APPENDIX 3

AIR QUALITY and GHG IMPACT ANALYSES

EO-173
EAST ORANGE COUNTY WATER DISTRICT SEWER REHABILITATION PROJECT

CITY OF TUSTIN AND UNINCORPORATED ORANGE COUNTY, CALIFORNIA

Prepared by:

Giroux & Associates
5319 University Drive, #26
Irvine, CA. 92612

Prepared for:

Tom Dodson & Associates
Attn: Kaitlyn Dodson
PO Box 2307
San Bernardino, CA 92406-2307

Date:

March 17, 2021

Project No.: P21-004 AQ CEQA/NEPA

ATMOSPHERIC SETTING

REGIONAL CLIMATE

The climate of Tustin, technically called a Mediterranean-type climate, is characterized by warm summers, mild winters, infrequent rainfall, moderate afternoon breezes, and generally fair weather. Temperatures near the project area average a very comfortable 63°F year-round. Summer afternoons are typically in the middle 80s and winter mornings drop to the low- to mid-40s. About 45 summer days reach 90 degrees F, and five days per year may drop to 32 degrees, but significant extremes of temperature are rare in the project area. Rainfall in the Los Angeles Basin varies considerably in both time and space. Rainfall amounts vary from an average of 10 to 18 inches as a function of local exposure and topography. Tustin averages 14.6 inches of rain during a normal year. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April with summers often completely dry. Light rain (0.1" in 24 hours) falls on 20 days during a normal year with 10 days in the moderate (0.5" in 24 hours category).

Winds blow primarily from southwest to northeast by day and from northeast to the southwest at night in response to the regional pattern of onshore flow by day and offshore flow at night. Average wind speeds are 5 mph average in the Tustin area, reaching 6-8 mph in the afternoon but dropping to near calm conditions (1-3 mph) at night.

The net effect of local airflow in terms of air pollution is that daytime ventilation is good and any locally generated air pollutants will be rapidly dispersed by the strong daytime turbulence. At night, however, pooling of cool air in low elevations combined with light winds does allow for air stagnation in protected areas, especially near area freeways with elevated pollution levels. Because such effects are highly localized, however, the project area is sufficiently far from any major roadways such that it will be little affected by such air stagnation effects.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing but acts like a giant lid over the basin. Air starting onshore at the beach is relatively clean but becomes progressively more polluted as sources continue to add pollution from below without any dilution from above. Air arriving in central Orange County during warm season marine flow conditions has undergone limited photochemical reactions, but not to its fullest extent possible. Summer smog levels are much lower than in inland valleys of the basin such as the San Gabriel or the Pomona-Walnut Valleys. Summer air quality is only moderately degraded compared to the severe degradation found farther inland within the air basin.

A second inversion type forms on clear, winter nights when cold air off the mountains sinks to the surface while the air aloft remains warm. This process forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. During the long nocturnal drainage flow from land to sea, the exhaust pollutants continually accumulate within the shallow, cool layer of air near the ground. Central Orange

County thus may experience elevated levels of carbon monoxide and nitrogen oxides because of this winter inversion condition. With ongoing vehicular improvements, clean air standards are generally not exceeded during nocturnal stagnation periods as they were 10-20 years ago.

Both types of inversions occur throughout the year to some extent, but the marine inversions are very dominant during the day in summer, and radiation inversions are much stronger on winter nights when nights are long, and air is cool. The governing role of these inversions in atmospheric dispersion leads to a substantially different air quality environment in summer near the project area than in winter.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. 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 people 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, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

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

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

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

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

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

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

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

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

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

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

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

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Respirable Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2015 after extensive analysis and public input. The adopted national 8-hour ozone standard is 0.07 ppm which matches the current California standard. It will require three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2022. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be after 2025.

In 2010 a new federal one-hour primary standard for nitrogen dioxide (NO_2) was adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide (SO_2) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, SO_2 is typically not a problem pollutant.

BASELINE AIR QUALITY

Existing and probable future levels of air quality around the project area can best be best inferred from ambient air quality measurements conducted by the SCAQMD at the Anaheim monitoring station. This station measures both regional pollution levels such as smog, as well as primary vehicular pollution levels near busy roadways such as nitrogen oxides. Pollutants such as particulates (PM-10 and PM-2.5) are also monitored at Anaheim. Monitoring of carbon monoxide was discontinued in all of Orange County in 2014. Table 3 is a 4-year summary of the most recent monitoring data for the major air pollutants compiled from the Anaheim air monitoring station. From this data the following conclusions regarding air quality trends can be drawn:

Photochemical smog (ozone) levels rarely occasionally exceed standards. All state and federal ozone standards have been exceeded less than one percent of all days in the past four years. Measurements from more recent years demonstrate progressively improved ozone levels in the area. While ozone levels are still occasionally elevated, they are much lower than 10 to 20 years ago.

Respirable dust (PM-10) levels occasionally exceed the state standard on approximately three percent of all days. The less stringent federal PM-10 standard has not been exceeded in the last four years.

The federal ultra-fine particulate (PM-2.5) standard of 35 $\mu g/m^3$ has been exceeded on approximately one percent of measurement days in the last four years.

More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the project site. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NOx or CO without any threat of violating applicable AAQS.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3
Air Quality Monitoring Summary (2016-2019)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)

Pollutant/Standard	**2016**	**2017**	**2018**	**2019**
Ozone				
1-Hour > 0.09 ppm (S)	2	0	1	1
8-Hour > 0.07 ppm (S)	4	4	1	1
8- Hour > 0.075 ppm (F)	0	2	0	1
Max. 1-Hour Conc. (ppm)	0.103	0.090	0.112	0.096
Max. 8-Hour Conc. (ppm)	0.074	0.076	0.071	0.082
Nitrogen Dioxide				
1-Hour > 0.18 ppm (S)	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.064	0.081	0.066	0.059
Inhalable Particulates (PM-10)				
24-hour > 50 $\mu g/m^3$ (S)	3/353	17/332	13/320	13/364
24-hour > 150 $\mu g/m^3$ (F)	0/353	0/332	0/320	0/364
Max. 24-Hr. Conc. ($\mu g/m^3$)	74.	128.	129.	127.
Ultra-Fine Particulates (PM-2.5)				
24-Hour > 35 $\mu g/m^3$ (F)	1/349	6/305	3/353	3/346
Max. 24-Hr. Conc. ($\mu g/m^3$)	44.4	53.9	54.1	36.1

Source: South Coast AQMD Air Monitoring Station Data Summary, Anaheim Station (3176)

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 required control technologies that did not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation was to allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification set a later attainment deadline (2024), but also required the air basin to adopt even more stringent emissions controls.

Table 4
South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2015[a]	2020[b]	2025[b]	2030[b]
NOx	357	289	266	257
VOC	400	393	393	391
PM-10	161	165	170	172
PM-2.5	67	68	70	71

[a]2015 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA had disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA stated that the current attainment plan relied on PM-2.5 control regulations that had not yet been approved or implemented. It was expected that a number of rules that were pending approval would remove the identified deficiencies. If these issues were not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the current California State Implementation Plan (SIP) was expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked almost ten years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the current SIP for the basin contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP was believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP was required for completion in 2016. The 2016 AQMP was adopted by the SCAQMD Board in March, 2017, and has been submitted the California Air Resources Board for forwarding to the EPA. The 2016 AQMP acknowledges that motor vehicle emissions have been effectively controlled and that reductions in NOx, the continuing ozone problem pollutant, may need to come from major stationary sources (power plants, refineries, landfill flares, etc.). The current attainment deadlines for all federal non-attainment pollutants are now as follows:

8-hour ozone (70 ppb)	2032
Annual PM-2.5 (12 $\mu g/m^3$)	2025
8-hour ozone (75 ppb)	2024 (old standard)
1-hour ozone (120 ppb)	2023 (rescinded standard)

24-hour PM-2.5 (35 μg/m^3) 2019

The key challenge is that NOx emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional stringent NOx control measures are adopted and implemented, ozone attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing sewer improvement and rehabilitation projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a) Conflicts with or obstructs implementation of the applicable air quality plan.

b) Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
c) Exposes sensitive receptors to substantial pollutant concentrations.

d) Results in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact

significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

CONSTRUCTION ACTIVITY IMPACTS

CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

The project includes the following activities all adding or modifying sewer lines to allow for the increased capacity demands.

Browning Avenue Sewer

1. Segment 1: Trenchless installation of approximately 300 feet of 18-inch pipe in a casing under the I-5 Freeway. Will also require construction of new manholes and reconstruction of a portion of the sewer in El Camino Real.

   Construction Timing: 5 months of construction beginning in approximately April of 2022 date, anticipated to conclude by September of 2022 date.

2. Segment 2: Open trench excavation or trenchless methods to replace and upsize 2,475 feet of 12-inch sewer in Browning Road and upsize approximately 1,500 feet of 10-inch sewer.

   Construction Timing: 6 months of construction beginning in approximately September of 2021 date, anticipated to conclude by February of 2022 date.

3. Segment 3: Utilizing open trench methods add 1,235 feet of 12-inch sewer in Browning Road

Construction Timing: 3 months of construction beginning in approximately September of 2021 date, anticipated to conclude by November of 2021 date.

Fallen Leaf Sewer

1. Construct a new 20 to 24-inch sewer parallel to the existing crossing. Would entail jack and boring of a steel encasement and the carrier pipe would be installed inside the steel pipe.

Construction Timing: Anticipated to require 4 months of construction beginning in approximately February of 2022 date, anticipated to conclude by May of 2022 date.

6th Street Sewer

1. Construction of a new line is using open trench methods. The length of sewer that would be installed is approximately 775 feet.

Construction Timing: 4 months of construction beginning in approximately September of 2021 date, anticipated to conclude by December of 2021 date.

Crawford Canyon Sewer

1. Replacement and upsizing of about 605 feet of existing 8-inch sewer with a new 12-inch sewer.

Construction Timing: 3.5 4 months of construction beginning in approximately September of 2021 date, anticipated to conclude by December of 2021 date.

Clarissa Lane Sewer

1. Install sewer approximately 500-ft in length

Construction Timing: 3 months of construction beginning in approximately August of 2021 date, anticipated to conclude by November of 2021 date.

Construction assumptions used in this analysis were obtained from the project engineer. It is assumed that an underground utility installation team can install approximately 200 to 400 LF of sewer pipeline per day. A team is assumed to perform the following activities to complete a section of installation:

Cut and Install:

1 Excavator	(4 hrs day)
1 Concrete Saw	(6 hrs day)
1 Crane	(6 hrs day)
Forklift	(6 hrs day)
5 Signal Boards	(6 hrs day)

5 Dump Trucks 80 miles round trip
5 Delivery Trucks

Backfill and Pave:
1 Compactor (6 hrs day)
1 Backhoe (6 hrs day)
1 Paver (2 hrs day)
1 Paving Equipment (2 hrs day)
1 Roller (6 hrs day)
5 Signal Boards (6 hrs day)

It is assumed that 2 teams with 11 employees each, will be installing pipelines for a maximum total of 800 LF per day such that installation of 7,800 LF of sewer pipeline will occur over 60 construction days. The final activity associated with the sewer installation is repaving of roads disturbed by the construction. This is anticipated to occur over an approximately 60-day period. Ground disturbance emissions assume roughly half an acre of land would be actively excavated on a given day.

Estimated construction emissions were modeled using CalEEMod2016.3.2 to identify maximum daily emissions for each pollutant during project construction using the above assumptions. CalEEMod was run for a single team, then the results were doubled since both teams would be operating simultaneously.

Table 6
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	**ROG**	**NOx**	**CO**	**SO_2**	**PM-10**	**PM-2.5**
2021 (One Team)	1.2	10.6	9.1	0.0	1.5	1.0
2021 (Two Teams)	2.4	21.2	18.2	0.0	3.0	2.0
SCAQMD Thresholds	75	100	550	150	150	55

Peak daily construction activity, even for two teams operating simultaneously emissions are estimated be below SCAQMD CEQA thresholds without the need for added mitigation.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project, there are adjacent residential uses such that the most conservative 25 meter distance was modeled.

LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. For this project, the most stringent thresholds for a 1-acre site were applied.

Because LSTs only apply to emissions directly adjacent to construction equipment operating within 25 meters of a receptor, the emissions from a single team were used for this evaluation. A two-team analysis is appropriate for the regional emissions analyzed in Table 6. The following thresholds and emissions in Table 7 are therefore determined (pounds per day):

Table 7
LST and Project Emissions (pounds/day)

LST 1 acre/25 meters Central Orange County	**CO**	**NOx**	**PM-10**	**PM-2.5**
LST Threshold	485	81	4	3
Max On-Site Emissions				
2021 (One Team)	8	10	1	1

LSTs were compared to the maximum daily construction activities. Emissions are below the LST construction thresholds without the need for any added mitigation. LST impacts are less-than-significant.

OPERATIONAL IMPACTS

A sewer rehabilitation project will not have any associated operational impacts. Sewer lines are primarily gravity fed. Therefore, the project does not create any operational emissions.

ODOR IMPACTS

Project operations (conveyance) are essentially a closed system with negligible odor potential.

NEPA CONFORMITY

Annualized construction activity emissions were calculated by assuming all construction activities would occur during the same calendar year to represent a worst-case condition. The calculated emissions were then compared to the EPA *de minimis* emission thresholds that would allow for a federal conformity finding with Section 176c of the Clean Air Act.

If the project-related emissions from construction and operations are less than specified "*de minimis*" levels, no further SIP consistency demonstration is required. As stated, there are no operational emissions associated with this project.

Thresholds vary dependent on the attainment status for each pollutant in the basin. The SCAB is designated as a "extreme" non-attainment area for the federal 8-hour ozone standard. The basin is a non-attainment area for PM-2.5, and a maintenance area for PM-10. Sulfur Dioxide and Carbon Monoxide are maintenance areas. Based upon these designations, the following emissions levels are presumed evidence of SIP conformity:

VOC/ROG	-	10 tons/year
NOx	-	10 tons/year
PM-2.5	-	70 tons/year
PM-10	-	100 tons/year
CO	-	100 tons/year
SO_2	-	100 tons/year
Lead	-	25 tons/year

Annual construction emissions were calculated with the CalEEMod computer model. Maximum annual project-related air pollution emissions relative to federal standard attainment designations and appropriate *de minimis* thresholds are shown in Table 8. Although currently only the Browning Avenue section requires NEPA analysis, to be conservative, the entire project is represented below.

Table 8
Total Annual Construction Emissions
(tons/year)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5
Maximal Construction Emissions						
Single Team	0.06	0.50	0.47	<0.01	0.06	0.04
Two Teams	0.12	0.10	0.94	<0.01	0.12	0.08
NEPA Threshold	10	10	100	100	100	70

Maximum annual emissions for both teams are much less than their associated *de minimis* thresholds. The Browning Avenue section alone would be even less than the emissions shown in Table 8. A formal SIP consistency analysis is not required. The following summarizes the impacts of the entire project with their applicable thresholds.

Pollutant	Threshold	Project Emissions
VOC/ROG	10 tons/year	0.12 tons/year
NOx	10 tons/year	0.10 tons/year
PM-2.5	70 tons/year	0.08 tons/year
PM-10	100 tons/year	0.12 tons/year
CO	100 tons/year	0.94 tons/year
SO_2	100 tons/year	<0.1 tons/year
Lead	25 tons/year	<0.1 tons/year

CONSTRUCTION EMISSIONS MINIMIZATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, emissions minimization through enhanced dust control measures is recommended for use because of the non-attainment status of the air and proximity of residential uses. Recommended measures include:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better rated heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO_2e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The project is assumed to require less than one year for construction. During project construction, the CalEEMod2016.3.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 9.

Table 9
Amortized 2020 Construction Emissions (Metric Tons CO_2e)

Source	MT CO_2e
Single Team	82.5
Two Teams	165.0
Amortized	**5.5**

CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered less-than-significant.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

The City of Tustin and the County of Orange have not yet developed Greenhouse Gas Reduction Plans. The applicable GHG planning document is AB-32. As discussed above, the project is not expected to result in a significant increase in GHG emissions. As a result, the project results in GHG emissions below the recommended SCAQMD 3,000 ton threshold. Therefore, the project would not conflict with any applicable plan, policy, or regulation to reduce GHG emissions.

CALEEMOD2016.3.2 COMPUTER MODEL OUTPUT

- DAILY EMISISONS (SINGLE TEAM)
- ANNUAL EMISSIONS (SINGLE TEAM)

EOWD Sewer Rehab

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2022
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

Project Characteristics -

Land Use - 0.5 acres dusturbed per day per proj description

Construction Phase - 60 days per activity per proj description

Trips and VMT - 11 employees per team, 10 dump/delivery trucks per day

Off-road Equipment - 1 concrete saw, 1 loader/backhoe, 1 crane, 5 signal boards, 1 forklift

Off-road Equipment - Backfill/Pave: 1 paver, 1 paving equipment, 1 roller, 1 loader/backhoe, 1 compactor. 5 signal boards

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	5.00	60.00

tblConstructionPhase	PhaseEndDate	8/3/2021	10/6/2021
tblConstructionPhase	PhaseEndDate	8/10/2021	12/29/2021
tblConstructionPhase	PhaseStartDate	8/1/2021	7/15/2021
tblConstructionPhase	PhaseStartDate	8/4/2021	10/7/2021
tblGrading	PhaseName	Grading	Cutting and Install
tblLandUse	LotAcreage	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName	Grading	Cutting and Install
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	PhaseName	Grading	Cutting and Install
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	7.00	6.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOnRoadDust	PhaseName	Grading	Cutting and Install
tblOnRoadDust	PhaseName	Paving	Backfill and Pave
tblTripsAndVMT	HaulingTripLength	20.00	80.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	PhaseName	Grading	Cutting and Install
tblTripsAndVMT	PhaseName	Paving	Backfill and Pave
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	10.00	22.00
tblTripsAndVMT	WorkerTripNumber	18.00	22.00

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					
2021	1.2158	10.5790	9.1290	0.0197	1.0364	0.4961	1.5325	0.4898	0.4725	0.9622	0.0000	1,836.0917	1,836.0917	0.3132	0.0000	1,843.9205
Maximum	**1.2158**	**10.5790**	**9.1290**	**0.0197**	**1.0364**	**0.4961**	**1.5325**	**0.4898**	**0.4725**	**0.9622**	**0.0000**	**1,836.0917**	**1,836.0917**	**0.3132**	**0.0000**	**1,843.9205**

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					
2021	1.2158	4.2799	9.1290	0.0197	1.0364	0.4961	1.5325	0.4898	0.4725	0.9622	0.0000	1,836.0916	1,836.0916	0.3132	0.0000	1,843.9205
Maximum	**1.2158**	**4.2799**	**9.1290**	**0.0197**	**1.0364**	**0.4961**	**1.5325**	**0.4898**	**0.4725**	**0.9622**	**0.0000**	**1,836.0916**	**1,836.0916**	**0.3132**	**0.0000**	**1,843.9205**

	ROG	NOx	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**	**59.54**	**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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	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	Cutting and Install	Grading	7/15/2021	10/6/2021	5	60	
2	Backfill and Pave	Paving	10/7/2021	12/29/2021	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

EOWD Sewer Rehab - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Cutting and Install	Cranes	1	6.00	231	0.29
Cutting and Install	Signal Boards	5	8.00	6	0.82
Cutting and Install	Concrete/Industrial Saws	1	6.00	81	0.73
Cutting and Install	Forklifts	1	6.00	89	0.20
Backfill and Pave	Paving Equipment	1	2.00	132	0.36
Backfill and Pave	Plate Compactors	1	6.00	8	0.43
Backfill and Pave	Pavers	1	2.00	130	0.42
Backfill and Pave	Rollers	1	6.00	80	0.38
Backfill and Pave	Signal Boards	5	6.00	6	0.82
Cutting and Install	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Backfill and Pave	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Cutting and Install	4	22.00	5.00	5.00	14.70	6.90	80.00	LD_Mix	HDT_Mix	HHDT
Backfill and Pave	7	22.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Cutting and Install - 2021

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.1210	9.9993	8.3135	0.0159		0.4933	0.4933		0.4698	0.4698		1,444.6281	1,444.6281	0.2951		1,452.0062
Total	**1.1210**	**9.9993**	**8.3135**	**0.0159**	**0.7528**	**0.4933**	**1.2461**	**0.4138**	**0.4698**	**0.8836**		**1,444.6281**	**1,444.6281**	**0.2951**		**1,452.0062**

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	2.0400e-003	0.0625	0.0202	2.3000e-004	5.8000e-003	2.6000e-004	6.0500e-003	1.5900e-003	2.5000e-004	1.8300e-003		25.5846	25.5846	2.5300e-003		25.6480
Vendor	0.0133	0.4691	0.1272	1.2300e-003	0.0320	9.7000e-004	0.0329	9.1900e-003	9.3000e-004	0.0101		134.3963	134.3963	0.0105		134.6597
Worker	0.0794	0.0481	0.6682	2.3200e-003	0.2459	1.5900e-003	0.2475	0.0652	1.4700e-003	0.0667		231.4827	231.4827	4.9600e-003		231.6066
Total	**0.0948**	**0.5796**	**0.8156**	**3.7800e-003**	**0.2837**	**2.8200e-003**	**0.2865**	**0.0760**	**2.6500e-003**	**0.0786**		**391.4636**	**391.4636**	**0.0180**		**391.9143**

3.2 Cutting and Install - 2021

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.1210	3.7003	8.3135	0.0159		0.4933	0.4933		0.4698	0.4698	0.0000	1,444.6281	1,444.6281	0.2951		1,452.0062
Total	**1.1210**	**3.7003**	**8.3135**	**0.0159**	**0.7528**	**0.4933**	**1.2461**	**0.4138**	**0.4698**	**0.8836**	**0.0000**	**1,444.6281**	**1,444.6281**	**0.2951**		**1,452.0062**

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	2.0400e-003	0.0625	0.0202	2.3000e-004	5.8000e-003	2.6000e-004	6.0500e-003	1.5900e-003	2.5000e-004	1.8300e-003		25.5846	25.5846	2.5300e-003		25.6480
Vendor	0.0133	0.4691	0.1272	1.2300e-003	0.0320	9.7000e-004	0.0329	9.1900e-003	9.3000e-004	0.0101		134.3963	134.3963	0.0105		134.6597
Worker	0.0794	0.0481	0.6682	2.3200e-003	0.2459	1.5900e-003	0.2475	0.0652	1.4700e-003	0.0667		231.4827	231.4827	4.9600e-003		231.6066
Total	**0.0948**	**0.5796**	**0.8156**	**3.7800e-003**	**0.2837**	**2.8200e-003**	**0.2865**	**0.0760**	**2.6500e-003**	**0.0786**		**391.4636**	**391.4636**	**0.0180**		**391.9143**

3.3 Backfill and Pave - 2021

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	0.6367	5.5286	5.7451	9.4400e-003		0.2868	0.2868		0.2686	0.2686		838.0640	838.0640	0.2248		843.6829
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6367**	**5.5286**	**5.7451**	**9.4400e-003**		**0.2868**	**0.2868**		**0.2686**	**0.2686**		**838.0640**	**838.0640**	**0.2248**		**843.6829**

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	0.0133	0.4691	0.1272	1.2300e-003	0.0320	9.7000e-004	0.0329	9.1900e-003	9.3000e-004	0.0101		134.3963	134.3963	0.0105		134.6597
Worker	0.0794	0.0481	0.6682	2.3200e-003	0.2459	1.5900e-003	0.2475	0.0652	1.4700e-003	0.0667		231.4827	231.4827	4.9600e-003		231.6066
Total	**0.0928**	**0.5171**	**0.7954**	**3.5500e-003**	**0.2779**	**2.5600e-003**	**0.2804**	**0.0744**	**2.4000e-003**	**0.0768**		**365.8790**	**365.8790**	**0.0155**		**366.2664**

3.3 Backfill and Pave - 2021

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	0.6367	3.5138	5.7451	9.4400e-003		0.2868	0.2868		0.2686	0.2686	0.0000	838.0640	838.0640	0.2248		843.6829
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6367**	**3.5138**	**5.7451**	**9.4400e-003**		**0.2868**	**0.2868**		**0.2686**	**0.2686**	**0.0000**	**838.0640**	**838.0640**	**0.2248**		**843.6829**

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	0.0133	0.4691	0.1272	1.2300e-003	0.0320	9.7000e-004	0.0329	9.1900e-003	9.3000e-004	0.0101		134.3963	134.3963	0.0105		134.6597
Worker	0.0794	0.0481	0.6682	2.3200e-003	0.2459	1.5900e-003	0.2475	0.0652	1.4700e-003	0.0667		231.4827	231.4827	4.9600e-003		231.6066
Total	**0.0928**	**0.5171**	**0.7954**	**3.5500e-003**	**0.2779**	**2.5600e-003**	**0.2804**	**0.0744**	**2.4000e-003**	**0.0768**		**365.8790**	**365.8790**	**0.0155**		**366.2664**

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
User Defined Industrial	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
User Defined Industrial	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
User Defined Industrial	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

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					
User Defined Industrial	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**

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					
User Defined Industrial	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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

EOWD Sewer Rehab

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2022
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

Project Characteristics -

Land Use - 0.5 acres dusturbed per day per proj description

Construction Phase - 60 days per activity per proj description

Trips and VMT - 11 employees per team, 10 dump/delivery trucks per day

Off-road Equipment - 1 concrete saw, 1 loader/backhoe, 1 crane, 5 signal boards, 1 forklift

Off-road Equipment - Backfill/Pave: 1 paver, 1 paving equipment, 1 roller, 1 loader/backhoe, 1 compactor. 5 signal boards

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	5.00	60.00

tblConstructionPhase	PhaseEndDate	8/3/2021	10/6/2021
tblConstructionPhase	PhaseEndDate	8/10/2021	12/29/2021
tblConstructionPhase	PhaseStartDate	8/1/2021	7/15/2021
tblConstructionPhase	PhaseStartDate	8/4/2021	10/7/2021
tblGrading	PhaseName	Grading	Cutting and Install
tblLandUse	LotAcreage	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	PhaseName	Grading	Cutting and Install
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	PhaseName	Grading	Cutting and Install
tblOffRoadEquipment	PhaseName	Paving	Backfill and Pave
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Cutting and Install
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	PhaseName		Backfill and Pave
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	7.00	6.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOnRoadDust	PhaseName	Grading	Cutting and Install
tblOnRoadDust	PhaseName	Paving	Backfill and Pave
tblTripsAndVMT	HaulingTripLength	20.00	80.00
tblTripsAndVMT	HaulingTripNumber	0.00	5.00
tblTripsAndVMT	PhaseName	Grading	Cutting and Install
tblTripsAndVMT	PhaseName	Paving	Backfill and Pave
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	10.00	22.00
tblTripsAndVMT	WorkerTripNumber	18.00	22.00

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					
2021	0.0585	0.4996	0.4683	9.8000e-004	0.0391	0.0236	0.0627	0.0169	0.0223	0.0392	0.0000	82.1665	82.1665	0.0151	0.0000	82.5431
Maximum	**0.0585**	**0.4996**	**0.4683**	**9.8000e-004**	**0.0391**	**0.0236**	**0.0627**	**0.0169**	**0.0223**	**0.0392**	**0.0000**	**82.1665**	**82.1665**	**0.0151**	**0.0000**	**82.5431**

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					
2021	0.0585	0.2502	0.4683	9.8000e-004	0.0391	0.0236	0.0627	0.0169	0.0223	0.0392	0.0000	82.1665	82.1665	0.0151	0.0000	82.5431
Maximum	**0.0585**	**0.2502**	**0.4683**	**9.8000e-004**	**0.0391**	**0.0236**	**0.0627**	**0.0169**	**0.0223**	**0.0392**	**0.0000**	**82.1665**	**82.1665**	**0.0151**	**0.0000**	**82.5431**

	ROG	NOx	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**	**49.92**	**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-1-2021	9-30-2021	0.2570	0.1197
		Highest	0.2570	0.1197

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
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	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
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	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	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	Cutting and Install	Grading	7/15/2021	10/6/2021	5	60	
2	Backfill and Pave	Paving	10/7/2021	12/29/2021	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Cutting and Install	Cranes	1	6.00	231	0.29
Cutting and Install	Signal Boards	5	8.00	6	0.82
Cutting and Install	Concrete/Industrial Saws	1	6.00	81	0.73
Cutting and Install	Forklifts	1	6.00	89	0.20
Backfill and Pave	Paving Equipment	1	2.00	132	0.36
Backfill and Pave	Plate Compactors	1	6.00	8	0.43
Backfill and Pave	Pavers	1	2.00	130	0.42
Backfill and Pave	Rollers	1	6.00	80	0.38
Backfill and Pave	Signal Boards	5	6.00	6	0.82
Cutting and Install	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Backfill and Pave	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Cutting and Install	4	22.00	5.00	5.00	14.70	6.90	80.00	LD_Mix	HDT_Mix	HHDT
Backfill and Pave	7	22.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Cutting and Install - 2021

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0336	0.3000	0.2494	4.8000e-004		0.0148	0.0148		0.0141	0.0141	0.0000	39.3163	39.3163	8.0300e-003	0.0000	39.5171
Total	**0.0336**	**0.3000**	**0.2494**	**4.8000e-004**	**0.0226**	**0.0148**	**0.0374**	**0.0124**	**0.0141**	**0.0265**	**0.0000**	**39.3163**	**39.3163**	**8.0300e-003**	**0.0000**	**39.5171**

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	6.0000e-005	1.9600e-003	6.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6951	0.6951	7.0000e-005	0.0000	0.6968
Vendor	4.1000e-004	0.0143	4.0100e-003	4.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	3.6199	3.6199	2.9000e-004	0.0000	3.6273
Worker	2.4200e-003	1.6300e-003	0.0190	7.0000e-005	7.2500e-003	5.0000e-005	7.2900e-003	1.9200e-003	4.0000e-005	1.9700e-003	0.0000	6.0535	6.0535	1.3000e-004	0.0000	6.0567
Total	**2.8900e-003**	**0.0179**	**0.0236**	**1.2000e-004**	**8.3600e-003**	**9.0000e-005**	**8.4400e-003**	**2.2400e-003**	**8.0000e-005**	**2.3200e-003**	**0.0000**	**10.3685**	**10.3685**	**4.9000e-004**	**0.0000**	**10.3808**

3.2 Cutting and Install - 2021

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0336	0.1110	0.2494	4.8000e-004		0.0148	0.0148		0.0141	0.0141	0.0000	39.3163	39.3163	8.0300e-003	0.0000	39.5171
Total	**0.0336**	**0.1110**	**0.2494**	**4.8000e-004**	**0.0226**	**0.0148**	**0.0374**	**0.0124**	**0.0141**	**0.0265**	**0.0000**	**39.3163**	**39.3163**	**8.0300e-003**	**0.0000**	**39.5171**

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	6.0000e-005	1.9600e-003	6.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6951	0.6951	7.0000e-005	0.0000	0.6968
Vendor	4.1000e-004	0.0143	4.0100e-003	4.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	3.6199	3.6199	2.9000e-004	0.0000	3.6273
Worker	2.4200e-003	1.6300e-003	0.0190	7.0000e-005	7.2500e-003	5.0000e-005	7.2900e-003	1.9200e-003	4.0000e-005	1.9700e-003	0.0000	6.0535	6.0535	1.3000e-004	0.0000	6.0567
Total	**2.8900e-003**	**0.0179**	**0.0236**	**1.2000e-004**	**8.3600e-003**	**9.0000e-005**	**8.4400e-003**	**2.2400e-003**	**8.0000e-005**	**2.3200e-003**	**0.0000**	**10.3685**	**10.3685**	**4.9000e-004**	**0.0000**	**10.3808**

3.3 Backfill and Pave - 2021

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	0.0191	0.1659	0.1724	2.8000e-004		8.6000e-003	8.6000e-003		8.0600e-003	8.0600e-003	0.0000	22.8084	22.8084	6.1200e-003	0.0000	22.9613
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0191**	**0.1659**	**0.1724**	**2.8000e-004**		**8.6000e-003**	**8.6000e-003**		**8.0600e-003**	**8.0600e-003**	**0.0000**	**22.8084**	**22.8084**	**6.1200e-003**	**0.0000**	**22.9613**

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	4.1000e-004	0.0143	4.0100e-003	4.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	3.6199	3.6199	2.9000e-004	0.0000	3.6273
Worker	2.4200e-003	1.6300e-003	0.0190	7.0000e-005	7.2500e-003	5.0000e-005	7.2900e-003	1.9200e-003	4.0000e-005	1.9700e-003	0.0000	6.0535	6.0535	1.3000e-004	0.0000	6.0567
Total	**2.8300e-003**	**0.0159**	**0.0230**	**1.1000e-004**	**8.1900e-003**	**8.0000e-005**	**8.2600e-003**	**2.1900e-003**	**7.0000e-005**	**2.2700e-003**	**0.0000**	**9.6734**	**9.6734**	**4.2000e-004**	**0.0000**	**9.6839**

3.3 Backfill and Pave - 2021

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	0.0191	0.1054	0.1724	2.8000e-004		8.6000e-003	8.6000e-003		8.0600e-003	8.0600e-003	0.0000	22.8083	22.8083	6.1200e-003	0.0000	22.9613
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0191**	**0.1054**	**0.1724**	**2.8000e-004**		**8.6000e-003**	**8.6000e-003**		**8.0600e-003**	**8.0600e-003**	**0.0000**	**22.8083**	**22.8083**	**6.1200e-003**	**0.0000**	**22.9613**

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	4.1000e-004	0.0143	4.0100e-003	4.0000e-005	9.4000e-004	3.0000e-005	9.7000e-004	2.7000e-004	3.0000e-005	3.0000e-004	0.0000	3.6199	3.6199	2.9000e-004	0.0000	3.6273
Worker	2.4200e-003	1.6300e-003	0.0190	7.0000e-005	7.2500e-003	5.0000e-005	7.2900e-003	1.9200e-003	4.0000e-005	1.9700e-003	0.0000	6.0535	6.0535	1.3000e-004	0.0000	6.0567
Total	**2.8300e-003**	**0.0159**	**0.0230**	**1.1000e-004**	**8.1900e-003**	**8.0000e-005**	**8.2600e-003**	**2.1900e-003**	**7.0000e-005**	**2.2700e-003**	**0.0000**	**9.6734**	**9.6734**	**4.2000e-004**	**0.0000**	**9.6839**

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
User Defined Industrial	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
User Defined Industrial	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
User Defined Industrial	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

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					
User Defined Industrial	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**

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					
User Defined Industrial	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			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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			
User Defined Industrial	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