

Technical Memorandum

To: Luke Stowe
Coachella Valley Water District

From: Eliza Laws, Senior Environmental Analyst

Date: January 16, 2015

Re: Air Quality/Greenhouse Gas Analysis for the Eastern Coachella Valley Stormwater Master Plan

The following air quality assessment was prepared to evaluate whether the expected criteria air pollutant emissions generated as a result of construction and operation of the proposed Project would cause exceedances of the South Coast Air Quality Management District's (SCAQMD) thresholds for air resources in the Project area. The greenhouse gas (GHG) assessment was prepared to evaluate whether the expected criteria GHG emissions generated as a result of construction and operation of the proposed Project would exceed the SCAQMD draft screening significance thresholds. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 *et seq.*). The methodology follows the *CEQA Air Quality Handbook* prepared by the SCAQMD for quantification of emissions and evaluation of potential impacts to air resources. As recommended by SCAQMD staff, the **California Emissions Estimator Model**[®] version 2013.2.2 (CalEEMod) was used to quantify Project-related emissions.

The Project proposes the construction and subsequent maintenance of Facilities identified in the Eastern Coachella Valley Stormwater Master Plan (ECV SMP, Project, or Plan). The Plan is a comprehensive conceptual stormwater master plan that identifies conceptual locations, alignments, and sizes for primary drainage Facilities to address the current and future drainage needs of the approximately 207-square mile Plan Area. The ECV SMP is intended to be used as a planning guide for locating and sizing regional stormwater facilities (SMP Facilities) that will be constructed by Coachella Valley Water District (CVWD), City of Coachella, and/or developers over time as development takes place within the area. The ECV SMP proposes the construction of over 100 miles of storm drains and channels, approximately 99 acres of debris basins, 11.25 miles of training levees, and modifications to the existing Coachella Valley Stormwater Channel (CVSC) within the eastern portion of the Coachella Valley in unincorporated Riverside County, California, within the community areas of Mecca, North Shore, Thermal, Oasis, and Vista Santa Rosa, as well as in the City of Coachella.

▪ Regional Significance Thresholds

The thresholds contained in the *SCAQMD CEQA Air Quality Handbook*¹ (SCAQMD 1993) are considered regional thresholds and are shown in **Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds**, below. These regional thresholds were developed based on the SCAQMD's treatment of a major stationary source.

¹ South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993. (Available at SCAQMD.)

Table 1 – SCAQMD CEQA Daily Regional Significance Thresholds

Emission Threshold	Units	VOC	NO _x	CO	SO _x	PM-10	PM-2.5
Construction	lbs/day	75	100	550	150	150	55
Operation ¹	lbs/day	75	100	550	150	150	55

Note: ¹ For the Coachella Valley, the daily thresholds for operation are the same as the construction thresholds.

Air quality impacts can be described in a short- and long-term perspective. Short-term impacts occur during site grading and Project construction and consist of fugitive dust and other particulate matter, as well as exhaust emissions generated by construction-related vehicles. Long-term air quality impacts occur once the Project is in operation. The Project consists of stormwater facilities. Operational emissions would be from the infrequent visits by vehicles driven by maintenance personnel and are considered negligible; therefore, only short-term impacts were evaluated.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, SCAQMD Rule 403.1 requires specific measures for reducing fugitive dust in the Coachella Valley. Compliance with this regulation includes having an approved Fugitive Dust Control Plan for activities disturbing more than 5,000 square feet, maintenance of a daily dust control log on-site, installation of construction project signage with contact information for complaints, and the presence of an environmental observer for construction sites larger than 50 acres. Based on the size of individual SMP Facilities, an environmental observer may be required.

Short-Term Analysis

Short-term emissions from Project construction were evaluated using the CalEEMod version 2013.2.2 program. The ECV SMP will be constructed over a number of decades and the precise construction timing and phasing of all SMP Facilities are unknown; therefore, a representative year of worst-case construction activities was evaluated. The default parameters within CalEEMod were used and these default values reflect a worst-case scenario, which means that Project emissions are expected to be equal to or less than the estimated emissions. In addition to the default values used, assumptions relevant to model inputs for short-term construction emission estimates used are:

- The modeled schedule is shown below for a representative year of construction activities in 2016:

Construction Activity	Start Date	End Date	Total Working Days
Facility Grading & Soil Export	January 1, 2016	August 31, 2016	174 days
Concrete Installation	September 1, 2016	November 30, 2016	65 days
Paving	December 1, 2016	December 31, 2016	22 days

- The equipment to be used for each activity is shown below:

Construction Activity	Off-Road Equipment	Unit Amount
Facility Grading & Soil Export	Excavators	3
	Rubber Tired Loaders	4
	Rubber Tired Dozers	4
	Scrapers	3
	Tractors/Loaders/Backhoes	2
Concrete Installation	Tractors/Loaders/Backhoes	2
Paving	Pavers	2
	Paving Equipment	2
	Rollers	2

- To evaluate Project compliance with SCAQMD Rule 403 for fugitive dust control, the Project utilized the mitigation option of watering the Project site three times daily which achieves a control efficiency of 61 percent for PM-10 and PM-2.5 emissions. Two (2) one-way vendor trips were added to each activity to account for water truck trips.
- Although the amount of exported soil is unknown, this analysis assumed that 120 haul truck trips would occur per day (60 truckloads exported) for SMP Facility construction (including channel excavation, training levee construction, and debris basin excavation). Truck capacity is assumed to be 16 cubic yards. The export site is also currently unknown, but given the amount of vacant land in the area, the export location was assumed to be within 10 miles of any SMP Facility.
- The amount of concrete required for channel construction is unknown. Concrete is assumed to be imported by concrete trucks over the course of the construction period. This analysis assumed that 100 concrete truck trips would occur per day. Typical concrete truck capacity is 8 cubic yards, which results in approximately 50 truckloads of import per day. The concrete plant(s) are unknown, but is assumed to be within 10 miles of any SMP Facility.

The results of this analysis are summarized below.

Table 2 – Unmitigated Estimated Maximum Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	75	100	550	150	150	55
Facility Grading & Soil Export						
On-Site	12.93	153.92	97.45	0.13	18.96	11.68
Off-Site	2.03	16.34	30.99	0.05	1.75	0.70
Total	14.96	170.26	128.44	0.18	20.71	12.38
Concrete Installation						
On-Site	0.68	6.51	4.83	0.01	0.50	0.46
Off-Site	1.82	14.43	27.75	0.04	1.58	0.63
Total	2.50	20.94	32.58	0.05	2.08	1.09
Paving						
On-Site	2.69	22.39	14.82	0.02	1.26	1.16
Off-Site	0.08	0.22	0.98	0.00	0.14	0.04

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	75	100	550	150	150	55
Total	2.77	22.61	15.80	0.02	1.40	1.20
Maximum¹	20.23	213.81	176.82	0.25	24.19	14.67
Exceeds Threshold?	No	Yes	No	No	No	No

Notes: On-site emissions include off-road construction equipment, fugitive dust, and asphalt paving off-gassing emissions. Off-site emissions include on-road vehicles from construction worker, vendor, and haul truck trips.

¹ Maximum emissions are the sum of Facility grading & soil export, concrete installation, and paving since these activities could potentially overlap.

As shown in the table above, the emissions from construction of the Project are below the SCAQMD daily construction thresholds for all the criteria pollutants, except NO_x. This exceedance is due to the emission from heavy-duty construction equipment usage during Facility grading & soil export when considered alone or with combined emissions from the other construction activities. However, the emissions resulting from concrete installation activities and paving activities do not exceed any thresholds when considered as independent activities or combined with each other.

▪ Localized Significance Threshold Analysis

Background

As part of the SCAQMD's environmental justice program, attention has been focused on localized effects of air quality. Staff at SCAQMD has developed localized significance threshold (LST) methodology² that can be used by public agencies to determine whether or not a project may generate significant adverse localized air quality impacts (both short- and long-term). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The Project is located in SRA 30.

Short-Term Analysis

According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site. The emissions analyzed under the LST methodology are NO₂, CO, PM-10, and PM-2.5. SCAQMD has provided LST lookup tables and sample construction scenarios³ to allow users to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts for projects five acres or smaller. Based on the estimated construction equipment, the maximum daily disturbance area is 9.5 acres.⁴ Although the Project disturbance exceeds five acres, per SCAQMD, the LST thresholds can be used as a screening tool to determine if more specific dispersion modeling would be necessary. Therefore, the sample construction scenario for the five-acre site was modified using Project-specific information such as the construction equipment usage information.

The LST thresholds are estimated using the maximum daily disturbance area (in acres) and the distance of the Project to the nearest sensitive receptors (in meters). The majority of sensitive receptors are primarily existing residences and schools in proximity to proposed SMP Facilities, at varying distances. To ensure a worst-case analysis, the closest receptor distance was evaluated. The closest receptor on

² South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, Revised July 2008. (Available at <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>, accessed August 15, 2014.)

³ <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds>

⁴ <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2>

the LST look-up tables is 25 meters. According to LST methodology, projects with boundaries closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters. Therefore, a receptor distance of 25 meters (85 feet) was used. The results are summarized below.

Table 3 – LST Results for Daily Construction Emissions

Pollutant	Peak Daily Emissions (lb/day)			
	NO _x	CO	PM-10	PM-2.5
LST Threshold for 5 acre at 25 meters	304	2,292	14	8
Facility Grading & Soil Export Excavation	159.3	86.8	11.1	7.4
Concrete Installation	8.6	6.5	0.5	0.5
Paving	31.8	21.8	2.1	2.0
Exceeds Threshold?	No	No	No	No

Note: Each activity occurs separately within the same location.

Emissions from construction of the Project will be below the LST established by SCAQMD for the Project.

Long-Term Analysis

This Project involves the construction of stormwater facilities. The long-term emissions, as discussed previously, are primarily in the form of mobile source emissions, with no stationary sources of emissions present. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site; such as warehouse/transfer facilities. The proposed Project does not include such uses. Therefore, due to the lack of stationary source emissions, no long-term LST analysis is needed.

Greenhouse Gas Analysis

Greenhouse gases (GHG) are not presented in lbs/day like criteria pollutants; they are typically evaluated on an annual basis using the metric system. Additionally, unlike the criteria pollutants, GHG do not have adopted significance thresholds associated with them at this time. Several agencies, at various levels, have proposed draft GHG significance thresholds for use in CEQA documents. SCAQMD has been working on GHG thresholds for development projects. In December 2008, the SCAQMD adopted a threshold of 10,000 metric tonnes per year of carbon dioxide equivalents (MTCO₂E/yr) for stationary source projects where SCAQMD is the lead agency. The most recent draft proposal was in September 2010⁵ and included significance thresholds for residential, commercial, and mixed-use projects at 3,500, 1,400, and 3,000 MTCO₂E/yr, respectively. Alternatively, a lead agency has the option to use 3,000 MTCO₂E/yr as a threshold for all non-industrial projects. Although both options are recommended by SCAQMD, a lead agency is advised to use only one option and to use it consistently. The SCAQMD significance thresholds also evaluate construction emissions by amortizing them over an expected project life of 30 years.

⁵ [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2)

The CalEEMod output results for construction-related GHG emissions present the GHG emissions estimates for the Project for CO₂, methane (CH₄), nitrous oxide (N₂O), and CO₂E.⁶

Short-Term Analysis

Construction-Related Emissions

The CalEEMod model calculates GHG emissions from fuel usage by construction equipment and construction-related activities, like construction worker trips, for the Project. The CalEEMod estimate does not analyze emissions from construction-related electricity or natural gas. Construction-related electricity and natural gas emissions vary based on the amount of electric power used during construction and other unknown factors which make them too speculative to quantify.

Table 4 – Project Construction Equipment GHG Emissions

Year	Metric Tons per year (MT/yr)			
	Total CO ₂	Total CH ₄	Total N ₂ O	Total CO ₂ E
2016	1,579.80	0.33	0.00	1,586.75

Evaluation of the table above indicates that an estimated 1,586.75 MTCO₂E will occur from Project construction equipment during a worst-case representative year of construction.

The proposed Project does not fit into the categories provided (industrial, commercial, and residential) in the draft screening thresholds from SCAQMD. The Project's emissions were compared to and are below the SCAQMD recommended screening level of 3,000 MTCO₂E/yr for non-industrial projects. Due to the lack of adopted emissions thresholds, the estimated amount of emissions from Project construction, and negligible operational emissions from infrequent maintenance vehicles, the proposed Project will not generate GHG emissions that exceed applicable draft screening thresholds.

▪ Recommended Mitigation Measures

The following mitigation measure is recommended to reduce the emission of NO_x during construction of SMP Facilities.

- Utilize off-road diesel equipment meeting at least California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) Tier 2 engine standards.

Mitigated emissions are shown in the table below and indicate that implementation of the above mitigation measure will reduce the maximum NO_x emissions by approximately 24 percent. However, NO_x emissions still exceed the SCAQMD threshold.

Table 5 – Mitigated Estimated Maximum Daily Construction Emissions

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	75	100	550	150	150	55
Facility Grading & Soil Export						
On-Site	3.48	105.18	72.42	0.13	14.75	8.01
Off-Site	2.03	16.34	30.99	0.05	1.75	0.70
Total	5.51	121.52	103.41	0.18	16.50	8.71

⁶ CO₂E is the sum of CO₂ emissions estimated plus the sum of CH₄ and N₂O emissions estimated multiplied by their respective global warming potential (GWP).

Activity	Peak Daily Emissions (lb/day)					
	VOC	NO _x	CO	SO ₂	PM-10	PM-2.5
SCAQMD Daily Construction Thresholds	75	100	550	150	150	55
Concrete Installation						
On-Site	0.29	6.01	4.68	0.01	0.24	0.24
Off-Site	1.82	14.43	27.75	0.04	1.58	0.63
Total	2.11	20.44	32.43	0.05	1.82	0.87
Paving						
On-Site	1.51	19.70	16.93	0.02	0.65	0.65
Off-Site	0.08	0.22	0.98	0.00	0.14	0.04
Total	1.59	19.92	17.91	0.02	0.79	0.69
Maximum¹	9.21	161.88	153.75	0.25	19.11	10.27
Exceeds Threshold?	No	Yes	No	No	No	No

Notes: On-site emissions include off-road construction equipment, fugitive dust, and asphalt paving off-gassing emissions.

Off-site emissions include on-road vehicles from construction worker, vendor, and haul truck trips.

¹ Maximum emissions are the sum of Facility grading & soil export, concrete installation, and paving since these activities could potentially overlap.

■ Conclusion

The conclusion of this analysis indicates that construction of the proposed Project will exceed criteria pollutant threshold for NO_x established by SCAQMD on a regional level, but will not exceed applicable localized thresholds. After implementation of mitigation, the regional NO_x emissions from construction still exceed the SCAQMD threshold. The Project will also not exceed any draft GHG screening threshold recommended by SCAQMD.

Should you have any questions, please contact me at (951) 686-1070.

CALEEMOD OUTPUT FILES

Eastern Coachella Valley Stormwater Master Plan Riverside-Salton Sea County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.00	Acre	5.00	217,800.00	0
Other Non-Asphalt Surfaces	200.00	Acre	200.00	8,712,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	15			Operational Year	2017
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MW hr)	1270.9	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 - see table

Off-road Equipment - see table

Off-road Equipment - see table

Off-road Equipment -

Trips and VMT - destination for soil export and concrete delivery trucks = 10 mi; 2 1-way water truck trips added to vendor trips; concrete delivery = 50 one-way trips/day; worker and vendor trips for construction modified so worker trips matched grading estimate and vendor trips equal 12 per day (2 for water

Grading - assumes 60 export trips per day

Consumer Products -

Construction Off-road Equipment Mitigation - Tie 2 equipment; water site 3x daily

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	4,650.00	65.00
tblConstructionPhase	NumDays	465.00	174.00
tblConstructionPhase	NumDays	330.00	22.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblGrading	AcresOfGrading	522.00	1,162.50
tblGrading	MaterialExported	0.00	167,040.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	6,500.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1,464.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	3,751.00	40.00

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					
2016	14.8065	169.3143	122.6861	0.1748	32.6920	7.0953	39.7874	14.4047	6.5276	20.9323	0.0000	17,920.9474	17,920.9474	4.0189	0.0000	18,005.3443
Total	14.8065	169.3143	122.6861	0.1748	32.6920	7.0953	39.7874	14.4047	6.5276	20.9323	0.0000	17,920.9474	17,920.9474	4.0189	0.0000	18,005.3443

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					
2016	5.3531	120.5713	97.6559	0.1748	13.6020	2.8939	16.4959	5.8498	2.8659	8.7157	0.0000	17,920.9474	17,920.9474	4.0189	0.0000	18,005.3443
Total	5.3531	120.5713	97.6559	0.1748	13.6020	2.8939	16.4959	5.8498	2.8659	8.7157	0.0000	17,920.9474	17,920.9474	4.0189	0.0000	18,005.3443

	ROG	NOx	CO	SO2	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	63.85	28.79	20.40	0.00	58.39	59.21	58.54	59.39	56.10	58.36	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	Grading	Grading	1/1/2016	8/31/2016	5	174	
2	Building Construction	Building Construction	9/1/2016	11/30/2016	5	65	
3	Paving	Paving	12/1/2016	12/31/2016	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1162.5

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
Grading	Excavators	3	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	4	8.00	255	0.40
Grading	Rubber Tired Loaders	4	8.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	16	40.00	2.00	20,880.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	40.00	12.00	6,500.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2016

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					31.2952	0.0000	31.2952	14.0244	0.0000	14.0244			0.0000			0.0000
Off-Road	12.9337	153.9244	97.4536	0.1268		6.7463	6.7463		6.2066	6.2066		13,178.7588	13,178.7588	3.9752		13,262.2376
Total	12.9337	153.9244	97.4536	0.1268	31.2952	6.7463	38.0414	14.0244	6.2066	20.2309		13,178.7588	13,178.7588	3.9752		13,262.2376

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6963	15.0883	23.0305	0.0437	1.0524	0.3439	1.3964	0.2888	0.3163	0.6051		4,385.3087	4,385.3087	0.0275		4,385.8866
Vendor	0.0197	0.1436	0.2503	3.3000e-004	9.7500e-003	3.0900e-003	0.0128	2.7700e-003	2.8400e-003	5.6100e-003		33.2289	33.2289	2.2000e-004		33.2336
Worker	0.1568	0.1580	1.9516	3.9400e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		323.6511	323.6511	0.0160		323.9865
Total	1.8729	15.3899	25.2324	0.0480	1.3969	0.3491	1.7460	0.3803	0.3211	0.7014		4,742.1886	4,742.1886	0.0437		4,743.1067

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					12.2051	0.0000	12.2051	5.4695	0.0000	5.4695			0.0000			0.0000
Off-Road	3.4803	105.1815	72.4235	0.1268		2.5448	2.5448		2.5448	2.5448	0.0000	13,178.7588	13,178.7588	3.9752		13,262.2376
Total	3.4803	105.1815	72.4235	0.1268	12.2051	2.5448	14.7499	5.4695	2.5448	8.0143	0.0000	13,178.7588	13,178.7588	3.9752		13,262.2376

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6963	15.0883	23.0305	0.0437	1.0524	0.3439	1.3964	0.2888	0.3163	0.6051		4,385.3087	4,385.3087	0.0275		4,385.8866
Vendor	0.0197	0.1436	0.2503	3.3000e-004	9.7500e-003	3.0900e-003	0.0128	2.7700e-003	2.8400e-003	5.6100e-003		33.2289	33.2289	2.2000e-004		33.2336
Worker	0.1568	0.1580	1.9516	3.9400e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		323.6511	323.6511	0.0160		323.9865
Total	1.8729	15.3899	25.2324	0.0480	1.3969	0.3491	1.7460	0.3803	0.3211	0.7014		4,742.1886	4,742.1886	0.0437		4,743.1067

3.3 Building Construction - 2016

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	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551
Total	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4136	12.5735	19.1921	0.0364	0.8770	0.2866	1.1636	0.2406	0.2636	0.5042		3,654.4239	3,654.4239	0.0229		3,654.9055
Vendor	0.1185	0.8618	1.5016	2.0000e-003	0.0585	0.0185	0.0770	0.0166	0.0170	0.0337		199.3735	199.3735	1.3400e-003		199.4017
Worker	0.1568	0.1580	1.9516	3.9400e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		323.6511	323.6511	0.0160		323.9865
Total	1.6889	13.5934	22.6454	0.0424	1.2702	0.3072	1.5774	0.3460	0.2825	0.6286		4,177.4484	4,177.4484	0.0402		4,178.2936

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	0.2912	6.0134	4.6841	6.2300e-003		0.2431	0.2431		0.2431	0.2431	0.0000	647.3546	647.3546	0.1953		651.4551
Total	0.2912	6.0134	4.6841	6.2300e-003		0.2431	0.2431		0.2431	0.2431	0.0000	647.3546	647.3546	0.1953		651.4551

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.4136	12.5735	19.1921	0.0364	0.8770	0.2866	1.1636	0.2406	0.2636	0.5042		3,654.4239	3,654.4239	0.0229		3,654.9055
Vendor	0.1185	0.8618	1.5016	2.0000e-003	0.0585	0.0185	0.0770	0.0166	0.0170	0.0337		199.3735	199.3735	1.3400e-003		199.4017
Worker	0.1568	0.1580	1.9516	3.9400e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		323.6511	323.6511	0.0160		323.9865
Total	1.6889	13.5934	22.6454	0.0424	1.2702	0.3072	1.5774	0.3460	0.2825	0.6286		4,177.4484	4,177.4484	0.0402		4,178.2936

3.4 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.5955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.6852	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0197	0.1436	0.2503	3.3000e-004	9.7500e-003	3.0900e-003	0.0128	2.7700e-003	2.8400e-003	5.6100e-003		33.2289	33.2289	2.2000e-004		33.2336
Worker	0.0588	0.0592	0.7319	1.4800e-003	0.1255	7.8000e-004	0.1263	0.0333	7.2000e-004	0.0340		121.3692	121.3692	5.9900e-003		121.4949
Total	0.0785	0.2029	0.9821	1.8100e-003	0.1353	3.8700e-003	0.1391	0.0361	3.5600e-003	0.0396		154.5981	154.5981	6.2100e-003		154.7286

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	0.9122	19.6998	16.9276	0.0223		0.6542	0.6542		0.6542	0.6542	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.5955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5076	19.6998	16.9276	0.0223		0.6542	0.6542		0.6542	0.6542	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0197	0.1436	0.2503	3.3000e-004	9.7500e-003	3.0900e-003	0.0128	2.7700e-003	2.8400e-003	5.6100e-003		33.2289	33.2289	2.2000e-004		33.2336
Worker	0.0588	0.0592	0.7319	1.4800e-003	0.1255	7.8000e-004	0.1263	0.0333	7.2000e-004	0.0340		121.3692	121.3692	5.9900e-003		121.4949
Total	0.0785	0.2029	0.9821	1.8100e-003	0.1353	3.8700e-003	0.1391	0.0361	3.5600e-003	0.0396		154.5981	154.5981	6.2100e-003		154.7286

Eastern Coachella Valley Stormwater Master Plan Riverside-Salton Sea County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.00	Acre	5.00	217,800.00	0
Other Non-Asphalt Surfaces	200.00	Acre	200.00	8,712,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	15			Operational Year	2017
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MW hr)	1270.9	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 - see table

Off-road Equipment - see table

Off-road Equipment - see table

Off-road Equipment -

Trips and VMT - destination for soil export and concrete delivery trucks = 10 mi; 2 1-way water truck trips added to vendor trips; concrete delivery = 50 one-way trips/day; worker and vendor trips for construction modified so worker trips matched grading estimate and vendor trips equal 12 per day (2 for water

Grading - assumes 60 export trips per day

Consumer Products -

Construction Off-road Equipment Mitigation - Tie 2 equipment; water site 3x daily

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	4,650.00	65.00
tblConstructionPhase	NumDays	465.00	174.00
tblConstructionPhase	NumDays	330.00	22.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblGrading	AcresOfGrading	522.00	1,162.50
tblGrading	MaterialExported	0.00	167,040.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	6,500.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1,464.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	3,751.00	40.00

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					
2016	14.9628	170.2674	128.4458	0.1744	32.6920	7.0967	39.7887	14.4047	6.5288	20.9335	0.0000	17,876.8201	17,876.8201	4.0198	0.0000	17,961.2358
Total	14.9628	170.2674	128.4458	0.1744	32.6920	7.0967	39.7887	14.4047	6.5288	20.9335	0.0000	17,876.8201	17,876.8201	4.0198	0.0000	17,961.2358

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					
2016	5.5094	121.5244	103.4157	0.1744	13.6020	2.8952	16.4972	5.8498	2.8671	8.7169	0.0000	17,876.8200	17,876.8200	4.0198	0.0000	17,961.2358
Total	5.5094	121.5244	103.4157	0.1744	13.6020	2.8952	16.4972	5.8498	2.8671	8.7169	0.0000	17,876.8200	17,876.8200	4.0198	0.0000	17,961.2358

	ROG	NOx	CO	SO2	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	63.18	28.63	19.49	0.00	58.39	59.20	58.54	59.39	56.09	58.36	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	Grading	Grading	1/1/2016	8/31/2016	5	174	
2	Building Construction	Building Construction	9/1/2016	11/30/2016	5	65	
3	Paving	Paving	12/1/2016	12/31/2016	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1162.5

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
Grading	Excavators	3	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	4	8.00	255	0.40
Grading	Rubber Tired Loaders	4	8.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	16	40.00	2.00	20,880.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	40.00	12.00	6,500.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2016

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					31.2952	0.0000	31.2952	14.0244	0.0000	14.0244			0.0000				0.0000
Off-Road	12.9337	153.9244	97.4536	0.1268		6.7463	6.7463		6.2066	6.2066		13,178.7588	13,178.7588	3.9752			13,262.2376
Total	12.9337	153.9244	97.4536	0.1268	31.2952	6.7463	38.0414	14.0244	6.2066	20.2309		13,178.7588	13,178.7588	3.9752			13,262.2376

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	1.8911	16.0214	29.0484	0.0436	1.0524	0.3452	1.3976	0.2888	0.3175	0.6062		4,364.0973	4,364.0973	0.0284			4,364.6939
Vendor	0.0220	0.1510	0.3189	3.3000e-004	9.7500e-003	3.1300e-003	0.0129	2.7700e-003	2.8800e-003	5.6500e-003		32.8652	32.8652	2.3000e-004			32.8701
Worker	0.1161	0.1706	1.6249	3.6600e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		301.0987	301.0987	0.0160			301.4341
Total	2.0292	16.3430	30.9922	0.0476	1.3969	0.3504	1.7473	0.3803	0.3223	0.7026		4,698.0613	4,698.0613	0.0446			4,698.9982

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					12.2051	0.0000	12.2051	5.4695	0.0000	5.4695			0.0000			0.0000
Off-Road	3.4803	105.1815	72.4235	0.1268		2.5448	2.5448		2.5448	2.5448	0.0000	13,178.7588	13,178.7588	3.9752		13,262.2376
Total	3.4803	105.1815	72.4235	0.1268	12.2051	2.5448	14.7499	5.4695	2.5448	8.0143	0.0000	13,178.7588	13,178.7588	3.9752		13,262.2376

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.8911	16.0214	29.0484	0.0436	1.0524	0.3452	1.3976	0.2888	0.3175	0.6062		4,364.0973	4,364.0973	0.0284		4,364.6939
Vendor	0.0220	0.1510	0.3189	3.3000e-004	9.7500e-003	3.1300e-003	0.0129	2.7700e-003	2.8800e-003	5.6500e-003		32.8652	32.8652	2.3000e-004		32.8701
Worker	0.1161	0.1706	1.6249	3.6600e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		301.0987	301.0987	0.0160		301.4341
Total	2.0292	16.3430	30.9922	0.0476	1.3969	0.3504	1.7473	0.3803	0.3223	0.7026		4,698.0613	4,698.0613	0.0446		4,698.9982

3.3 Building Construction - 2016

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	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551
Total	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5759	13.3512	24.2070	0.0363	0.8770	0.2877	1.1647	0.2406	0.2646	0.5052		3,636.7478	3,636.7478	0.0237		3,637.2449
Vendor	0.1319	0.9059	1.9135	1.9800e-003	0.0585	0.0188	0.0773	0.0166	0.0173	0.0339		197.1914	197.1914	1.4000e-003		197.2209
Worker	0.1161	0.1706	1.6249	3.6600e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		301.0987	301.0987	0.0160		301.4341
Total	1.8239	14.4277	27.7454	0.0420	1.2702	0.3085	1.5787	0.3460	0.2837	0.6298		4,135.0379	4,135.0379	0.0410		4,135.8999

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	0.2912	6.0134	4.6841	6.2300e-003		0.2431	0.2431		0.2431	0.2431	0.0000	647.3546	647.3546	0.1953		651.4551
Total	0.2912	6.0134	4.6841	6.2300e-003		0.2431	0.2431		0.2431	0.2431	0.0000	647.3546	647.3546	0.1953		651.4551

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5759	13.3512	24.2070	0.0363	0.8770	0.2877	1.1647	0.2406	0.2646	0.5052		3,636.7478	3,636.7478	0.0237		3,637.2449
Vendor	0.1319	0.9059	1.9135	1.9800e-003	0.0585	0.0188	0.0773	0.0166	0.0173	0.0339		197.1914	197.1914	1.4000e-003		197.2209
Worker	0.1161	0.1706	1.6249	3.6600e-003	0.3347	2.0800e-003	0.3368	0.0888	1.9100e-003	0.0907		301.0987	301.0987	0.0160		301.4341
Total	1.8239	14.4277	27.7454	0.0420	1.2702	0.3085	1.5787	0.3460	0.2837	0.6298		4,135.0379	4,135.0379	0.0410		4,135.8999

3.4 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.5955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.6852	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0220	0.1510	0.3189	3.3000e-004	9.7500e-003	3.1300e-003	0.0129	2.7700e-003	2.8800e-003	5.6500e-003		32.8652	32.8652	2.3000e-004		32.8701
Worker	0.0435	0.0640	0.6093	1.3700e-003	0.1255	7.8000e-004	0.1263	0.0333	7.2000e-004	0.0340		112.9120	112.9120	5.9900e-003		113.0378
Total	0.0655	0.2150	0.9282	1.7000e-003	0.1353	3.9100e-003	0.1392	0.0361	3.6000e-003	0.0397		145.7772	145.7772	6.2200e-003		145.9079

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	0.9122	19.6998	16.9276	0.0223		0.6542	0.6542		0.6542	0.6542	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.5955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.5076	19.6998	16.9276	0.0223		0.6542	0.6542		0.6542	0.6542	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0220	0.1510	0.3189	3.3000e-004	9.7500e-003	3.1300e-003	0.0129	2.7700e-003	2.8800e-003	5.6500e-003		32.8652	32.8652	2.3000e-004		32.8701
Worker	0.0435	0.0640	0.6093	1.3700e-003	0.1255	7.8000e-004	0.1263	0.0333	7.2000e-004	0.0340		112.9120	112.9120	5.9900e-003		113.0378
Total	0.0655	0.2150	0.9282	1.7000e-003	0.1353	3.9100e-003	0.1392	0.0361	3.6000e-003	0.0397		145.7772	145.7772	6.2200e-003		145.9079

Eastern Coachella Valley Stormwater Master Plan Riverside-Salton Sea County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.00	Acre	5.00	217,800.00	0
Other Non-Asphalt Surfaces	200.00	Acre	200.00	8,712,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	15			Operational Year	2017
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MW hr)	1270.9	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 - see table

Off-road Equipment - see table

Off-road Equipment - see table

Off-road Equipment -

Trips and VMT - destination for soil export and concrete delivery trucks = 10 mi; 2 1-way water truck trips added to vendor trips; concrete delivery = 50 one-way trips/day; worker and vendor trips for construction modified so worker trips matched grading estimate and vendor trips equal 12 per day (2 for water truck and 10 for misc. material delivery)

Grading - assumes 60 export trips per day

Consumer Products -

Construction Off-road Equipment Mitigation - Tie 2 equipment; water site 3x daily

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	4,650.00	65.00
tblConstructionPhase	NumDays	465.00	174.00
tblConstructionPhase	NumDays	330.00	22.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblGrading	AcresOfGrading	522.00	1,162.50
tblGrading	MaterialExported	0.00	167,040.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	6,500.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	1,464.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	3,751.00	40.00

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					
2016	1.3952	15.7172	11.9071	0.0170	2.8845	0.6576	3.5421	1.2642	0.6049	1.8692	0.0000	1,579.7981	1,579.7981	0.3312	0.0000	1,586.7535
Total	1.3952	15.7172	11.9071	0.0170	2.8845	0.6576	3.5421	1.2642	0.6049	1.8692	0.0000	1,579.7981	1,579.7981	0.3312	0.0000	1,586.7535

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					
2016	0.5471	11.4309	9.7480	0.0170	1.2237	0.2770	1.5006	0.5200	0.2737	0.7937	0.0000	1,579.7968	1,579.7968	0.3312	0.0000	1,586.7522
Total	0.5471	11.4309	9.7480	0.0170	1.2237	0.2770	1.5006	0.5200	0.2737	0.7937	0.0000	1,579.7968	1,579.7968	0.3312	0.0000	1,586.7522

	ROG	NOx	CO	SO2	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	60.79	27.27	18.13	0.00	57.58	57.88	57.63	58.87	54.75	57.54	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	Grading	Grading	1/1/2016	8/31/2016	5	174	
2	Building Construction	Building Construction	9/1/2016	11/30/2016	5	65	
3	Paving	Paving	12/1/2016	12/31/2016	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1162.5

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
Grading	Excavators	3	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	4	8.00	255	0.40
Grading	Rubber Tired Loaders	4	8.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	16	40.00	2.00	20,880.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	2	40.00	12.00	6,500.00	11.00	5.40	10.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	11.00	5.40	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2016

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					2.7227	0.0000	2.7227	1.2201	0.0000	1.2201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1252	13.3914	8.4785	0.0110		0.5869	0.5869		0.5400	0.5400	0.0000	1,040.1345	1,040.1345	0.3137	0.0000	1,046.7231
Total	1.1252	13.3914	8.4785	0.0110	2.7227	0.5869	3.3096	1.2201	0.5400	1.7601	0.0000	1,040.1345	1,040.1345	0.3137	0.0000	1,046.7231

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1502	1.3757	2.1450	3.8000e-003	0.0902	0.0300	0.1202	0.0248	0.0276	0.0524	0.0000	345.4077	345.4077	2.2000e-003	0.0000	345.4539
Vendor	1.7400e-003	0.0130	0.0234	3.0000e-005	8.4000e-004	2.7000e-004	1.1100e-003	2.4000e-004	2.5000e-004	4.9000e-004	0.0000	2.6105	2.6105	2.0000e-005	0.0000	2.6109
Worker	0.0109	0.0143	0.1528	3.4000e-004	0.0286	1.8000e-004	0.0288	7.6000e-003	1.7000e-004	7.7700e-003	0.0000	25.1491	25.1491	1.2600e-003	0.0000	25.1756
Total	0.1628	1.4029	2.3212	4.1700e-003	0.1197	0.0304	0.1501	0.0326	0.0280	0.0606	0.0000	373.1673	373.1673	3.4800e-003	0.0000	373.2404

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					1.0618	0.0000	1.0618	0.4759	0.0000	0.4759	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3028	9.1508	6.3008	0.0110		0.2214	0.2214		0.2214	0.2214	0.0000	1,040.1333	1,040.1333	0.3137	0.0000	1,046.7218
Total	0.3028	9.1508	6.3008	0.0110	1.0618	0.2214	1.2832	0.4759	0.2214	0.6973	0.0000	1,040.1333	1,040.1333	0.3137	0.0000	1,046.7218

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1502	1.3757	2.1450	3.8000e-003	0.0902	0.0300	0.1202	0.0248	0.0276	0.0524	0.0000	345.4077	345.4077	2.2000e-003	0.0000	345.4539
Vendor	1.7400e-003	0.0130	0.0234	3.0000e-005	8.4000e-004	2.7000e-004	1.1100e-003	2.4000e-004	2.5000e-004	4.9000e-004	0.0000	2.6105	2.6105	2.0000e-005	0.0000	2.6109
Worker	0.0109	0.0143	0.1528	3.4000e-004	0.0286	1.8000e-004	0.0288	7.6000e-003	1.7000e-004	7.7700e-003	0.0000	25.1491	25.1491	1.2600e-003	0.0000	25.1756
Total	0.1628	1.4029	2.3212	4.1700e-003	0.1197	0.0304	0.1501	0.0326	0.0280	0.0606	0.0000	373.1673	373.1673	3.4800e-003	0.0000	373.2404

3.3 Building Construction - 2016

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	0.0221	0.2116	0.1568	2.0000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	19.0863	19.0863	5.7600e-003	0.0000	19.2072
Total	0.0221	0.2116	0.1568	2.0000e-004		0.0163	0.0163		0.0150	0.0150	0.0000	19.0863	19.0863	5.7600e-003	0.0000	19.2072

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0468	0.4283	0.6678	1.1800e-003	0.0281	9.3300e-003	0.0374	7.7200e-003	8.5800e-003	0.0163	0.0000	107.5263	107.5263	6.9000e-004	0.0000	107.5407
Vendor	3.9000e-003	0.0292	0.0525	6.0000e-005	1.8700e-003	6.1000e-004	2.4800e-003	5.3000e-004	5.6000e-004	1.0900e-003	0.0000	5.8512	5.8512	4.0000e-005	0.0000	5.8521
Worker	4.0600e-003	5.3200e-003	0.0571	1.3000e-004	0.0107	7.0000e-005	0.0108	2.8400e-003	6.0000e-005	2.9000e-003	0.0000	9.3948	9.3948	4.7000e-004	0.0000	9.4047
Total	0.0547	0.4627	0.7773	1.3700e-003	0.0407	0.0100	0.0507	0.0111	9.2000e-003	0.0203	0.0000	122.7723	122.7723	1.2000e-003	0.0000	122.7975

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	9.4600e-003	0.1954	0.1522	2.0000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003	0.0000	19.0863	19.0863	5.7600e-003	0.0000	19.2072
Total	9.4600e-003	0.1954	0.1522	2.0000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003	0.0000	19.0863	19.0863	5.7600e-003	0.0000	19.2072

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0468	0.4283	0.6678	1.1800e-003	0.0281	9.3300e-003	0.0374	7.7200e-003	8.5800e-003	0.0163	0.0000	107.5263	107.5263	6.9000e-004	0.0000	107.5407
Vendor	3.9000e-003	0.0292	0.0525	6.0000e-005	1.8700e-003	6.1000e-004	2.4800e-003	5.3000e-004	5.6000e-004	1.0900e-003	0.0000	5.8512	5.8512	4.0000e-005	0.0000	5.8521
Worker	4.0600e-003	5.3200e-003	0.0571	1.3000e-004	0.0107	7.0000e-005	0.0108	2.8400e-003	6.0000e-005	2.9000e-003	0.0000	9.3948	9.3948	4.7000e-004	0.0000	9.4047
Total	0.0547	0.4627	0.7773	1.3700e-003	0.0407	0.0100	0.0507	0.0111	9.2000e-003	0.0203	0.0000	122.7723	122.7723	1.2000e-003	0.0000	122.7975

3.4 Paving - 2016

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	0.0230	0.2463	0.1630	2.5000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	23.1152	23.1152	6.9700e-003	0.0000	23.2616
Paving	6.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0295	0.2463	0.1630	2.5000e-004		0.0139	0.0139		0.0128	0.0128	0.0000	23.1152	23.1152	6.9700e-003	0.0000	23.2616

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.6400e-003	2.9600e-003	0.0000	1.1000e-004	3.0000e-005	1.4000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.3301	0.3301	0.0000	0.0000	0.3301
Worker	5.1000e-004	6.8000e-004	7.2400e-003	2.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1924	1.1924	6.0000e-005	0.0000	1.1937
Total	7.3000e-004	2.3200e-003	0.0102	2.0000e-005	1.4700e-003	4.0000e-005	1.5100e-003	3.9000e-004	4.0000e-005	4.3000e-004	0.0000	1.5225	1.5225	6.0000e-005	0.0000	1.5238

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	0.0100	0.2167	0.1862	2.5000e-004		7.2000e-003	7.2000e-003		7.2000e-003	7.2000e-003	0.0000	23.1152	23.1152	6.9700e-003	0.0000	23.2616
Paving	6.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0166	0.2167	0.1862	2.5000e-004		7.2000e-003	7.2000e-003		7.2000e-003	7.2000e-003	0.0000	23.1152	23.1152	6.9700e-003	0.0000	23.2616

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-004	1.6400e-003	2.9600e-003	0.0000	1.1000e-004	3.0000e-005	1.4000e-004	3.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.3301	0.3301	0.0000	0.0000	0.3301
Worker	5.1000e-004	6.8000e-004	7.2400e-003	2.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1924	1.1924	6.0000e-005	0.0000	1.1937
Total	7.3000e-004	2.3200e-003	0.0102	2.0000e-005	1.4700e-003	4.0000e-005	1.5100e-003	3.9000e-004	4.0000e-005	4.3000e-004	0.0000	1.5225	1.5225	6.0000e-005	0.0000	1.5238