

POSTED

MAY 12 2015

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Notice of Determination

Appendix D

HUGH NGUYEN, CLERK-RECORDER DEPUTY

To:

[X] Office of Planning and Research
U.S. Mail: P.O. Box 3044 Sacramento, CA 95812-3044
Street Address: 1400 Tenth St., Rm 113 Sacramento, CA 95814

From:

Public Agency: Irvine Ranch Water District
Address: 15600 Sand Canyon Avenue Irvine, CA 92618
Contact: Jo Ann Corey
Phone: (949) 453-5326

[X] County Clerk

County of: Orange
Address: 12 Civic Center Plaza, Suite 101 Santa Ana, CA 92701

Lead Agency (if different from above):
Address:
Contact:
Phone:

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2007021140

Project Title: Addendum No. 1 to the Reservoir Management System (RMS)/Chlorine Analyzers Final IS/MND

Project Applicant: Irvine Ranch Water District (IRWD)

Project Location (include county): Orange

Project Description: The NOD was previously filed on May 1, 2007 (Document # 200785000434)
The project proposes minor modifications to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final IS/MND related to installation of RMS at the Portola Zone 8 Reservoir and the Foothill Zone 6 Reservoir to replace the Chlorine Analyzers and Reservoir Mixer/Samplers at those reservoirs. Additional modifications included an increase in length of each chemical storage building from what was previously assessed from 24 feet to 37 feet and a decrease in the amount of chemicals to be stored at each site from 1,000 to 500 gallons of 12% sodium hypochlorite.

This is to advise that the Irvine Ranch Water District (IRWD) has approved the above [X] Lead Agency or [] Responsible Agency

described project on May 11, 2015 and has made the following determinations regarding the above described project.

- 1. The project [] will [X] will not have a significant effect on the environment.
2. [] An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA. [X] A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [X] were [] were not made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [X] was [] was not adopted for this project.
5. A statement of Overriding Considerations [] was [X] was not adopted for this project.
6. Findings [X] were [] were not made pursuant to the provisions of CEQA.

FILED MAY 12 2015

HUGH NGUYEN, CLERK-RECORDER DEPUTY

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: www.irwd.com

Signature (Public Agency): [Signature] Title: Engineering Technician III

Date: May 12, 2015 Date Received for filing at OPR:

Recorded in Official Records, Orange County Hugh Nguyen, Clerk-Recorder

Authority cited: Sections 21083, Public Resources Code. Reference Section 21000-21174, Public Resources Code.



NO FEE

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**Addendum No. 1 to the
Reservoir Management System (RMS) and Chlorine Analyzers
and Reservoir Mixers/Samplers at Domestic Water Reservoirs
Final Initial Study/Mitigated Negative Declaration
(State Clearinghouse No. 2007021140)**

Prepared for:

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Prepared by:

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APRIL 2015

**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
ACRONYMS AND ABBREVIATIONS.....	III
1 INTRODUCTION AND BACKGROUND.....	1
1.1 Project Setting.....	2
1.2 Proposed Modifications to the Project.....	2
2 ENVIRONMENTAL IMPACT ANALYSIS.....	9
2.1 Aesthetics.....	11
2.2 Agricultural Resources.....	12
2.3 Air Quality.....	12
2.4 Biological Resources.....	18
2.5 Cultural Resources.....	18
2.6 Geology and Soils.....	18
2.7 Greenhouse Gases.....	22
2.8 Hazards.....	25
2.9 Hydrology and Water Quality.....	26
2.10 Land Use and Planning.....	26
2.11 Minerals.....	26
2.12 Noise.....	27
2.13 Population and Housing.....	27
2.14 Public Services.....	27
2.15 Recreation.....	28
2.16 Transportation and Circulation.....	28
2.17 Utilities and Service Systems.....	28
3 DETERMINATION.....	29
4 REPORT PREPARERS.....	31
4.1 Irvine Ranch Water District.....	31
4.2 Dudek.....	31
5 REFERENCES.....	33

**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

TABLE OF CONTENTS

Page No.

FIGURES

1	Regional Map.....	3
2	Foothill Zone 6 Reservoir Site Vicinity Map	5
3	Portola Zone 8 Reservoir Site Vicinity Map.....	7
4	Foothill Zone 6 Reservoir Site Vicinity Map, Vegetation and Land Cover	19
5	Portola Zone 8 Reservoir Site Vicinity Map, Vegetation and Land Cover	21

TABLES

1	Project Modifications Comparison Table	12
2	Original Project Construction Equipment and Schedule	13
3	Modified Project Construction Equipment and Schedule.....	14
4	Project Modifications Estimated Daily Maximum Construction Emissions (pounds per day mitigated)	15
5	Project Modifications Estimated Daily Maximum Operational Emissions (pounds per day)	16
6	Project Modifications Estimated Construction GHG Emissions	24
7	Project Modifications Estimated Annual Operational GHG Emissions	25

APPENDIX

A	Air Quality Modeling Runs	
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Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

ACRONYMS AND ABBREVIATIONS

CalEEMod	California Emissions Estimator Model
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ E	carbon dioxide equivalent
GHG	greenhouse gas
HCP	Habitat Conservation Plan
IRWD	Irvine Ranch Water District
MND	Mitigated Negative Declaration
MT	metric ton
N ₂ O	nitrous oxide
NCCP	Natural Communities Conservation Plan
NO _x	oxides of nitrogen
PM ₁₀	particulate matter with an aerodynamic diameter equal to or less than 10 microns
PM _{2.5}	particulate matter with an aerodynamic diameter equal to or less than 2.5 microns
RMS	Reservoir Management System
SCAQMD	South Coast Air Quality Management District
SO ₂	sulfur dioxide
VOC	volatile organic compound

**Addendum No. 1 to the Reservoir Management System (RMS)
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Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

1 INTRODUCTION AND BACKGROUND

Irvine Ranch Water District (IRWD) is planning to install a Reservoir Management System (RMS) at the Foothill Zone 6 Reservoir and the Portola Zone 8 Reservoir to address degraded water quality in these existing potable water reservoirs. The degraded water quality is from nitrification due to loss of chlorine residual, excess free ammonia, and low water supply turnover within the existing reservoirs. These two reservoirs previously had Chlorine Analyzers and Reservoir Mixers/Samplers installed that were assessed in the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/Mitigated Negative Declaration (MND) (IRWD 2007). The MND evaluated the potential effects on the environment from constructing an RMS and Chlorine Analyzer and Reservoir Mixer/Samplers at 19 reservoirs. These 19 project locations are listed below.

These locations were assessed for installation of an RMS:

1. Quail Hill Zone 3 Reservoir in Irvine, California
2. Coastal Zone 6 Reservoir in Newport Beach, California
3. Central Zone 1 Reservoir in Irvine, California
4. Santiago Hills Zone 5 Reservoir in Irvine, California
5. Los Alisos Zone 2 East Reservoir in Lake Forest, California
6. Los Alisos Zone 2 West Reservoir in Lake Forest, California
7. Los Alisos Emergency Zone 1 Reservoir in Lake Forest, California
8. Williams Canyon Reservoir in Silverado Canyon, California
9. IIC East Irvine Zone 3 Reservoir in Irvine, California

These locations were assessed for installation of Chlorine Analyzers and Reservoir Mixer/Samplers:

1. Turtle Rock Zone 3 Reservoir in Irvine, California
2. Shady Canyon Reservoir in Irvine, California
3. Northwood Zone 3 East Reservoir in Irvine, California
4. Quail Hill Zone 4 Reservoir in Irvine, California
5. Portola Zone 8 Reservoir in Portola Hills, California

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

6. Foothill Zone 6 Reservoir in Foothill Ranch, California
7. Foothill Zone 6A Reservoir in Foothill Ranch, California
8. East Irvine Zone 4 Reservoir in Irvine, California
9. Northwood Zone 2 Reservoir in Irvine, California
10. Portola Zone 9 Reservoir in Portola Hills, California

All of these projects were constructed, and now modifications to the projects involve replacing the Chlorine Analyzers and Reservoir Mixer/Samplers at Portola Zone 8 and Foothill Zone 6 with an RMS.

1.1 Project Setting

The Portola Zone 8 Reservoir is located in Portola Hills, and the Foothill Zone 6 Reservoir is located in Foothill Ranch in Orange County, California. Figure 1 shows the regional location of the two reservoirs. These sites are located within the IRWD service area. More specifically, the Foothill Zone 6 Reservoir site is located just north of Touraine Place (Figure 2), and the Portola Zone 8 Reservoir site is located just north of Cedar Ridge Road (Figure 3). These sites are located in fire prone areas and are near residential development.

1.2 Proposed Modifications to the Project

This addendum, prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.) and its implementing CEQA Guidelines (California Code of Regulations (CCR) Title 14, Chapter 3, Section 15000 et seq.), addresses four changes from what was previously assessed in the original MND:

- Installation of an RMS at the Portola Zone 8 Reservoir to replace the Chlorine Analyzer and Reservoir Mixer/Sampler.
- Installation of an RMS at the Foothill Zone 6 Reservoir to replace the Chlorine Analyzer and Reservoir Mixer/Sampler.
- An increase in length of each chemical storage building from what was previously assessed from 24 feet to 37 feet.
- A decrease in the amount of chemicals to be stored at each site from 1,000 gallons of 12% sodium hypochlorite to 500 gallons of 12% sodium hypochlorite. As previously assessed, the 29% of aqueous ammonia remains the same.



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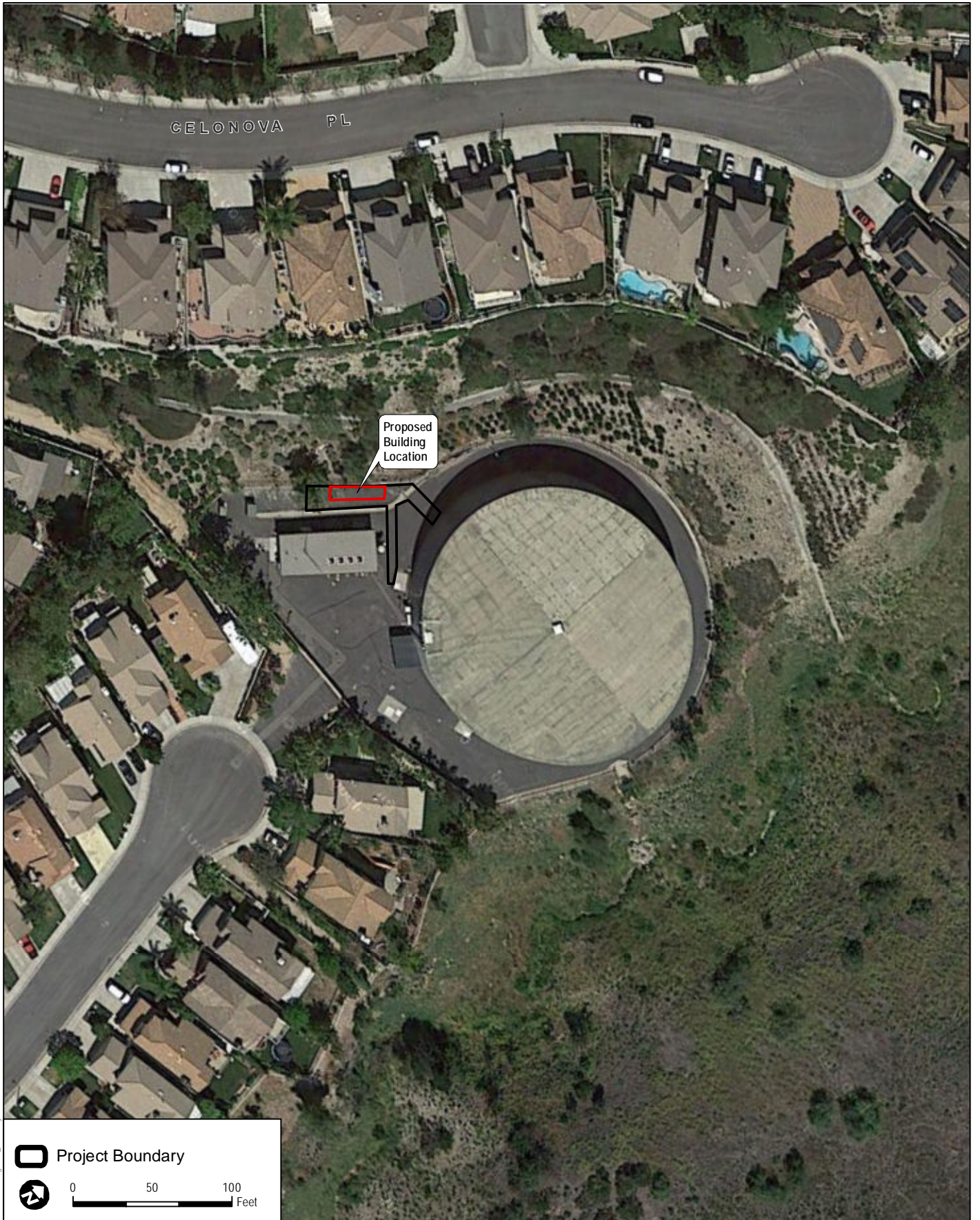
SOURCE: Relief Shaded 2014

FIGURE 1
Regional Map

Addendum No. 1 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs
Final Initial Study/Mitigated Negative Declaration

**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
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SOURCE: Google Earth Maps 2015, CO Orange NCCP 2014, IRWD 2015

FIGURE 2
Foothill Zone 6 Reservoir Site Vicinity Map

Addendum No. 1 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs
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 Project Boundary

 0 50 100 Feet



SOURCE: Google Earth Maps 2015, CO Orange NCCP 2014, IRWD 2015

FIGURE 3

Portola Zone 8 Reservoir Site Vicinity Map

Addendum No. 1 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs
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When the Final Initial Study/MND was adopted by the IRWD Board of Directors, the Chlorine Analyzers and Reservoir Mixer/Samplers were assumed to be the most effective solution for these reservoirs. Based on the effectiveness of the RMS at other reservoirs, IRWD plans to install an RMS at each of the two sites. In the intervening time, code requirements necessitated a change in the size of the chemical storage buildings.

No substantial changes have occurred that warrant preparation of subsequent or supplemental environmental impact reports pursuant to Section 15162 of the CEQA Guidelines.

**Addendum No. 1 to the Reservoir Management System (RMS)
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2 ENVIRONMENTAL IMPACT ANALYSIS

The four proposed modifications to the original project discussed in Section 1 do not change the conclusions of the impact analysis of the referenced MND (IRWD 2007) and have no new significant adverse environmental impacts.

To ensure that no significant environmental impacts occur, the proposed modifications would adhere to the applicable mitigation measures from the previously adopted MND, as described in the following sections. Only the mitigation measures stated in the adopted MND that apply to the modifications are restated below. Some mitigation measures were revised to make them specific to the proposed modifications or to reflect changes in regulatory requirements that have occurred since preparation of the MND. In the mitigation measures below, underline indicates added text and ~~strikeout~~ indicates deleted text.

2.1 Aesthetics

As discussed in the MND, installation of RMS components would consist of building new facilities, which would be located at existing reservoir sites. No scenic vistas were identified in the City of Lake Forest's General Plan (City of Lake Forest 1994), the Portola Hills Planned Community Development Plan (City of Lake Forest 2008), or the Foothill Ranch Planned Community Development Plan (City of Lake Forest 2012).

Foothill Zone 6 Reservoir is surrounded by residences on the north, west, and south. Multiple hiking and biking trails associated with the Whiting Ranch Wilderness Park are located east of the Foothill Zone 6 Reservoir site. These same trails are located north and west of the Portola Zone 8 Reservoir site. Residences are located east and south of the Zone 8 Reservoir site, and Concourse Park is located to the east. Views from Glenn Ranch Road and Portola Parkway include the Foothill Zone 6 and Portola Zone 8 Reservoirs, hills, ridgelines, terraced slopes, and natural vegetation. The Foothill Zone 6 and Portola Zone 8 Reservoirs are existing facilities and are part of the visual character of the area. The proposed RMS facilities would be consistent with existing uses. Additionally, the proposed RMS facilities would be smaller in height, scale, and mass compared to the existing reservoirs. Construction equipment would be removed upon completion of construction.

The proposed modifications would not result in any permanent visual impacts, and would remain consistent with the aesthetics analyzed within the MND. Therefore, any potential aesthetic impacts associated with the proposed modifications would be less than significant, and no mitigation measures would be required.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

2.2 Agricultural Resources

According to the California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation 2015), the sites are designated as “Urban and Built-Up Land” and are not areas identified as Prime Farmland or Farmland of Statewide Importance. No agricultural activities are practiced on the sites, and no Williamson Act contract is in force on any of these properties (California Department of Conservation 2004). The Foothill Zone 6 and Portola Zone 8 Reservoir sites are surrounded by areas zoned for residential and single-family residential (City of Lake Forest 1991). There is no change in impacts related to agricultural resources associated with the proposed modifications. Therefore, no impacts related to agricultural resources would occur, and no mitigation measures are required.

2.3 Air Quality

The proposed modifications would involve limited use of construction equipment and activities, which would result in construction emissions from heavy equipment exhaust, construction-related trips by workers, material-hauling trucks, and fugitive dust generation from trenching and grading activities. Operation of the modified project would include periodic maintenance trips. Pollutants associated with the construction and operation of the modified project would include carbon monoxide (CO), volatile organic compounds (VOCs), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), and particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}). VOC and NO_x are precursors of ozone.

The proposed modifications would occur within a slightly revised construction schedule and parameters compared to those outlined and analyzed in the MND. Table 1 lists where these modifications would occur in terms of construction and operations assumptions, and criteria pollutant emissions.

**Table 1
Project Modifications Comparison Table**

Area of Change	Original Project	Modified Project
Project type	Mixer and analyzer installation	Reservoir Management System installation
Construction period	2 weeks for each site	24 weeks for each site
Construction equipment/schedule	See Table 2	See Table 3
Length of chemical storage building	24 feet	37 feet

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

**Table 1
Project Modifications Comparison Table**

Area of Change	Original Project	Modified Project
Amount of chemicals to be stored on each site	1,000 gallons of 12% sodium hypochlorite 100 gallons of 29% aqueous ammonia	500 gallons of 12% sodium hypochlorite 100 gallons of 29% aqueous ammonia
Facility maintenance trips and chemical delivery trips	Periodic site visit by Irvine Ranch Water District operator and subcontractors to inspect/repair equipment as needed	12 maintenance trips per year per site 52 annual chemical delivery trips per chemical

Construction

Tables 2 and 3 show the construction equipment and schedule for the original project and the modified project. The original project construction scenario assumed that construction would occur within one phase, and the modified project would occur over several phases. Emissions associated with the modified project were calculated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, (available at www.caleemod.com). Emissions associated with the original project were calculated using EMFAC 2002 (v2.2).¹

**Table 2
Original Project Construction Equipment and Schedule**

Equipment	Number of Units	Duration of Work (days)	Operating Hours per Day
<i>Off-Road Equipment</i>			
Backhoe	1	5	4
Crane	1	1	4
Generator	1	10	4
Trencher	1	1	6
Welder	1	2	4
Paver	1	1	4
Equipment	Number of Units	Duration of Work (days)	Miles per Trip
<i>On-Road Vehicles/Equipment</i>			
Concrete mixer	1	2	30
Dump truck	1	2	20
Delivery truck	1	10	40

¹ The South Coast Air Quality Management District (SCAQMD) recommends using CalEEMod to quantify criteria air pollutant and greenhouse gas (GHG) emissions for CEQA projects. CalEEMod uses emissions factors and fleet mixes based on EMFAC2011 for vehicular emissions. CalEEMod also uses horsepower and load factors based on OFFROAD2011 for off-road emissions. Because CalEEMod is recommended by the SCAQMD, and because CalEEMod calculates emissions associated with off-road equipment and on-road vehicles, CalEEMod was chosen to calculate criteria pollutant and GHG emissions.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

Table 2
Original Project Construction Equipment and Schedule

Equipment	Number of Units	Duration of Work (days)	Operating Hours per Day
Commuting	10	10	22

Note: Original project criteria air pollutant emissions were modeled using EMFAC 2002.

Table 3
Modified Project Construction Equipment and Schedule

Phase	Weeks per Activity	Number of Worker Trips ^a	Daily Vendor Trips ^a	Total Haul Trips ^a	Equipment ^b	Number of Units	Hours per Day
Demolition	1.5	12	0	18	Concrete/Industrial Saw, Tractors/Loaders/Backhoes	1 of each	8 per each
Grading ^c	4	12	0	14	Tractors/Loaders/Backhoes, Water truck	1 of each	8 per each
Trenching ^d	4	12	0	8	Tractors/Loaders/Backhoes, Water truck	1 of each	8 per each
Building Construction	16	12	0	32	Forklifts, Concrete pump, Concrete mixer	1 of each	8 per each
Paving	2	12	0	4	Pavers, Rollers	1 of each	8 per each

Notes: Modified project criteria air pollutant emissions were modeled using CalEEMod. This table represents construction activities that would occur for each site.

^a Worker trips, vendor trips, and haul trips were modeled as on-road equipment. The maximum number of demolition haul trips are shown above. Foothill Zone 6 would require 13 haul trips for demolition, while Portola Zone 8 would require 18 haul trips.

^b Construction equipment was modeled as off-road equipment.

^c Grading would only occur within the Portola Zone 8 Reservoir site.

^d The trenching phase would experience a schedule overlap with the building construction phase.

The criteria air pollutant emissions associated with construction of the RMS facilities at Foothill Zone 6 and Portola Zone 8 Reservoir sites were modeled separately, assuming that construction of these RMS facilities might not overlap. The Portola Zone 8 Reservoir site would require 0.08 acre of area to be graded. The Foothill Zone 6 Reservoir site would not require grading. It was estimated in the MND that the most significant grading would disturb less than 0.08 acre per site where RMS installation would occur; therefore, RMS installation for the modified project would be consistent with the MND. It was also assumed that RMS installation would generate 50 to 300 cubic yards of excess soil export per site. The Portola Zone 8 Reservoir site would generate approximately 110 cubic yards of export soil under the modified project. Since grading would not occur within the Foothill Zone 6 Reservoir site, no soil would be exported from the site. This would be consistent with the RMS installation assumptions in the MND. For the Foothill Zone 6

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

RMS installation, it was assumed that 1,800 square feet of pavement area (or 135 tons of debris²) would be removed from the site, and the same area would be re-paved. For the Portola Zone 8 RMS installation, it was assumed that 2,385 square feet of pavement area (or 179 tons of debris³) would be removed from the site, and 3,575 square feet would be re-paved. Table 4 presents the estimated maximum daily construction emissions generated during construction of the modified project for the Foothill Zone 6 and Portola Zone 8 Reservoir sites.

The South Coast Air Quality Management District (SCAQMD) is the local agency responsible for administration and enforcement of air quality regulations for the South Coast Air Basin, where the modification sites are located. The SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993), as supplemented in March 2012, sets forth quantitative emissions significance thresholds, below which a project would not have a significant impact on ambient air quality (SCAQMD 2012). Air quality impacts associated with construction of the proposed modifications would be considered significant if any of the pollutant thresholds presented in Table 4 are exceeded.

**Table 4
Project Modifications Estimated Daily Maximum
Construction Emissions (pounds per day mitigated)**

	VOCs	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Foothill Zone 6 RMS Installation	1.15	9.04	7.23	0.01	0.93	0.70
Portola Zone 8 RMS Installation	1.79	14.53	11.15	0.02	1.30	1.04
Maximum Daily	1.79	14.53	11.15	0.02	1.30	1.04
<i>Pollutant Threshold^a</i>	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: ^a SCAQMD 1993

Notes: See Appendix A for complete results. These estimates reflect control of fugitive dust required by Rule 403.

VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxide; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter

Construction of RMS facilities at the Foothill Zone 6 and Portola Zone 8 Reservoir sites would not exceed the SCAQMD criteria air pollutant construction thresholds, nor would construction emissions exceed the criteria air pollutant emissions estimated in the MND.

² Assuming 1,800 square feet of pavement area, with pavement 1 foot deep with a density of 150 pounds per cubic foot.

³ Assuming 2,385 square feet of pavement area, with pavement 1 foot deep and a density of 150 pounds per cubic foot.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

Operation

Once constructed, operation of the project would produce VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} emissions from vehicle sources. Truck traffic on paved roads would also generate PM₁₀ and PM_{2.5} emissions from fugitive dust and brake and tire wear.

Operation of the modified project would require 12 maintenance trips per year per site, and 52 annual chemical delivery trips per chemical. Emissions associated with operational maintenance and chemical delivery trips were modeled in CalEEMod and are shown in Table 5. The criteria air emissions associated with operation of the RMS facilities at Foothill Zone 6 and Portola Zone 8 Reservoir sites were modeled together, considering that maintenance trips and chemical delivery trips could overlap.

The project-related operational emissions presented in Table 5 are compared against pollutant thresholds established by the SCAQMD, as outlined in the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993). Air quality impacts associated with operation of the proposed project modifications would be considered significant if any of the pollutant thresholds presented in Table 5 were exceeded.

Table 5
Project Modifications Estimated Daily
Maximum Operational Emissions (pounds per day)

	VOCs	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Maintenance and Chemical Delivery Trips	0.04	0.44	0.56	<0.01	0.04	0.01
<i>Pollutant Threshold^a</i>	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: ^a SCAQMD 1993

Notes: See Appendix A for complete results.

VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter

Construction of RMS facilities at the Foothill Zone 6 and Portola Zone 8 Reservoir sites would not exceed the SCAQMD criteria air pollutant operational thresholds; therefore, impacts would be less than significant.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

Although no significant construction or operational impacts were identified, the following mitigation measure is recommended to reduce air quality impacts during construction of the proposed project and to ensure that significant impacts would not occur:

MM-AQ-1 The following fugitive dust control measures are recommended to reduce PM₁₀ emissions:⁴

- Water all active construction areas as needed to minimize dust.
- During clearing, grading, earthmoving, excavating, or transporting cut or fill materials, use water trucks or sprinkler systems to prevent dust from leaving the site and to create a crust after each day's activities cease.
- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas later in the morning, after work is completed for the day, and whenever winds exceed 15 miles per hour.
- Cover, keep moist, or treat with soil binders all soil stockpiled for more than 2 days to prevent dust generation.
- Maintain speeds on unpaved roads at less than 15 miles per hour.
- Sweep, vacuum, and/or wash all dirt and debris spilled onto paved surfaces at the project site and onto adjacent roadways at the end of each workday.
- At a minimum, at each vehicle egress from the project site to a paved public road, install a rumble strip at the exit of IRWD's property adjacent to the areas which will be excavated to reduce trackout and carryout onto public roads.
- Cover all off-site haul trucks or maintain at least 2 ~~two~~ feet of freeboard.
- Cover or water any on-site stockpiles of debris, dirt, or other dusty material to minimize dust.
- Suspend all grading and trenching operations if winds exceed 25 ~~mph~~ miles per hour.

⁴ This mitigation measure as presented in the MND for this project was modified to reflect the SCAQMD Rule 403, Fugitive Dust.

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2.4 Biological Resources

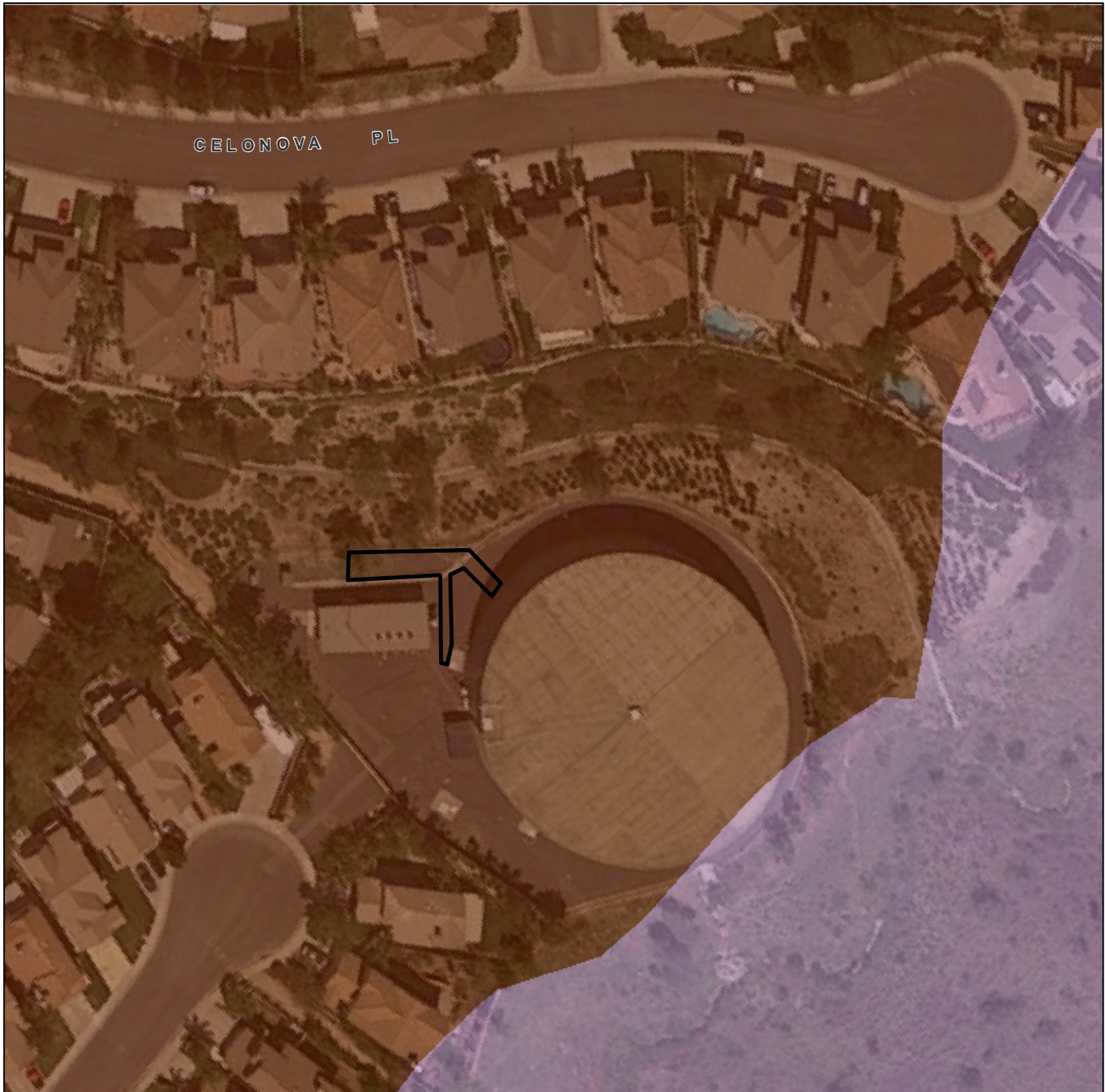
The Foothill Zone 6 and Portola Zone 8 Reservoirs are located in the Orange County Central and Coastal Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) area. Installation of the RMS generally would occur within paved or developed areas. However, for the Portola Zone 8 Reservoir site, grading would occur within a sloped area. Approximately 110 cubic yards of soil would be removed from sloped areas within the Portola Zone 8 Reservoir site. According to the Orange County Central and Coastal NCCP/HCP vegetation maps, the project areas are designated as developed land (see Figures 4 and 5). Vegetation within the project impact areas are ornamental and do not contribute to the Orange County Central and Coastal NCCP/HCP. Impacts to biological resources would be less than significant, and no mitigation measures are required.




2.5 Cultural Resources

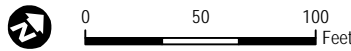
As discussed in the MND, the project sites are located at existing reservoirs where the site has been previously disturbed by construction of the reservoirs, access roads, slopes, drainage improvements, and other work. No impacts to paleontological or archaeological resources are expected during construction of the modifications. Project modifications would impact a slightly larger footprint than was analyzed in the MND because code requirements necessitated the change in size of the chemical storage buildings, but this would not affect anticipated impacts. IRWD's standard construction manual requires workers to halt construction if any cultural resources are exposed, and to contact IRWD for direction by a qualified archeological, historical, or paleontological professional. The proposed project modifications would not result in adverse impacts to cultural resources, and no mitigation measures are required.

2.6 Geology and Soils

As discussed in the MND, a geotechnical review was conducted for each project site. The review did not identify any potential to encounter groundwater at the relatively shallow depths expected to be excavated for the building footings and for conduit installation. The geotechnical review found no evidence of active faulting within the project sites analyzed in the MND. Project modifications would be designed in accordance with the 2013 California Building Code and IRWD standards. All project modification construction activities would be in compliance with IRWD's construction standards, established to minimize erosion. As such, impacts related to geology and soils would be less than significant, and no mitigation measures are required.



-  Project Boundary
- Vegetation and Land Cover (Orange County NCCP)**
-  Coastal Sage Scrub
-  Developed



SOURCE: Google Earth Maps 2015, County of Orange NCCP/HCP EIR and EIS 1996, IRWD 2015

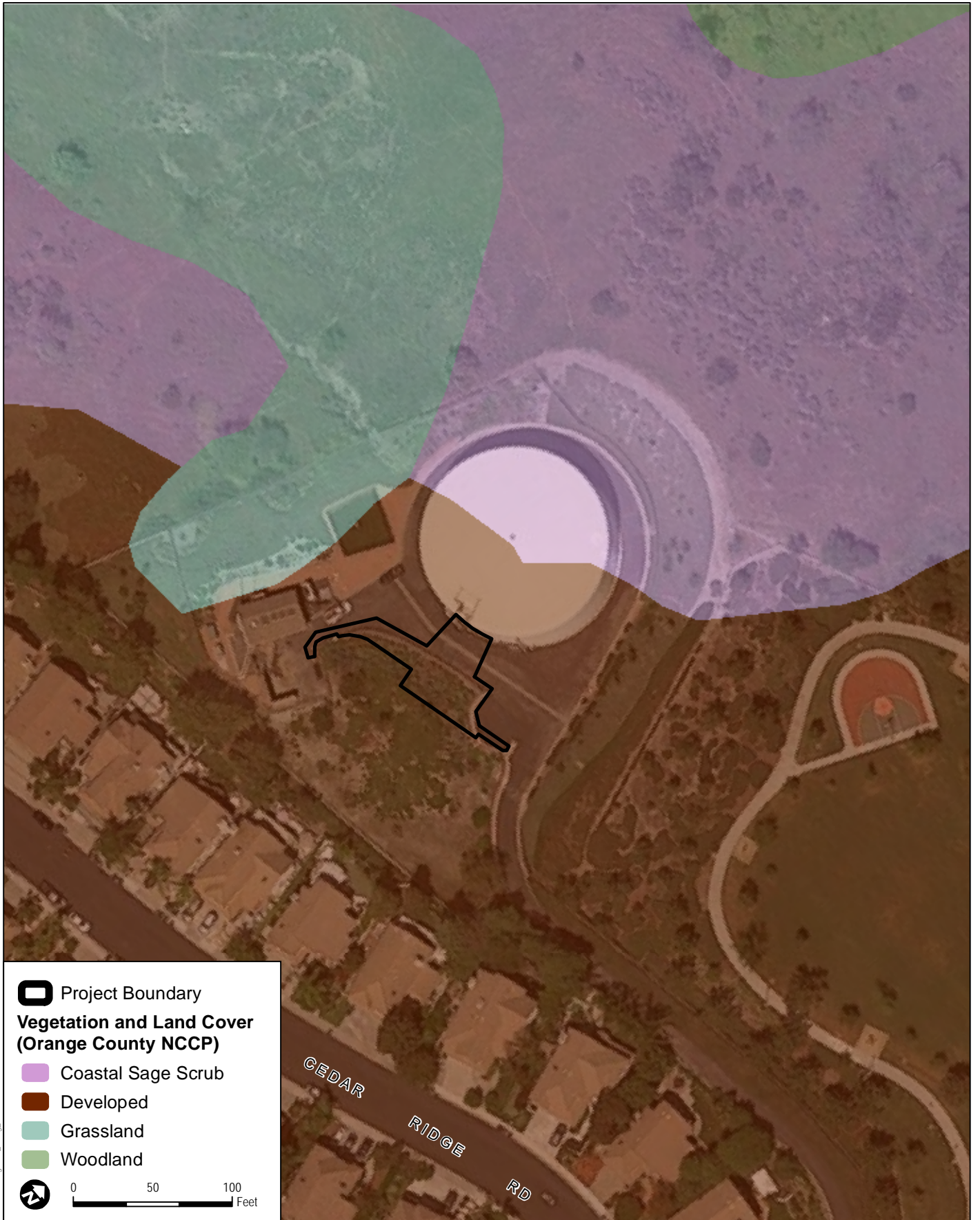
Foothill Zone 6 Reservoir Site Vicinity Map, Vegetation and Land Cover

FIGURE 4

Addendum No. 1 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs
Final Initial Study/Mitigated Negative Declaration

**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

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Project Boundary
Vegetation and Land Cover
(Orange County NCCP)

- Coastal Sage Scrub
- Developed
- Grassland
- Woodland

0 50 100 Feet



SOURCE: Google Earth Maps 2015, County of Orange NCCP/HCP EIR and EIS 1996, IRWD 2015

FIGURE 5

Portola Zone 8 Reservoir Site Vicinity Map, Vegetation and Land Cover

Addendum No. 1 to the RMS and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs
 Final Initial Study/Mitigated Negative Declaration

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and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

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2.7 Greenhouse Gases

Greenhouse gas (GHG) emissions were not analyzed in the previous MND because Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) did not include GHG significance criteria at the time the original MND was published. According to Appendix G of the CEQA Guidelines, a significant impact related to GHG emissions would occur if the project would:

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

Global climate change is a cumulative impact; a project contributes to this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project occurring within the SCAQMD are significant. Although the proposed project modifications would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory, as scientific uncertainty regarding the significance of a project's individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resources Agency, which noted in its Public Notice for the proposed CEQA amendments that the evidence indicates that, in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a). Similarly, the Final Statement of Reasons for Regulatory Action on the CEQA Amendments confirm that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels, and determine whether those emissions are cumulatively considerable (CNRA 2009b).

Construction Greenhouse Gas Emissions

Construction of the project modifications would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor trucks, and worker

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vehicles. The SCAQMD has not proposed or adopted relevant quantitative GHG thresholds for construction-generated emissions. Nonetheless, GHG emissions generated during construction of the project modifications are included in this assessment for disclosure purposes.

CaleEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 2.3, Air Quality. The GHG emissions are expressed in units of metric tons of carbon dioxide equivalent (MT CO₂E).⁵ On-site sources of GHG emissions include off-road equipment, and off-site sources include hauling and vendor trucks and worker vehicles. Table 6 presents construction emissions for the project modifications from on-site and off-site emissions sources.

**Table 6
Project Modifications Estimated Construction GHG Emissions**

	MT CO ₂	MT CH ₄	MT N ₂ O	MT CO ₂ E
Foothill Zone 6 RMS Installation	57.05	0.01	0.00	57.24
Portola Zone 8 RMS Installation	65.31	0.01	0.00	65.53
Total	122.36	0.02	0.00	122.77

Notes: See Appendix A for complete results.

GHG = greenhouse gas; MT = metric ton(s); CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

As shown in Table 6, the estimated total GHG emissions during construction of the project modifications would be approximately 123 MT CO₂E in 2015. As with project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the proposed project modifications would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operational Greenhouse Gas Emissions

Operational GHG emissions would be generated through maintenance trips and chemical delivery trips. GHG emissions associated with operation of the project modifications were estimated using CaleEMod (Table 7).

⁵ The carbon dioxide equivalent (CO₂E) for a gas is derived by multiplying the mass of the gas by the associated global warming potential (GWP), such that MT CO₂E = (metric tons of a GHG) × (GWP of the GHG). For example, the GWP for methane (CH₄) is 21. This means that emissions of 1 MT of CH₄ are equivalent to emissions of 21 MT of CO₂.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

Table 7
Project Modifications Estimated Annual Operational GHG Emissions

	MT CO ₂	MT CH ₄	MT N ₂ O	MT CO ₂ E
Foothill Zone 6 and Portola Zone 8 Maintenance Trips and Chemical Delivery	0.74	<0.01	0.00	0.74

Notes: See Appendix A for complete results.

GHG = greenhouse gas; MT = metric ton(s); CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

As shown in Table 7, annual project-generated GHG emissions in 2016 would be approximately 0.74 MT CO₂E per year as a result of project modifications operations. Project modifications would result in minor generation of GHG emissions, and these reservoir sites would require periodic maintenance trips even without the modifications. Impacts associated with project-generated GHG emissions would be less than significant.

The Climate Change Scoping Plan, approved by the California Air Resources Board on December 12, 2008, provides an outline for actions to reduce California’s GHG emissions. The Scoping Plan requires the California Air Resources Board and other state agencies to adopt regulations and other initiatives to reduce GHGs. The SCAQMD and the City of Lake Forest have not adopted any GHG-reduction measures that would apply to the GHG emissions associated with the project modifications. Therefore, project modifications would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and impacts would be less than significant.

2.8 Hazards

Project modifications would include a decrease in the amount of chemicals to be stored at each site from 1,000 gallons of 12% sodium hypochlorite to 500 gallons of 12% sodium hypochlorite. As previously assessed, the 29% of aqueous ammonia remains the same. As discussed in the MND, sodium hypochlorite is not a hazardous material, and aqueous ammonia at volumes less than 100 gallons is not considered a hazardous material. Proposed project modifications would not involve the storage of hazardous materials on site. Standard IRWD construction measures would still be exercised to prevent the spillage or release of chemicals, petroleum, and other products during construction of the project modifications. All process equipment and chemical storage would be compliant with the most recent California Building Code, would be sized based on the chlorine demand and residual, and would be compatible for use with their respective chemicals. The chemical storage tanks would be located in their own respective secondary containment area on opposite ends of the proposed buildings. Each chemical system would have its own eye-wash station. The proposed chemical storage building would be constructed in a fire-

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

resistant manner that includes a sloped concrete tile roof, closed eaves, and fire resistant doors in accordance with IRWD standards. The chemical storage tanks at both reservoir sites would be equipped with polyethylene secondary containments (required by the California Fire Code) capable of holding at least 110% of the volume of the largest vessel (sodium hypochlorite tank) to capture any potential spills (IRWD 2015). Therefore, impacts related to hazards and hazardous materials would be less than significant, and no mitigation measures are required.

2.9 Hydrology and Water Quality

Project modifications are not anticipated to substantially alter the existing drainage pattern of either site in a manner that would result in substantial erosion or siltation on or off site. Project modifications would impact a slightly larger footprint than was analyzed in the MND, because code requirements necessitated change in the size of the chemical storage buildings. However, the increase in area would be minor, and would not be substantial enough to alter existing draining patterns. As discussed in the MND, an erosion control plan would include provisions to apply hydroseed of a type that is acceptable to regulatory agencies on all disturbed soil not otherwise scheduled for paving. Following the initial 30-day maintenance period for the contractor, IRWD will be responsible for irrigation and maintenance. Impacts related to hydrology and water quality would be less than significant, and no mitigation measures are required.

2.10 Land Use and Planning

The Foothill Zone 6 and Portola Zone 8 Reservoir sites are surrounded by areas zoned for residential and single-family residential (City of Lake Forest 1991), and IRWD has permanent easements to access the reservoirs. As discussed in the MND, IRWD does not have jurisdictional authority over land use decisions, but it is mandated to provide feasible domestic water, recycled water, and sewer services within its service area. Project modifications would not require land use modifications, and would not divide an established community. Project modifications would not conflict with the General Plan or zoning; therefore, impacts associated with land use and planning would be less than significant, and no mitigation measures are required.

2.11 Minerals

Proposed project modifications would occur in the same sites that were previously analyzed in the MND. The Foothill Zone 6 and Portola Zone 8 Reservoir sites have been previously disturbed by construction of the reservoirs, access roads, slopes, drainage improvements, and other work. Project modifications would not require the substantial use of mineral resources, nor

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

would it affect the availability of any known mineral resource. Impacts related to mineral resources would be less than significant, and no mitigation measures are required.

2.12 Noise

The proposed modifications would occur within a slightly modified construction schedule and parameters than outlined and analyzed in the MND. The installation of chlorine analyzers and reservoir mixer/sampling improvements were anticipated to require 2 weeks of construction per site in the MND; project modifications would require 24 weeks of construction per site. Each phase of construction for the modifications would require use of two to three pieces of equipment. The MND assumed the overlap of nine pieces of equipment over the entire construction period. Refer to Section 2.3, Air Quality, Table 1, for a comparison of the construction assumptions between the MND and the proposed project modifications. Proposed project modifications would involve construction over a longer time period than was previously analyzed; however, construction activities would be of a lesser intensity than was analyzed in the MND.

Construction noise is exempt from compliance with any numerical performance standards if activities are confined to daytime hours, weekdays, and hours of least sensitivity. Construction activity noise is specifically exempt from the numerical ordinance standards as long as it occurs between 7 a.m. and 8 p.m. on Monday through Saturday, as outlined in the Lake Forest Municipal Code (City of Lake Forest 2007). Because project modifications are anticipated to involve construction activities that are of a lesser intensity than was previously analyzed, and because construction would be limited to the hours outlined above, potential noise impacts would be less than significant, and no mitigation measures are required.

2.13 Population and Housing

Project modifications would entail construction of RMS facilities at existing reservoir sites. The project would not include new homes or businesses, or otherwise generate population growth. Therefore, potential impacts related to population and housing would be less than significant, and no mitigation measures are required.

2.14 Public Services

Project modifications would not require additional fire services or police protection; would not result in impacts to schools, libraries, or other public facilities; and would not require construction or expansion of recreational facilities. During construction, ingress and egress to public and private facilities may be temporarily affected. Project modifications would occur within a slightly revised construction schedule than analyzed in the MND; however, extending

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

the construction period would still result in a temporary rather than permanent impact to the access of public services. Therefore, impacts related to public services would be less than significant, and no mitigation measures are required.

2.15 Recreation

Project modifications would not generate an increase in population; therefore, an increase in the local neighborhood and regional park use would not occur. Therefore, impacts related to recreation would be less than significant, and no mitigation measures are required.

2.16 Transportation and Circulation

There would be no change in the temporary lane or road closures during construction activities related to the proposed modifications. There would be no increase in daily traffic during construction activities related to the project modifications from construction trucks and vehicles associated with construction worker commutes, considering less equipment would be used on a daily basis than was previously analyzed. Traffic during operation of the project modifications would be similar to the traffic that occurs during normal work hours. Therefore, impacts related to transportation and circulation would remain less than significant, and no mitigation measures are required.

2.17 Utilities and Service Systems

Project modifications would not result in the expansion of existing facilities. Therefore, impacts related to utilities and service systems would remain less than significant, and no mitigation measures are required.

Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

3 DETERMINATION

Based on the information and analysis in this addendum, and pursuant to Section 15162 of the CEQA Guidelines, IRWD determined the following:

- There are no substantial changes to the project that would require major revisions to the MND due to new, significant environmental effects or a substantial increase in the severity of impacts identified in the MND.
- Substantial changes have not occurred in the circumstances under which the project is being undertaken that would require major revisions to the MND to disclose new, significant environmental effects or a substantial increase in the severity of the impacts identified in the MND.
- There is no new information of substantial importance not known at the time the MND was certified that shows that the project would have any new significant effects not discussed in the certified MND or any substantial increase in the severity of the impacts identified in the MND. In addition, no mitigation measures or alternatives previously found not feasible, or that are considerably different from those analyzed in the MND, would substantially reduce one or more significant effects.

**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

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Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

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**Addendum No. 1 to the Reservoir Management System (RMS)
and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic
Water Reservoirs Final Initial Study/ Mitigated Negative Declaration**

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Addendum No. 1 to the Reservoir Management System (RMS) and Chlorine Analyzers and Reservoir Mixers/Samplers at Domestic Water Reservoirs Final Initial Study/ Mitigated Negative Declaration

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APPENDIX A
Air Quality Modeling Runs

Zone 6 Construction Emissions Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.80	1000sqft	0.04	1,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	5.00	11.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

tbITripsAndVMT	WorkerTripNumber	1.00	12.00
tbITripsAndVMT	WorkerTripNumber	8.00	12.00

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					
2015	1.1447	9.0327	7.2295	0.0120	0.4457	0.6643	1.1100	0.0855	0.6422	0.7277	0.0000	1,158.6978	1,158.6978	0.2360	0.0000	1,163.6542
Total	1.1447	9.0327	7.2295	0.0120	0.4457	0.6643	1.1100	0.0855	0.6422	0.7277	0.0000	1,158.6978	1,158.6978	0.2360	0.0000	1,163.6542

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	1.1447	9.0327	7.2295	0.0120	0.2694	0.6643	0.9337	0.0588	0.6422	0.7010	0.0000	1,158.6978	1,158.6978	0.2360	0.0000	1,163.6542
Total	1.1447	9.0327	7.2295	0.0120	0.2694	0.6643	0.9337	0.0588	0.6422	0.7010	0.0000	1,158.6978	1,158.6978	0.2360	0.0000	1,163.6542

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Percent Reduction	0.00	0.00	0.00	0.00	39.54	0.00	15.88	31.20	0.00	3.67	0.00	0.00	0.00	0.00	0.00	0.00
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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Trenching	Trenching	6/13/2015	7/14/2015	5	22	
3	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
4	Paving	Paving	11/14/2015	11/30/2015	5	11	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	13.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	0.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2889	0.0000	0.2889	0.0437	0.0000	0.0437			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351		920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.2889	0.6566	0.9455	0.0437	0.6351	0.6788		920.1533	920.1533	0.1614		923.5424

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	0.0262	0.4059	0.2762	9.6000e-004	0.0226	6.7300e-003	0.0294	6.2000e-003	6.1900e-003	0.0124		97.4453	97.4453	7.6000e-004		97.4613
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0720	0.4653	1.0005	2.5900e-003	0.1568	7.7000e-003	0.1645	0.0418	7.0900e-003	0.0489		238.5444	238.5444	7.6900e-003		238.7060

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					0.1127	0.0000	0.1127	0.0171	0.0000	0.0171			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351	0.0000	920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.1127	0.6566	0.7693	0.0171	0.6351	0.6522	0.0000	920.1533	920.1533	0.1614		923.5424

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	0.0262	0.4059	0.2762	9.6000e-004	0.0226	6.7300e-003	0.0294	6.2000e-003	6.1900e-003	0.0124		97.4453	97.4453	7.6000e-004		97.4613
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0720	0.4653	1.0005	2.5900e-003	0.1568	7.7000e-003	0.1645	0.0418	7.0900e-003	0.0489		238.5444	238.5444	7.6900e-003		238.7060

3.3 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852		561.9542	561.9542	0.1678		565.4773
Total	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852		561.9542	561.9542	0.1678		565.4773

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

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	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852	0.0000	561.9542	561.9542	0.1678		565.4773
Total	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852	0.0000	561.9542	561.9542	0.1678		565.4773

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387

Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387
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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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8785	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820		799.5935	799.5935	0.2289		804.3998
Paving	9.5300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8880	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820		799.5935	799.5935	0.2289		804.3998

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

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	0.8785	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820	0.0000	799.5935	799.5935	0.2289		804.3998
Paving	9.5300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8880	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820	0.0000	799.5935	799.5935	0.2289		804.3998

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

Zone 6 Construction Emissions

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.80	1000sqft	0.04	1,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	5.00	11.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

tbITripsAndVMT	WorkerTripNumber	1.00	12.00
tbITripsAndVMT	WorkerTripNumber	8.00	12.00

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					
2015	1.1490	9.0426	7.2281	0.0119	0.4457	0.6643	1.1100	0.0855	0.6422	0.7277	0.0000	1,151.0034	1,151.0034	0.2360	0.0000	1,155.9599
Total	1.1490	9.0426	7.2281	0.0119	0.4457	0.6643	1.1100	0.0855	0.6422	0.7277	0.0000	1,151.0034	1,151.0034	0.2360	0.0000	1,155.9599

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	1.1490	9.0426	7.2281	0.0119	0.2694	0.6643	0.9338	0.0588	0.6422	0.7010	0.0000	1,151.0034	1,151.0034	0.2360	0.0000	1,155.9599
Total	1.1490	9.0426	7.2281	0.0119	0.2694	0.6643	0.9338	0.0588	0.6422	0.7010	0.0000	1,151.0034	1,151.0034	0.2360	0.0000	1,155.9599

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Percent Reduction	0.00	0.00	0.00	0.00	39.54	0.00	15.88	31.20	0.00	3.67	0.00	0.00	0.00	0.00	0.00	0.00
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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Trenching	Trenching	6/13/2015	7/14/2015	5	22	
3	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
4	Paving	Paving	11/14/2015	11/30/2015	5	11	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	13.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	0.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2889	0.0000	0.2889	0.0437	0.0000	0.0437			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351		920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.2889	0.6566	0.9455	0.0437	0.6351	0.6788		920.1533	920.1533	0.1614		923.5424

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	0.0281	0.4198	0.3150	9.6000e-004	0.0226	6.7500e-003	0.0294	6.2000e-003	6.2100e-003	0.0124		97.2137	97.2137	7.7000e-004		97.2299
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0763	0.4852	0.9991	2.5000e-003	0.1568	7.7200e-003	0.1645	0.0418	7.1100e-003	0.0489		230.8501	230.8501	7.7000e-003		231.0118

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					0.1127	0.0000	0.1127	0.0171	0.0000	0.0171			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351	0.0000	920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.1127	0.6566	0.7693	0.0171	0.6351	0.6522	0.0000	920.1533	920.1533	0.1614		923.5424

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	0.0281	0.4198	0.3150	9.6000e-004	0.0226	6.7500e-003	0.0294	6.2000e-003	6.2100e-003	0.0124		97.2137	97.2137	7.7000e-004		97.2299
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0763	0.4852	0.9991	2.5000e-003	0.1568	7.7200e-003	0.1645	0.0418	7.1100e-003	0.0489		230.8501	230.8501	7.7000e-003		231.0118

3.3 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852		561.9542	561.9542	0.1678		565.4773
Total	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852		561.9542	561.9542	0.1678		565.4773

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

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	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852	0.0000	561.9542	561.9542	0.1678		565.4773
Total	0.6168	6.3028	3.9815	5.3500e-003		0.4187	0.4187		0.3852	0.3852	0.0000	561.9542	561.9542	0.1678		565.4773

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387

Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387
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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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8785	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820		799.5935	799.5935	0.2289		804.3998
Paving	9.5300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8880	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820		799.5935	799.5935	0.2289		804.3998

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

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	0.8785	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820	0.0000	799.5935	799.5935	0.2289		804.3998
Paving	9.5300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8880	8.8597	5.2353	7.8400e-003		0.5226	0.5226		0.4820	0.4820	0.0000	799.5935	799.5935	0.2289		804.3998

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

Zone 6 Construction Emissions Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.80	1000sqft	0.04	1,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	5.00	11.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

tblTripsAndVMT	WorkerTripNumber	1.00	12.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00

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					
2015	0.0666	0.5150	0.3973	6.6000e-004	0.0106	0.0369	0.0474	2.6400e-003	0.0355	0.0382	0.0000	57.0543	57.0543	8.7700e-003	0.0000	57.2384
Total	0.0666	0.5150	0.3973	6.6000e-004	0.0106	0.0369	0.0474	2.6400e-003	0.0355	0.0382	0.0000	57.0543	57.0543	8.7700e-003	0.0000	57.2384

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0666	0.5150	0.3973	6.6000e-004	9.6800e-003	0.0369	0.0465	2.5100e-003	0.0355	0.0380	0.0000	57.0542	57.0542	8.7700e-003	0.0000	57.2383
Total	0.0666	0.5150	0.3973	6.6000e-004	9.6800e-003	0.0369	0.0465	2.5100e-003	0.0355	0.0380	0.0000	57.0542	57.0542	8.7700e-003	0.0000	57.2383

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Percent Reduction	0.00	0.00	0.00	0.00	8.33	0.00	1.86	4.92	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00
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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Trenching	Trenching	6/13/2015	7/14/2015	5	22	
3	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
4	Paving	Paving	11/14/2015	11/30/2015	5	11	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	13.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	0.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4400e-003	0.0000	1.4400e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3600e-003	0.0421	0.0311	5.0000e-005		3.2800e-003	3.2800e-003		3.1800e-003	3.1800e-003	0.0000	4.1738	4.1738	7.3000e-004	0.0000	4.1891
Total	5.3600e-003	0.0421	0.0311	5.0000e-005	1.4400e-003	3.2800e-003	4.7200e-003	2.2000e-004	3.1800e-003	3.4000e-003	0.0000	4.1738	4.1738	7.3000e-004	0.0000	4.1891

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	1.4000e-004	2.1400e-003	1.5300e-003	0.0000	1.1000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4416	0.4416	0.0000	0.0000	0.4416
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.4000e-004	3.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6153	0.6153	3.0000e-005	0.0000	0.6160
Total	3.7000e-004	2.4800e-003	5.0200e-003	1.0000e-005	7.7000e-004	3.0000e-005	8.1000e-004	2.0000e-004	3.0000e-005	2.4000e-004	0.0000	1.0569	1.0569	3.0000e-005	0.0000	1.0576

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					5.6000e-004	0.0000	5.6000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3600e-003	0.0421	0.0311	5.0000e-005		3.2800e-003	3.2800e-003		3.1800e-003	3.1800e-003	0.0000	4.1737	4.1737	7.3000e-004	0.0000	4.1891
Total	5.3600e-003	0.0421	0.0311	5.0000e-005	5.6000e-004	3.2800e-003	3.8400e-003	9.0000e-005	3.1800e-003	3.2700e-003	0.0000	4.1737	4.1737	7.3000e-004	0.0000	4.1891

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	1.4000e-004	2.1400e-003	1.5300e-003	0.0000	1.1000e-004	3.0000e-005	1.5000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.4416	0.4416	0.0000	0.0000	0.4416
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.4000e-004	3.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6153	0.6153	3.0000e-005	0.0000	0.6160
Total	3.7000e-004	2.4800e-003	5.0200e-003	1.0000e-005	7.7000e-004	3.0000e-005	8.1000e-004	2.0000e-004	3.0000e-005	2.4000e-004	0.0000	1.0569	1.0569	3.0000e-005	0.0000	1.0576

3.3 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7900e-003	0.0693	0.0438	6.0000e-005		4.6100e-003	4.6100e-003		4.2400e-003	4.2400e-003	0.0000	5.6078	5.6078	1.6700e-003	0.0000	5.6429
Total	6.7900e-003	0.0693	0.0438	6.0000e-005		4.6100e-003	4.6100e-003		4.2400e-003	4.2400e-003	0.0000	5.6078	5.6078	1.6700e-003	0.0000	5.6429

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3100e-003	9.4000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2717	0.2717	0.0000	0.0000	0.2718
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551
Total	5.8000e-004	2.0500e-003	8.6200e-003	2.0000e-005	1.5200e-003	3.0000e-005	1.5500e-003	4.0000e-004	3.0000e-005	4.3000e-004	0.0000	1.6254	1.6254	7.0000e-005	0.0000	1.6269

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	6.7900e-003	0.0693	0.0438	6.0000e-005		4.6100e-003	4.6100e-003		4.2400e-003	4.2400e-003	0.0000	5.6078	5.6078	1.6700e-003	0.0000	5.6429
Total	6.7900e-003	0.0693	0.0438	6.0000e-005		4.6100e-003	4.6100e-003		4.2400e-003	4.2400e-003	0.0000	5.6078	5.6078	1.6700e-003	0.0000	5.6429

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3100e-003	9.4000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2717	0.2717	0.0000	0.0000	0.2718
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551
Total	5.8000e-004	2.0500e-003	8.6200e-003	2.0000e-005	1.5200e-003	3.0000e-005	1.5500e-003	4.0000e-004	3.0000e-005	4.3000e-004	0.0000	1.6254	1.6254	7.0000e-005	0.0000	1.6269

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874
Total	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	5.2600e-003	3.7700e-003	1.0000e-005	2.7000e-004	8.0000e-005	3.6000e-004	8.0000e-005	8.0000e-005	1.5000e-004	0.0000	1.0869	1.0869	1.0000e-005	0.0000	1.0871
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9900e-003	2.9500e-003	0.0307	7.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.4146	5.4146	2.8000e-004	0.0000	5.4204
Total	2.3300e-003	8.2100e-003	0.0345	8.0000e-005	6.0700e-003	1.2000e-004	6.2000e-003	1.6200e-003	1.2000e-004	1.7300e-003	0.0000	6.5015	6.5015	2.9000e-004	0.0000	6.5075

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	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874

Total	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874
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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	5.2600e-003	3.7700e-003	1.0000e-005	2.7000e-004	8.0000e-005	3.6000e-004	8.0000e-005	8.0000e-005	1.5000e-004	0.0000	1.0869	1.0869	1.0000e-005	0.0000	1.0871
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9900e-003	2.9500e-003	0.0307	7.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.4146	5.4146	2.8000e-004	0.0000	5.4204
Total	2.3300e-003	8.2100e-003	0.0345	8.0000e-005	6.0700e-003	1.2000e-004	6.2000e-003	1.6200e-003	1.2000e-004	1.7300e-003	0.0000	6.5015	6.5015	2.9000e-004	0.0000	6.5075

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8300e-003	0.0487	0.0288	4.0000e-005		2.8700e-003	2.8700e-003		2.6500e-003	2.6500e-003	0.0000	3.9896	3.9896	1.1400e-003	0.0000	4.0136
Paving	5.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.8800e-003	0.0487	0.0288	4.0000e-005		2.8700e-003	2.8700e-003		2.6500e-003	2.6500e-003	0.0000	3.9896	3.9896	1.1400e-003	0.0000	4.0136

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	4.0000e-005	6.6000e-004	4.7000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1359	0.1359	0.0000	0.0000	0.1359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.7000e-004	3.8400e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6768	0.6768	3.0000e-005	0.0000	0.6776
Total	2.9000e-004	1.0300e-003	4.3100e-003	1.0000e-005	7.5000e-004	2.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.2000e-004	0.0000	0.8127	0.8127	3.0000e-005	0.0000	0.8134

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	4.8300e-003	0.0487	0.0288	4.0000e-005		2.8700e-003	2.8700e-003		2.6500e-003	2.6500e-003	0.0000	3.9896	3.9896	1.1400e-003	0.0000	4.0136
Paving	5.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.8800e-003	0.0487	0.0288	4.0000e-005		2.8700e-003	2.8700e-003		2.6500e-003	2.6500e-003	0.0000	3.9896	3.9896	1.1400e-003	0.0000	4.0136

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	4.0000e-005	6.6000e-004	4.7000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1359	0.1359	0.0000	0.0000	0.1359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.7000e-004	3.8400e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6768	0.6768	3.0000e-005	0.0000	0.6776
Total	2.9000e-004	1.0300e-003	4.3100e-003	1.0000e-005	7.5000e-004	2.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.2000e-004	0.0000	0.8127	0.8127	3.0000e-005	0.0000	0.8134

Zone 8 Construction Emissions Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	3.58	1000sqft	0.08	3,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - Other Construction Equipment = Water Truck, HP and Load Factor from OFFROAD2007

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	22.00
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	PhaseEndDate	12/15/2015	11/13/2015
tblConstructionPhase	PhaseStartDate	8/14/2015	7/15/2015
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	MaterialExported	0.00	110.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

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					
2015	1.7787	14.5117	11.1837	0.0182	0.5485	1.0155	1.3026	0.1022	0.9674	1.0438	0.0000	1,755.8393	1,755.8393	0.3026	0.0000	1,762.1944
Total	1.7787	14.5117	11.1837	0.0182	0.5485	1.0155	1.3026	0.1022	0.9674	1.0438	0.0000	1,755.8393	1,755.8393	0.3026	0.0000	1,762.1944

Mitigated Construction

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

2015	1.7787	14.5117	11.1837	0.0182	0.3149	1.0155	1.3026	0.0764	0.9674	1.0438	0.0000	1,755.8393	1,755.8393	0.3026	0.0000	1,762.1944
Total	1.7787	14.5117	11.1837	0.0182	0.3149	1.0155	1.3026	0.0764	0.9674	1.0438	0.0000	1,755.8393	1,755.8393	0.3026	0.0000	1,762.1944

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	42.60	0.00	0.00	25.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Grading	Grading	6/13/2015	7/14/2015	5	22	
3	Trenching	Trenching	7/15/2015	8/13/2015	5	22	
4	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
5	Paving	Paving	11/14/2015	11/30/2015	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.1

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Other Construction Equipment	1	6.00	175	0.20
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	12.00	0.00	14.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	1.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3830	0.0000	0.3830	0.0580	0.0000	0.0580			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351		920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.3830	0.6566	1.0396	0.0580	0.6351	0.6931		920.1533	920.1533	0.1614		923.5424

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	0.0363	0.5620	0.3824	1.3300e-003	0.0314	9.3200e-003	0.0407	8.5800e-003	8.5700e-003	0.0172		134.9243	134.9243	1.0500e-003		134.9464
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0821	0.6214	1.1067	2.9600e-003	0.1655	0.0103	0.1758	0.0442	9.4700e-003	0.0536		276.0234	276.0234	7.9800e-003		276.1911

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					0.1494	0.0000	0.1494	0.0226	0.0000	0.0226			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351	0.0000	920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.1494	0.6566	0.8060	0.0226	0.6351	0.6577	0.0000	920.1533	920.1533	0.1614		923.5424

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	0.0363	0.5620	0.3824	1.3300e-003	0.0314	9.3200e-003	0.0407	8.5800e-003	8.5700e-003	0.0172		134.9243	134.9243	1.0500e-003		134.9464
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0821	0.6214	1.1067	2.9600e-003	0.1655	0.0103	0.1758	0.0442	9.4700e-003	0.0536		276.0234	276.0234	7.9800e-003		276.1911

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3900e-003	0.0000	5.3900e-003	6.1000e-004	0.0000	6.1000e-004			0.0000			0.0000
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862		563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003	5.3900e-003	0.4198	0.4252	6.1000e-004	0.3862	0.3868		563.2818	563.2818	0.1682		566.8133

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	0.0129	0.1987	0.1352	4.7000e-004	0.0111	3.2900e-003	0.0144	3.0300e-003	3.0300e-003	6.0700e-003		47.7005	47.7005	3.7000e-004		47.7083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0586	0.2581	0.8595	2.1000e-003	0.1452	4.2600e-003	0.1495	0.0386	3.9300e-003	0.0425		188.7996	188.7996	7.3000e-003		188.9530

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1000e-003	0.0000	2.1000e-003	2.4000e-004	0.0000	2.4000e-004			0.0000			0.0000
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003	2.1000e-003	0.4198	0.4219	2.4000e-004	0.3862	0.3864	0.0000	563.2818	563.2818	0.1682		566.8133

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
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Category	lb/day										lb/day					
Hauling	0.0129	0.1987	0.1352	4.7000e-004	0.0111	3.2900e-003	0.0144	3.0300e-003	3.0300e-003	6.0700e-003		47.7005	47.7005	3.7000e-004		47.7083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0586	0.2581	0.8595	2.1000e-003	0.1452	4.2600e-003	0.1495	0.0386	3.9300e-003	0.0425		188.7996	188.7996	7.3000e-003		188.9530

3.4 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862			563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862			563.2818	563.2818	0.1682		566.8133

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003			27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365			141.0991	141.0991	6.9300e-003		141.2447

Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066
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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	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	9.6200e-003	0.0979	0.1090	2.2000e-004	6.2500e-003	1.6500e-003	7.9000e-003	1.7800e-003	1.5200e-003	3.3000e-003		21.9257	21.9257	1.7000e-004		21.9292
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0627	0.2709	0.9105	2.1200e-003	0.1467	4.5000e-003	0.1512	0.0391	4.1500e-003	0.0432		190.2822	190.2822	7.3100e-003		190.4358

Mitigated Construction On-Site

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

Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	9.6200e-003	0.0979	0.1090	2.2000e-004	6.2500e-003	1.6500e-003	7.9000e-003	1.7800e-003	1.5200e-003	3.3000e-003		21.9257	21.9257	1.7000e-004		21.9292
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0627	0.2709	0.9105	2.1200e-003	0.1467	4.5000e-003	0.1512	0.0391	4.1500e-003	0.0432		190.2822	190.2822	7.3100e-003		190.4358

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8195	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668		749.0770	749.0770	0.2236		753.7733
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8386	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668		749.0770	749.0770	0.2236		753.7733

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	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

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	0.8195	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668	0.0000	749.0770	749.0770	0.2236		753.7733
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8386	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668	0.0000	749.0770	749.0770	0.2236		753.7733

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
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Category	lb/day										lb/day					
Hauling	7.3400e-003	0.1135	0.0773	2.7000e-004	6.3300e-003	1.8800e-003	8.2200e-003	1.7300e-003	1.7300e-003	3.4700e-003		27.2574	27.2574	2.1000e-004		27.2619
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0595	0.7243	1.6300e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		141.0991	141.0991	6.9300e-003		141.2447
Total	0.0531	0.1730	0.8016	1.9000e-003	0.1405	2.8500e-003	0.1433	0.0373	2.6300e-003	0.0399		168.3565	168.3565	7.1400e-003		168.5066

Zone 8 Construction Emissions Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	3.58	1000sqft	0.08	3,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - Other Construction Equipment = Water Truck, HP and Load Factor from OFFROAD2007

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	22.00
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	PhaseEndDate	12/15/2015	11/13/2015
tblConstructionPhase	PhaseStartDate	8/14/2015	7/15/2015
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	MaterialExported	0.00	110.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

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					
2015	1.7858	14.5337	11.1462	0.0180	0.5485	1.0155	1.3027	0.1022	0.9674	1.0438	0.0000	1,740.6003	1,740.6003	0.3026	0.0000	1,746.9555
Total	1.7858	14.5337	11.1462	0.0180	0.5485	1.0155	1.3027	0.1022	0.9674	1.0438	0.0000	1,740.6003	1,740.6003	0.3026	0.0000	1,746.9555

Mitigated Construction

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

2015	1.7858	14.5337	11.1462	0.0180	0.3149	1.0155	1.3027	0.0764	0.9674	1.0438	0.0000	1,740.6003	1,740.6003	0.3026	0.0000	1,746.9555
Total	1.7858	14.5337	11.1462	0.0180	0.3149	1.0155	1.3027	0.0764	0.9674	1.0438	0.0000	1,740.6003	1,740.6003	0.3026	0.0000	1,746.9555

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	42.60	0.00	0.00	25.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Grading	Grading	6/13/2015	7/14/2015	5	22	
3	Trenching	Trenching	7/15/2015	8/13/2015	5	22	
4	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
5	Paving	Paving	11/14/2015	11/30/2015	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.1

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Other Construction Equipment	1	6.00	175	0.20
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	12.00	0.00	14.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	1.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3830	0.0000	0.3830	0.0580	0.0000	0.0580			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351		920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.3830	0.6566	1.0396	0.0580	0.6351	0.6931		920.1533	920.1533	0.1614		923.5424

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	0.0389	0.5813	0.4361	1.3200e-003	0.0314	9.3500e-003	0.0407	8.5800e-003	8.6000e-003	0.0172		134.6036	134.6036	1.0700e-003		134.6260
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0871	0.6467	1.1203	2.8600e-003	0.1655	0.0103	0.1758	0.0442	9.5000e-003	0.0537		268.2400	268.2400	8.0000e-003		268.4079

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					0.1494	0.0000	0.1494	0.0226	0.0000	0.0226			0.0000			0.0000
Off-Road	1.0727	8.4265	6.2290	9.3700e-003		0.6566	0.6566		0.6351	0.6351	0.0000	920.1533	920.1533	0.1614		923.5424
Total	1.0727	8.4265	6.2290	9.3700e-003	0.1494	0.6566	0.8060	0.0226	0.6351	0.6577	0.0000	920.1533	920.1533	0.1614		923.5424

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	0.0389	0.5813	0.4361	1.3200e-003	0.0314	9.3500e-003	0.0407	8.5800e-003	8.6000e-003	0.0172		134.6036	134.6036	1.0700e-003		134.6260
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0871	0.6467	1.1203	2.8600e-003	0.1655	0.0103	0.1758	0.0442	9.5000e-003	0.0537		268.2400	268.2400	8.0000e-003		268.4079

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3900e-003	0.0000	5.3900e-003	6.1000e-004	0.0000	6.1000e-004			0.0000			0.0000
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862		563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003	5.3900e-003	0.4198	0.4252	6.1000e-004	0.3862	0.3868		563.2818	563.2818	0.1682		566.8133

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	0.0137	0.2055	0.1542	4.7000e-004	0.0111	3.3100e-003	0.0144	3.0300e-003	3.0400e-003	6.0800e-003		47.5871	47.5871	3.8000e-004		47.5951
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0620	0.2709	0.8384	2.0100e-003	0.1452	4.2800e-003	0.1495	0.0386	3.9400e-003	0.0426		181.2235	181.2235	7.3100e-003		181.3770

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1000e-003	0.0000	2.1000e-003	2.4000e-004	0.0000	2.4000e-004			0.0000			0.0000
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003	2.1000e-003	0.4198	0.4219	2.4000e-004	0.3862	0.3864	0.0000	563.2818	563.2818	0.1682		566.8133

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
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Category	lb/day										lb/day					
Hauling	0.0137	0.2055	0.1542	4.7000e-004	0.0111	3.3100e-003	0.0144	3.0300e-003	3.0400e-003	6.0800e-003		47.5871	47.5871	3.8000e-004		47.5951
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0620	0.2709	0.8384	2.0100e-003	0.1452	4.2800e-003	0.1495	0.0386	3.9400e-003	0.0426		181.2235	181.2235	7.3100e-003		181.3770

3.4 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862		563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862		563.2818	563.2818	0.1682		566.8133

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820

Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791
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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	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133
Total	0.6183	6.3167	3.9913	5.3600e-003		0.4198	0.4198		0.3862	0.3862	0.0000	563.2818	563.2818	0.1682		566.8133

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744		833.9188	833.9188	0.1200		836.4387

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0107	0.1003	0.1300	2.2000e-004	6.2500e-003	1.6700e-003	7.9200e-003	1.7800e-003	1.5400e-003	3.3100e-003		21.7416	21.7416	1.7000e-004		21.7453
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0668	0.2831	0.9023	2.0300e-003	0.1467	4.5300e-003	0.1513	0.0391	4.1800e-003	0.0433		182.5707	182.5707	7.3200e-003		182.7244

Mitigated Construction On-Site

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

Off-Road	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387
Total	1.0446	7.7511	5.4803	8.8100e-003		0.5883	0.5883		0.5744	0.5744	0.0000	833.9188	833.9188	0.1200		836.4387

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0107	0.1003	0.1300	2.2000e-004	6.2500e-003	1.6700e-003	7.9200e-003	1.7800e-003	1.5400e-003	3.3100e-003		21.7416	21.7416	1.7000e-004		21.7453
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0668	0.2831	0.9023	2.0300e-003	0.1467	4.5300e-003	0.1513	0.0391	4.1800e-003	0.0433		182.5707	182.5707	7.3200e-003		182.7244

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8195	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668		749.0770	749.0770	0.2236		753.7733
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8386	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668		749.0770	749.0770	0.2236		753.7733

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	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004		27.1972
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

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	0.8195	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668	0.0000	749.0770	749.0770	0.2236		753.7733
Paving	0.0191					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8386	8.4893	4.9269	7.1300e-003		0.5074	0.5074		0.4668	0.4668	0.0000	749.0770	749.0770	0.2236		753.7733

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
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Category	lb/day										lb/day					
	Hauling	7.8500e-003	0.1174	0.0881	2.7000e-004	6.3300e-003	1.8900e-003	8.2200e-003	1.7300e-003	1.7400e-003	3.4700e-003		27.1927	27.1927	2.2000e-004	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0483	0.0654	0.6842	1.5400e-003	0.1341	9.7000e-004	0.1351	0.0356	9.0000e-004	0.0365		133.6364	133.6364	6.9300e-003		133.7820
Total	0.0561	0.1828	0.7723	1.8100e-003	0.1405	2.8600e-003	0.1433	0.0373	2.6400e-003	0.0399		160.8290	160.8290	7.1500e-003		160.9791

Zone 8 Construction Emissions Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	3.58	1000sqft	0.08	3,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	630.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - modified

Off-road Equipment - Other Construction Equipment = Water Truck, HP and Load Factor from OFFROAD2007

Off-road Equipment - modified

Off-road Equipment - modified

Trips and VMT - modified

Demolition -

Grading - modified

Architectural Coating - modified

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	22.00
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	PhaseEndDate	12/15/2015	11/13/2015
tblConstructionPhase	PhaseStartDate	8/14/2015	7/15/2015
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	MaterialExported	0.00	110.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	HorsePower	171.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	LoadFactor	0.42	0.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	HaulingTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	5.00	12.00

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					
2015	0.0743	0.5910	0.4550	7.5000e-004	0.0130	0.0415	0.0545	3.2300e-003	0.0398	0.0431	0.0000	65.3076	65.3076	0.0105	0.0000	65.5281
Total	0.0743	0.5910	0.4550	7.5000e-004	0.0130	0.0415	0.0545	3.2300e-003	0.0398	0.0431	0.0000	65.3076	65.3076	0.0105	0.0000	65.5281

Mitigated Construction

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

2015	0.0743	0.5910	0.4550	7.5000e-004	0.0118	0.0415	0.0533	3.0500e-003	0.0398	0.0429	0.0000	65.3075	65.3075	0.0105	0.0000	65.5281
Total	0.0743	0.5910	0.4550	7.5000e-004	0.0118	0.0415	0.0533	3.0500e-003	0.0398	0.0429	0.0000	65.3075	65.3075	0.0105	0.0000	65.5281

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	9.25	0.00	2.20	5.57	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2015	6/12/2015	5	10	
2	Grading	Grading	6/13/2015	7/14/2015	5	22	
3	Trenching	Trenching	7/15/2015	8/13/2015	5	22	
4	Building Construction	Building Construction	7/15/2015	11/13/2015	5	88	
5	Paving	Paving	11/14/2015	11/30/2015	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.1

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Other Construction Equipment	1	6.00	175	0.20
Grading	Rubber Tired Dozers	0	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Other Construction Equipment	1	6.00	175	0.20
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	0	4.00	226	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Pumps	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	7.00	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
Demolition	2	12.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	2	12.00	0.00	14.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	12.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	12.00	1.00	32.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	2	12.00	0.00	4.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9200e-003	0.0000	1.9200e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3600e-003	0.0421	0.0311	5.0000e-005		3.2800e-003	3.2800e-003		3.1800e-003	3.1800e-003	0.0000	4.1738	4.1738	7.3000e-004	0.0000	4.1891
Total	5.3600e-003	0.0421	0.0311	5.0000e-005	1.9200e-003	3.2800e-003	5.2000e-003	2.9000e-004	3.1800e-003	3.4700e-003	0.0000	4.1738	4.1738	7.3000e-004	0.0000	4.1891

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	1.9000e-004	2.9600e-003	2.1200e-003	1.0000e-005	1.5000e-004	5.0000e-005	2.0000e-004	4.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6114	0.6114	0.0000	0.0000	0.6115
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.4000e-004	3.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6153	0.6153	3.0000e-005	0.0000	0.6160
Total	4.2000e-004	3.3000e-003	5.6100e-003	2.0000e-005	8.1000e-004	5.0000e-005	8.6000e-004	2.1000e-004	4.0000e-005	2.7000e-004	0.0000	1.2267	1.2267	3.0000e-005	0.0000	1.2275

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					7.5000e-004	0.0000	7.5000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3600e-003	0.0421	0.0311	5.0000e-005		3.2800e-003	3.2800e-003		3.1800e-003	3.1800e-003	0.0000	4.1737	4.1737	7.3000e-004	0.0000	4.1891
Total	5.3600e-003	0.0421	0.0311	5.0000e-005	7.5000e-004	3.2800e-003	4.0300e-003	1.1000e-004	3.1800e-003	3.2900e-003	0.0000	4.1737	4.1737	7.3000e-004	0.0000	4.1891

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	1.9000e-004	2.9600e-003	2.1200e-003	1.0000e-005	1.5000e-004	5.0000e-005	2.0000e-004	4.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6114	0.6114	0.0000	0.0000	0.6115
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	3.4000e-004	3.4900e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.6153	0.6153	3.0000e-005	0.0000	0.6160
Total	4.2000e-004	3.3000e-003	5.6100e-003	2.0000e-005	8.1000e-004	5.0000e-005	8.6000e-004	2.1000e-004	4.0000e-005	2.7000e-004	0.0000	1.2267	1.2267	3.0000e-005	0.0000	1.2275

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6563
Total	6.8000e-003	0.0695	0.0439	6.0000e-005	6.0000e-005	4.6200e-003	4.6800e-003	1.0000e-005	4.2500e-003	4.2600e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6563

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	1.5000e-004	2.3000e-003	1.6500e-003	1.0000e-005	1.2000e-004	4.0000e-005	1.6000e-004	3.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.4755	0.4755	0.0000	0.0000	0.4756
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551
Total	6.5000e-004	3.0400e-003	9.3300e-003	3.0000e-005	1.5700e-003	5.0000e-005	1.6200e-003	4.1000e-004	4.0000e-005	4.6000e-004	0.0000	1.8292	1.8292	7.0000e-005	0.0000	1.8307

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6562
Total	6.8000e-003	0.0695	0.0439	6.0000e-005	2.0000e-005	4.6200e-003	4.6400e-003	0.0000	4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6562

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
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Category	tons/yr										MT/yr					
	Hauling	1.5000e-004	2.3000e-003	1.6500e-003	1.0000e-005	1.2000e-004	4.0000e-005	1.6000e-004	3.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.4755	0.4755	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551
Total	6.5000e-004	3.0400e-003	9.3300e-003	3.0000e-005	1.5700e-003	5.0000e-005	1.6200e-003	4.1000e-004	4.0000e-005	4.6000e-004	0.0000	1.8292	1.8292	7.0000e-005	0.0000	1.8307

3.4 Trenching - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6563
Total	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6563

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3100e-003	9.4000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2717	0.2717	0.0000	0.0000	0.2718
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551

Total	5.8000e-004	2.0500e-003	8.6200e-003	2.0000e-005	1.5200e-003	3.0000e-005	1.5500e-003	4.0000e-004	3.0000e-005	4.3000e-004	0.0000	1.6254	1.6254	7.0000e-005	0.0000	1.6269
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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	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6562
Total	6.8000e-003	0.0695	0.0439	6.0000e-005		4.6200e-003	4.6200e-003		4.2500e-003	4.2500e-003	0.0000	5.6210	5.6210	1.6800e-003	0.0000	5.6562

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.3100e-003	9.4000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2717	0.2717	0.0000	0.0000	0.2718
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	7.4000e-004	7.6800e-003	2.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3536	1.3536	7.0000e-005	0.0000	1.3551
Total	5.8000e-004	2.0500e-003	8.6200e-003	2.0000e-005	1.5200e-003	3.0000e-005	1.5500e-003	4.0000e-004	3.0000e-005	4.3000e-004	0.0000	1.6254	1.6254	7.0000e-005	0.0000	1.6269

3.5 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874
Total	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	5.2600e-003	3.7700e-003	1.0000e-005	2.7000e-004	8.0000e-005	3.6000e-004	8.0000e-005	8.0000e-005	1.5000e-004	0.0000	1.0869	1.0869	1.0000e-005	0.0000	1.0871
Vendor	4.5000e-004	4.5000e-003	5.5000e-003	1.0000e-005	2.7000e-004	7.0000e-005	3.4000e-004	8.0000e-005	7.0000e-005	1.4000e-004	0.0000	0.8721	0.8721	1.0000e-005	0.0000	0.8723
Worker	1.9900e-003	2.9500e-003	0.0307	7.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.4146	5.4146	2.8000e-004	0.0000	5.4204
Total	2.7800e-003	0.0127	0.0400	9.0000e-005	6.3400e-003	1.9000e-004	6.5400e-003	1.7000e-003	1.9000e-004	1.8700e-003	0.0000	7.3736	7.3736	3.0000e-004	0.0000	7.3797

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	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874
Total	0.0460	0.3411	0.2411	3.9000e-004		0.0259	0.0259		0.0253	0.0253	0.0000	33.2868	33.2868	4.7900e-003	0.0000	33.3874

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	5.2600e-003	3.7700e-003	1.0000e-005	2.7000e-004	8.0000e-005	3.6000e-004	8.0000e-005	8.0000e-005	1.5000e-004	0.0000	1.0869	1.0869	1.0000e-005	0.0000	1.0871
Vendor	4.5000e-004	4.5000e-003	5.5000e-003	1.0000e-005	2.7000e-004	7.0000e-005	3.4000e-004	8.0000e-005	7.0000e-005	1.4000e-004	0.0000	0.8721	0.8721	1.0000e-005	0.0000	0.8723
Worker	1.9900e-003	2.9500e-003	0.0307	7.0000e-005	5.8000e-003	4.0000e-005	5.8400e-003	1.5400e-003	4.0000e-005	1.5800e-003	0.0000	5.4146	5.4146	2.8000e-004	0.0000	5.4204
Total	2.7800e-003	0.0127	0.0400	9.0000e-005	6.3400e-003	1.9000e-004	6.5400e-003	1.7000e-003	1.9000e-004	1.8700e-003	0.0000	7.3736	7.3736	3.0000e-004	0.0000	7.3797

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5100e-003	0.0467	0.0271	4.0000e-005		2.7900e-003	2.7900e-003		2.5700e-003	2.5700e-003	0.0000	3.7375	3.7375	1.1200e-003	0.0000	3.7610
Paving	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.6100e-003	0.0467	0.0271	4.0000e-005		2.7900e-003	2.7900e-003		2.5700e-003	2.5700e-003	0.0000	3.7375	3.7375	1.1200e-003	0.0000	3.7610

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	4.0000e-005	6.6000e-004	4.7000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1359	0.1359	0.0000	0.0000	0.1359
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.7000e-004	3.8400e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6768	0.6768	3.0000e-005	0.0000	0.6776
Total	2.9000e-004	1.0300e-003	4.3100e-003	1.0000e-005	7.5000e-004	2.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.2000e-004	0.0000	0.8127	0.8127	3.0000e-005	0.0000	0.8134

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	4.5100e-003	0.0467	0.0271	4.0000e-005		2.7900e-003	2.7900e-003		2.5700e-003	2.5700e-003	0.0000	3.7375	3.7375	1.1200e-003	0.0000	3.7610
Paving	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.6100e-003	0.0467	0.0271	4.0000e-005		2.7900e-003	2.7900e-003		2.5700e-003	2.5700e-003	0.0000	3.7375	3.7375	1.1200e-003	0.0000	3.7610

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
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Category	tons/yr										MT/yr					
	Hauling	4.0000e-005	6.6000e-004	4.7000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1359	0.1359	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	3.7000e-004	3.8400e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6768	0.6768	3.0000e-005	0.0000	0.6776
Total	2.9000e-004	1.0300e-003	4.3100e-003	1.0000e-005	7.5000e-004	2.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.2000e-004	0.0000	0.8127	0.8127	3.0000e-005	0.0000	0.8134

IRWD Zone 6 and Zone 8 Operational Emissions Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.91	1000sqft	0.14	5,905.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - Modified

Off-road Equipment - Modified

Trips and VMT - Modified

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	12.00
tblConstructionPhase	NumDays	100.00	26.00
tblConstructionPhase	PhaseEndDate	2/23/2016	2/5/2016
tblConstructionPhase	PhaseStartDate	1/19/2016	1/1/2016

tblLandUse	LandUseSquareFeet	5,910.00	5,905.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	1.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00

2.0 Emissions Summary

2.1 Overall Operation (Maximum Daily Emission)

Unmitigated Operation

	ROG	NOx	CO	SO2	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					
2016	0.0406	0.4308	0.4704	1.0900e-003	0.0304	6.7600e-003	0.0371	8.5900e-003	6.2100e-003	0.0148	0.0000	109.5540	109.5540	7.8000e-004	0.0000	109.5703
Total	0.0406	0.4308	0.4704	1.0900e-003	0.0304	6.7600e-003	0.0371	8.5900e-003	6.2100e-003	0.0148	0.0000	109.5540	109.5540	7.8000e-004	0.0000	109.5703

Mitigated Operation

	ROG	NOx	CO	SO2	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					
2016	0.0406	0.4308	0.4704	1.0900e-003	0.0304	6.7600e-003	0.0371	8.5900e-003	6.2100e-003	0.0148	0.0000	109.5540	109.5540	7.8000e-004	0.0000	109.5703
Total	0.0406	0.4308	0.4704	1.0900e-003	0.0304	6.7600e-003	0.0371	8.5900e-003	6.2100e-003	0.0148	0.0000	109.5540	109.5540	7.8000e-004	0.0000	109.5703

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

3.0 Operation Detail

Operation Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Maintenance Trips	Building Construction	1/1/2016	1/18/2016	5	12	
2	Chemical Delivery Trips	Building Construction	1/1/2016	2/5/2016	5	26	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Chemical Delivery Trips	Cranes	0	4.00	226	0.29

Chemical Delivery Trips	Forklifts	0	6.00	89	0.20
Chemical Delivery Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Maintenance Trips	Cranes	0	4.00	226	0.29
Maintenance Trips	Forklifts	0	6.00	89	0.20
Maintenance Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Chemical Delivery Trips	0	0.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Maintenance Trips	0	0.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Operation

3.2 Maintenance Trips - 2016

Unmitigated Operation 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	0.0000	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

Unmitigated Operation 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	0.0350	0.3460	0.4089	8.7000e-004	0.0250	5.4800e-003	0.0305	7.1200e-003	5.0400e-003	0.0122		86.7436	86.7436	6.2000e-004		86.7565
Worker	0.0000	0.0000	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	0.0350	0.3460	0.4089	8.7000e-004	0.0250	5.4800e-003	0.0305	7.1200e-003	5.0400e-003	0.0122		86.7436	86.7436	6.2000e-004		86.7565

Mitigated Operation 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	0.0000	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 Operation 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	0.0350	0.3460	0.4089	8.7000e-004	0.0250	5.4800e-003	0.0305	7.1200e-003	5.0400e-003	0.0122		86.7436	86.7436	6.2000e-004		86.7565
Worker	0.0000	0.0000	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	0.0350	0.3460	0.4089	8.7000e-004	0.0250	5.4800e-003	0.0305	7.1200e-003	5.0400e-003	0.0122		86.7436	86.7436	6.2000e-004		86.7565

3.3 Chemical Delivery Trips - 2016

Unmitigated Operation 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	0.0000	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

Unmitigated Operation 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	5.6200e-003	0.0848	0.0615	2.3000e-004	5.3600e-003	1.2700e-003	6.6400e-003	1.4700e-003	1.1700e-003	2.6400e-003		22.8105	22.8105	1.6000e-004		22.8139
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	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	5.6200e-003	0.0848	0.0615	2.3000e-004	5.3600e-003	1.2700e-003	6.6400e-003	1.4700e-003	1.1700e-003	2.6400e-003		22.8105	22.8105	1.6000e-004		22.8139

Mitigated Operation 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	0.0000	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 Operation 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	5.6200e-003	0.0848	0.0615	2.3000e-004	5.3600e-003	1.2700e-003	6.6400e-003	1.4700e-003	1.1700e-003	2.6400e-003		22.8105	22.8105	1.6000e-004		22.8139
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	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	5.6200e-003	0.0848	0.0615	2.3000e-004	5.3600e-003	1.2700e-003	6.6400e-003	1.4700e-003	1.1700e-003	2.6400e-003		22.8105	22.8105	1.6000e-004		22.8139

IRWD Zone 6 and Zone 8 Operational Emissions Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.91	1000sqft	0.14	5,905.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - Modified

Off-road Equipment - Modified

Trips and VMT - Modified

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	12.00
tblConstructionPhase	NumDays	100.00	26.00
tblConstructionPhase	PhaseEndDate	2/23/2016	2/5/2016
tblConstructionPhase	PhaseStartDate	1/19/2016	1/1/2016

tblLandUse	LandUseSquareFeet	5,910.00	5,905.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	1.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00

2.0 Emissions Summary

2.1 Overall Operation (Maximum Daily Emission)

Unmitigated Operation

	ROG	NOx	CO	SO2	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					
2016	0.0448	0.4419	0.5620	1.0900e-003	0.0304	6.8200e-003	0.0372	8.5900e-003	6.2700e-003	0.0149	0.0000	108.7682	108.7682	8.0000e-004	0.0000	108.7850
Total	0.0448	0.4419	0.5620	1.0900e-003	0.0304	6.8200e-003	0.0372	8.5900e-003	6.2700e-003	0.0149	0.0000	108.7682	108.7682	8.0000e-004	0.0000	108.7850

Mitigated Operation

	ROG	NOx	CO	SO2	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					
2016	0.0448	0.4419	0.5620	1.0900e-003	0.0304	6.8200e-003	0.0372	8.5900e-003	6.2700e-003	0.0149	0.0000	108.7682	108.7682	8.0000e-004	0.0000	108.7850
Total	0.0448	0.4419	0.5620	1.0900e-003	0.0304	6.8200e-003	0.0372	8.5900e-003	6.2700e-003	0.0149	0.0000	108.7682	108.7682	8.0000e-004	0.0000	108.7850

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

3.0 Operation Detail

Operation Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Maintenance Trips	Building Construction	1/1/2016	1/18/2016	5	12	
2	Chemical Delivery Trips	Building Construction	1/1/2016	2/5/2016	5	26	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Chemical Delivery Trips	Cranes	0	4.00	226	0.29

Chemical Delivery Trips	Forklifts	0	6.00	89	0.20
Chemical Delivery Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Maintenance Trips	Cranes	0	4.00	226	0.29
Maintenance Trips	Forklifts	0	6.00	89	0.20
Maintenance Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Chemical Delivery Trips	0	0.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Maintenance Trips	0	0.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Maintenance Trips - 2016

Unmitigated Operation 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	0.0000	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

Unmitigated Operation 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	0.0388	0.3542	0.4914	8.6000e-004	0.0250	5.5400e-003	0.0305	7.1200e-003	5.0900e-003	0.0122		86.0122	86.0122	6.3000e-004		86.0255
Worker	0.0000	0.0000	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	0.0388	0.3542	0.4914	8.6000e-004	0.0250	5.5400e-003	0.0305	7.1200e-003	5.0900e-003	0.0122		86.0122	86.0122	6.3000e-004		86.0255

Mitigated Operation 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	0.0000	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 Operation 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	0.0388	0.3542	0.4914	8.6000e-004	0.0250	5.5400e-003	0.0305	7.1200e-003	5.0900e-003	0.0122		86.0122	86.0122	6.3000e-004		86.0255
Worker	0.0000	0.0000	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	0.0388	0.3542	0.4914	8.6000e-004	0.0250	5.5400e-003	0.0305	7.1200e-003	5.0900e-003	0.0122		86.0122	86.0122	6.3000e-004		86.0255

3.3 Chemical Delivery Trips - 2016

Unmitigated Operation 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	0.0000	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

Unmitigated Operation 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	6.0100e-003	0.0877	0.0706	2.3000e-004	5.3600e-003	1.2800e-003	6.6400e-003	1.4700e-003	1.1800e-003	2.6400e-003		22.7561	22.7561	1.6000e-004		22.7595
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	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	6.0100e-003	0.0877	0.0706	2.3000e-004	5.3600e-003	1.2800e-003	6.6400e-003	1.4700e-003	1.1800e-003	2.6400e-003		22.7561	22.7561	1.6000e-004		22.7595

Mitigated Operation 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	0.0000	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 Operation 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	6.0100e-003	0.0877	0.0706	2.3000e-004	5.3600e-003	1.2800e-003	6.6400e-003	1.4700e-003	1.1800e-003	2.6400e-003		22.7561	22.7561	1.6000e-004		22.7595
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	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	6.0100e-003	0.0877	0.0706	2.3000e-004	5.3600e-003	1.2800e-003	6.6400e-003	1.4700e-003	1.1800e-003	2.6400e-003		22.7561	22.7561	1.6000e-004		22.7595

IRWD Zone 6 and Zone 8 Operational Emissions Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.91	1000sqft	0.14	5,905.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	30
Climate Zone	8			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	630.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - modified

Off-road Equipment - Modified

Off-road Equipment - Modified

Trips and VMT - Modified

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	12.00
tblConstructionPhase	NumDays	100.00	26.00
tblConstructionPhase	PhaseEndDate	2/23/2016	2/5/2016
tblConstructionPhase	PhaseStartDate	1/19/2016	1/1/2016

tblLandUse	LandUseSquareFeet	5,910.00	5,905.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	1.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00

2.0 Emissions Summary

2.1 Overall Operation

Unmitigated Operation

	ROG	NOx	CO	SO2	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					
2016	3.0000e-004	3.3300e-003	3.7200e-003	1.0000e-005	2.2000e-004	5.0000e-005	2.7000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7393
Total	3.0000e-004	3.3300e-003	3.7200e-003	1.0000e-005	2.2000e-004	5.0000e-005	2.7000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7393

Mitigated Operation

	ROG	NOx	CO	SO2	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					
2016	3.0000e-004	3.3300e-003	3.7200e-003	1.0000e-005	2.2000e-004	5.0000e-005	2.7000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7393
Total	3.0000e-004	3.3300e-003	3.7200e-003	1.0000e-005	2.2000e-004	5.0000e-005	2.7000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7392	0.7392	1.0000e-005	0.0000	0.7393

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

3.0 Operation Detail

Operation Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Maintenance Trips	Building Construction	1/1/2016	1/18/2016	5	12	
2	Chemical Delivery Trips	Building Construction	1/1/2016	2/5/2016	5	26	

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 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Chemical Delivery Trips	Cranes	0	4.00	226	0.29

Chemical Delivery Trips	Forklifts	0	6.00	89	0.20
Chemical Delivery Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Maintenance Trips	Cranes	0	4.00	226	0.29
Maintenance Trips	Forklifts	0	6.00	89	0.20
Maintenance Trips	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Chemical Delivery Trips	0	0.00	0.00	8.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Maintenance Trips	0	0.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Maintenance Trips - 2016

Unmitigated Operation 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	0.0000	0.0000	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

Unmitigated Operation Off-Site

Vendor	2.2000e-004	2.1700e-003	2.8300e-003	1.0000e-005	1.5000e-004	3.0000e-005	1.8000e-004	4.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.4705	0.4705	0.0000	0.0000	0.4706
Worker	0.0000	0.0000	0.0000	0.0000	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	2.2000e-004	2.1700e-003	2.8300e-003	1.0000e-005	1.5000e-004	3.0000e-005	1.8000e-004	4.0000e-005	3.0000e-005	7.0000e-005	0.0000	0.4705	0.4705	0.0000	0.0000	0.4706

3.3 Chemical Delivery Trips - 2016

Unmitigated Operation 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	0.0000	0.0000	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

Unmitigated Operation Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.1600e-003	8.9000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	3.0000e-005	0.0000	0.2687	0.2687	0.0000	0.0000	0.2688
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	8.0000e-005	1.1600e-003	8.9000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	3.0000e-005	0.0000	0.2687	0.2687	0.0000	0.0000	0.2688

Mitigated Operation 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	0.0000	0.0000	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 Operation Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	1.1600e-003	8.9000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	3.0000e-005	0.0000	0.2687	0.2687	0.0000	0.0000	0.2688
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	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	8.0000e-005	1.1600e-003	8.9000e-004	0.0000	7.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	3.0000e-005	0.0000	0.2687	0.2687	0.0000	0.0000	0.2688

