	**1.9500e-003**	**1.9000e-004**	**0.0206**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0438**	**0.0438**	**1.2000e-004**		**0.0467**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Cactus Trail Improvement Project

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	200.00	1000sqft	4.59	200,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Cactus Trail Improvement Project - San Bernardino-South Coast County, Annual

Project Characteristics -

Land Use -

Construction Phase - Phase duration per City

Off-road Equipment - Equipment per applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Off-road Equipment - Equipment per Project applicant

Grading -

Demolition -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Consumer Products - No degreaser emissions

Area Coating - Not a true parking lot

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12000	0
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	40
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	8.00	5.00
tblConstructionPhase	NumDays	18.00	70.00
tblConstructionPhase	NumDays	5.00	48.00
tblConstructionPhase	PhaseEndDate	8/29/2018	1/8/2019
tblConstructionPhase	PhaseEndDate	9/24/2018	1/22/2019
tblConstructionPhase	PhaseEndDate	10/18/2018	4/30/2019
tblConstructionPhase	PhaseEndDate	9/5/2018	1/15/2019
tblConstructionPhase	PhaseEndDate	9/12/2018	7/5/2019

Cactus Trail Improvement Project - San Bernardino-South Coast County, Annual

tblConstructionPhase	PhaseStartDate	8/2/2018	1/2/2019
tblConstructionPhase	PhaseStartDate	9/13/2018	1/16/2019
tblConstructionPhase	PhaseStartDate	9/25/2018	1/23/2019
tblConstructionPhase	PhaseStartDate	8/30/2018	1/9/2019
tblConstructionPhase	PhaseStartDate	9/6/2018	5/1/2019
tblConsumerProducts	ROG_EF	1.98E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblGrading	MaterialExported	0.00	3,750.00
tblGrading	MaterialExported	0.00	3,750.00
tblGrading	MaterialImported	0.00	3,500.00
tblGrading	MaterialImported	0.00	3,500.00
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1056	1.1996	0.7588	2.3800e-003	0.0546	0.0434	0.0980	0.0112	0.0400	0.0512	0.0000	219.2014	219.2014	0.0471	0.0000	220.3780
Maximum	**0.1056**	**1.1996**	**0.7588**	**2.3800e-003**	**0.0546**	**0.0434**	**0.0980**	**0.0112**	**0.0400**	**0.0512**	**0.0000**	**219.2014**	**219.2014**	**0.0471**	**0.0000**	**220.3780**

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					
2019	0.1056	1.1996	0.7588	2.3800e-003	0.0288	0.0434	0.0722	6.6200e-003	0.0400	0.0467	0.0000	219.2012	219.2012	0.0471	0.0000	220.3778
Maximum	**0.1056**	**1.1996**	**0.7588**	**2.3800e-003**	**0.0288**	**0.0434**	**0.0722**	**6.6200e-003**	**0.0400**	**0.0467**	**0.0000**	**219.2012**	**219.2012**	**0.0471**	**0.0000**	**220.3778**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.28**	**0.00**	**26.33**	**40.95**	**0.00**	**8.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
2	11-2-2018	2-1-2019	0.4556	0.4556
3	2-2-2019	5-1-2019	0.5663	0.5663
4	5-2-2019	8-1-2019	0.2730	0.2730
		Highest	0.5663	0.5663

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	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4000e-004**	**2.0000e-005**	**2.5800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9600e-003**	**4.9600e-003**	**1.0000e-005**	**0.0000**	**5.3000e-003**

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	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4000e-004**	**2.0000e-005**	**2.5800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9600e-003**	**4.9600e-003**	**1.0000e-005**	**0.0000**	**5.3000e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Cactus Trail Improvement Project - San Bernardino-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2019	1/8/2019	5	5	
2	Site Preparation	Site Preparation	1/9/2019	1/15/2019	5	5	
3	Grading	Grading	1/16/2019	1/22/2019	5	5	
4	Paving	Paving	1/23/2019	4/30/2019	5	70	
5	Landscaping & Cleanup	Site Preparation	5/1/2019	7/5/2019	5	48	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 4.59

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Cactus Trail Improvement Project - San Bernardino-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	0	8.00	158	0.38
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Landscaping & Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Landscaping & Cleanup	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Landscaping & Cleanup	Skid Steer Loaders	1	8.00	65	0.37
Landscaping & Cleanup	Off-Highway Trucks	1	8.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	1	6.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Off-Highway Trucks	1	8.00	402	0.38
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Off-Highway Trucks	1	8.00	402	0.38
Paving	Off-Highway Trucks	1	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	238.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	906.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	906.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping & Cleanup	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					0.0258	0.0000	0.0258	3.9000e-003	0.0000	3.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0328	0.0250	6.0000e-005		1.6200e-003	1.6200e-003		1.5300e-003	1.5300e-003	0.0000	5.0075	5.0075	1.2500e-003	0.0000	5.0389
Total	**3.5100e-003**	**0.0328**	**0.0250**	**6.0000e-005**	**0.0258**	**1.6200e-003**	**0.0274**	**3.9000e-003**	**1.5300e-003**	**5.4300e-003**	**0.0000**	**5.0075**	**5.0075**	**1.2500e-003**	**0.0000**	**5.0389**

3.2 Demolition - 2019

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	8.1000e-004	0.0323	4.8400e-003	9.0000e-005	2.0500e-003	1.1000e-004	2.1500e-003	5.6000e-004	1.0000e-004	6.6000e-004	0.0000	8.9833	8.9833	5.2000e-004	0.0000	8.9963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	9.0000e-005	8.6000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1940	0.1940	1.0000e-005	0.0000	0.1942
Total	**9.2000e-004**	**0.0324**	**5.7000e-003**	**9.0000e-005**	**2.2700e-003**	**1.1000e-004**	**2.3700e-003**	**6.2000e-004**	**1.0000e-004**	**7.2000e-004**	**0.0000**	**9.1773**	**9.1773**	**5.3000e-004**	**0.0000**	**9.1904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0100	0.0000	0.0100	1.5200e-003	0.0000	1.5200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0328	0.0250	6.0000e-005		1.6200e-003	1.6200e-003		1.5300e-003	1.5300e-003	0.0000	5.0075	5.0075	1.2500e-003	0.0000	5.0389
Total	**3.5100e-003**	**0.0328**	**0.0250**	**6.0000e-005**	**0.0100**	**1.6200e-003**	**0.0117**	**1.5200e-003**	**1.5300e-003**	**3.0500e-003**	**0.0000**	**5.0075**	**5.0075**	**1.2500e-003**	**0.0000**	**5.0389**

3.2 Demolition - 2019

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	8.1000e-004	0.0323	4.8400e-003	9.0000e-005	1.4300e-003	1.1000e-004	1.5400e-003	4.1000e-004	1.0000e-004	5.1000e-004	0.0000	8.9833	8.9833	5.2000e-004	0.0000	8.9963
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	9.0000e-005	8.6000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1940	0.1940	1.0000e-005	0.0000	0.1942
Total	**9.2000e-004**	**0.0324**	**5.7000e-003**	**9.0000e-005**	**1.5700e-003**	**1.1000e-004**	**1.6800e-003**	**4.5000e-004**	**1.0000e-004**	**5.5000e-004**	**0.0000**	**9.1773**	**9.1773**	**5.3000e-004**	**0.0000**	**9.1904**

3.3 Site Preparation - 2019

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					1.7400e-003	0.0000	1.7400e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0223	0.0104	2.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	2.1890	2.1890	6.9000e-004	0.0000	2.2063
Total	**1.8000e-003**	**0.0223**	**0.0104**	**2.0000e-005**	**1.7400e-003**	**9.2000e-004**	**2.6600e-003**	**2.1000e-004**	**8.4000e-004**	**1.0500e-003**	**0.0000**	**2.1890**	**2.1890**	**6.9000e-004**	**0.0000**	**2.2063**

3.3 Site Preparation - 2019

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	3.0900e-003	0.1228	0.0184	3.6000e-004	7.8000e-003	4.0000e-004	8.2000e-003	2.1400e-003	3.9000e-004	2.5300e-003	0.0000	34.1970	34.1970	1.9700e-003	0.0000	34.2463
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	5.0000e-005	5.4000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1213	0.1213	0.0000	0.0000	0.1214
Total	**3.1600e-003**	**0.1229**	**0.0190**	**3.6000e-004**	**7.9400e-003**	**4.0000e-004**	**8.3400e-003**	**2.1800e-003**	**3.9000e-004**	**2.5700e-003**	**0.0000**	**34.3183**	**34.3183**	**1.9700e-003**	**0.0000**	**34.3677**

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					6.8000e-004	0.0000	6.8000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0223	0.0104	2.0000e-005		9.2000e-004	9.2000e-004		8.4000e-004	8.4000e-004	0.0000	2.1890	2.1890	6.9000e-004	0.0000	2.2063
Total	**1.8000e-003**	**0.0223**	**0.0104**	**2.0000e-005**	**6.8000e-004**	**9.2000e-004**	**1.6000e-003**	**8.0000e-005**	**8.4000e-004**	**9.2000e-004**	**0.0000**	**2.1890**	**2.1890**	**6.9000e-004**	**0.0000**	**2.2063**

3.3 Site Preparation - 2019

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	3.0900e-003	0.1228	0.0184	3.6000e-004	5.4500e-003	4.0000e-004	5.8600e-003	1.5700e-003	3.9000e-004	1.9500e-003	0.0000	34.1970	34.1970	1.9700e-003	0.0000	34.2463
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	5.0000e-005	5.4000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.1213	0.1213	0.0000	0.0000	0.1214
Total	**3.1600e-003**	**0.1229**	**0.0190**	**3.6000e-004**	**5.5400e-003**	**4.0000e-004**	**5.9500e-003**	**1.5900e-003**	**3.9000e-004**	**1.9800e-003**	**0.0000**	**34.3183**	**34.3183**	**1.9700e-003**	**0.0000**	**34.3677**

3.4 Grading - 2019

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					1.7400e-003	0.0000	1.7400e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2300e-003	0.0470	0.0285	7.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	6.3141	6.3141	2.0000e-003	0.0000	6.3640
Total	**4.2300e-003**	**0.0470**	**0.0285**	**7.0000e-005**	**1.7400e-003**	**1.8900e-003**	**3.6300e-003**	**2.1000e-004**	**1.7400e-003**	**1.9500e-003**	**0.0000**	**6.3141**	**6.3141**	**2.0000e-003**	**0.0000**	**6.3640**

3.4 Grading - 2019

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	3.0900e-003	0.1228	0.0184	3.6000e-004	7.8000e-003	4.0000e-004	8.2000e-003	2.1400e-003	3.9000e-004	2.5300e-003	0.0000	34.1970	34.1970	1.9700e-003	0.0000	34.2463
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.1000e-004	1.0800e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2425	0.2425	1.0000e-005	0.0000	0.2427
Total	**3.2200e-003**	**0.1229**	**0.0195**	**3.6000e-004**	**8.0700e-003**	**4.0000e-004**	**8.4800e-003**	**2.2100e-003**	**3.9000e-004**	**2.6000e-003**	**0.0000**	**34.4395**	**34.4395**	**1.9800e-003**	**0.0000**	**34.4890**

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					6.8000e-004	0.0000	6.8000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2300e-003	0.0470	0.0285	7.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	6.3141	6.3141	2.0000e-003	0.0000	6.3640
Total	**4.2300e-003**	**0.0470**	**0.0285**	**7.0000e-005**	**6.8000e-004**	**1.8900e-003**	**2.5700e-003**	**8.0000e-005**	**1.7400e-003**	**1.8200e-003**	**0.0000**	**6.3141**	**6.3141**	**2.0000e-003**	**0.0000**	**6.3640**

3.4 Grading - 2019

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	3.0900e-003	0.1228	0.0184	3.6000e-004	5.4500e-003	4.0000e-004	5.8600e-003	1.5700e-003	3.9000e-004	1.9500e-003	0.0000	34.1970	34.1970	1.9700e-003	0.0000	34.2463
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	1.1000e-004	1.0800e-003	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.2425	0.2425	1.0000e-005	0.0000	0.2427
Total	**3.2200e-003**	**0.1229**	**0.0195**	**3.6000e-004**	**5.6300e-003**	**4.0000e-004**	**6.0400e-003**	**1.6200e-003**	**3.9000e-004**	**2.0000e-003**	**0.0000**	**34.4395**	**34.4395**	**1.9800e-003**	**0.0000**	**34.4890**

3.5 Paving - 2019

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	0.0546	0.5609	0.4384	9.1000e-004		0.0268	0.0268		0.0246	0.0246	0.0000	81.8560	81.8560	0.0259	0.0000	82.5035
Paving	6.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0606**	**0.5609**	**0.4384**	**9.1000e-004**		**0.0268**	**0.0268**		**0.0246**	**0.0246**	**0.0000**	**81.8560**	**81.8560**	**0.0259**	**0.0000**	**82.5035**

3.5 Paving - 2019

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	2.4400e-003	1.9900e-003	0.0196	5.0000e-005	4.9900e-003	3.0000e-005	5.0200e-003	1.3200e-003	3.0000e-005	1.3600e-003	0.0000	4.4138	4.4138	1.5000e-004	0.0000	4.4174
Total	**2.4400e-003**	**1.9900e-003**	**0.0196**	**5.0000e-005**	**4.9900e-003**	**3.0000e-005**	**5.0200e-003**	**1.3200e-003**	**3.0000e-005**	**1.3600e-003**	**0.0000**	**4.4138**	**4.4138**	**1.5000e-004**	**0.0000**	**4.4174**

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	0.0546	0.5609	0.4384	9.1000e-004		0.0268	0.0268		0.0246	0.0246	0.0000	81.8559	81.8559	0.0259	0.0000	82.5034
Paving	6.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0606**	**0.5609**	**0.4384**	**9.1000e-004**		**0.0268**	**0.0268**		**0.0246**	**0.0246**	**0.0000**	**81.8559**	**81.8559**	**0.0259**	**0.0000**	**82.5034**

3.5 Paving - 2019

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	2.4400e-003	1.9900e-003	0.0196	5.0000e-005	3.2600e-003	3.0000e-005	3.2900e-003	9.0000e-004	3.0000e-005	9.3000e-004	0.0000	4.4138	4.4138	1.5000e-004	0.0000	4.4174
Total	**2.4400e-003**	**1.9900e-003**	**0.0196**	**5.0000e-005**	**3.2600e-003**	**3.0000e-005**	**3.2900e-003**	**9.0000e-004**	**3.0000e-005**	**9.3000e-004**	**0.0000**	**4.4138**	**4.4138**	**1.5000e-004**	**0.0000**	**4.4174**

3.6 Landscaping & Cleanup - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.2557	0.1846	4.4000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	39.6234	39.6234	0.0125	0.0000	39.9368
Total	**0.0247**	**0.2557**	**0.1846**	**4.4000e-004**	**0.0000**	**0.0113**	**0.0113**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**39.6234**	**39.6234**	**0.0125**	**0.0000**	**39.9368**

3.6 Landscaping & Cleanup - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	8.4000e-004	8.2700e-003	2.0000e-005	2.1100e-003	1.0000e-005	2.1200e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.8625	1.8625	6.0000e-005	0.0000	1.8641
Total	**1.0300e-003**	**8.4000e-004**	**8.2700e-003**	**2.0000e-005**	**2.1100e-003**	**1.0000e-005**	**2.1200e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.8625**	**1.8625**	**6.0000e-005**	**0.0000**	**1.8641**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.2557	0.1846	4.4000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	39.6233	39.6233	0.0125	0.0000	39.9367
Total	**0.0247**	**0.2557**	**0.1846**	**4.4000e-004**	**0.0000**	**0.0113**	**0.0113**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**39.6233**	**39.6233**	**0.0125**	**0.0000**	**39.9367**

3.6 Landscaping & Cleanup - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0300e-003	8.4000e-004	8.2700e-003	2.0000e-005	1.3800e-003	1.0000e-005	1.3900e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.8625	1.8625	6.0000e-005	0.0000	1.8641
Total	**1.0300e-003**	**8.4000e-004**	**8.2700e-003**	**2.0000e-005**	**1.3800e-003**	**1.0000e-005**	**1.3900e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.8625**	**1.8625**	**6.0000e-005**	**0.0000**	**1.8641**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.541740	0.038987	0.178620	0.126833	0.019742	0.005671	0.017070	0.060066	0.001326	0.001715	0.006244	0.000823	0.001163

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
Other Asphalt Surfaces	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
Other Asphalt Surfaces	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-003
Unmitigated	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-003
Total	**2.4000e-004**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9600e-003**	**4.9600e-003**	**1.0000e-005**	**0.0000**	**5.3000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9600e-003	4.9600e-003	1.0000e-005	0.0000	5.3000e-003
Total	**2.4000e-004**	**2.0000e-005**	**2.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9600e-003**	**4.9600e-003**	**1.0000e-005**	**0.0000**	**5.3000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation