# APPENDIX A

# AIR QUALITY, GREENHOUSE GAS MODELING OUTPUTS, AND HEALTH RISK ASSESSMENT

**This page intentionally left blank**

# CLB 1704

**Los Angeles-South Coast County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Unrefrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Other Non-Asphalt Surfaces | 2.70 | Acre | 2.70 | 117,612.00 | 0 |
| Parking Lot | 247.00 | Space | 2.22 | 98,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 33 |
| **Climate Zone** | 8 | | | **Operational Year** | 2019 |
| **Utility Company** | Anaheim Public Utilities | | | | |
| **CO2 Intensity (lb/MWhr)** | 1543.28 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project Info

Construction Phase - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment -

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Trips and VMT - Project Specific Info

Demolition - Project Specific Info

Grading - Project Specific Info

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Vehicle Trips - From Traffic Study (Kunzman Associates, 2017).

Fleet Mix - From Traffic Study

Operational Off-Road Equipment - Assuming 4 Forklifts to be used in Warehouse operations

Energy Mitigation - 2016 building standards 5% more efficient than 2013 standards

Area Mitigation -

Water Mitigation - The proposed project would be designed to comply with the water efficiency and energy conservation requirements included in the California Building Standards Code Title 24

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 40 | 15 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 9.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 5.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 10.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 3.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |

| | | | |
|---|---|---|---|
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstructionPhase | NumDays | 20.00 | 35.00 |
| tblConstructionPhase | NumDays | 230.00 | 48.00 |
| tblConstructionPhase | NumDays | 230.00 | 7.00 |
| tblConstructionPhase | NumDays | 230.00 | 115.00 |
| tblConstructionPhase | NumDays | 20.00 | 30.00 |
| tblConstructionPhase | PhaseEndDate | 11/29/2018 | 8/17/2018 |
| tblConstructionPhase | PhaseEndDate | 4/24/2018 | 4/27/2018 |
| tblConstructionPhase | PhaseEndDate | 5/3/2018 | 3/13/2018 |
| tblConstructionPhase | PhaseEndDate | 10/11/2018 | 8/21/2018 |
| tblConstructionPhase | PhaseStartDate | 10/12/2018 | 7/2/2018 |
| tblConstructionPhase | PhaseStartDate | 4/25/2018 | 3/5/2018 |
| tblConstructionPhase | PhaseStartDate | 5/4/2018 | 3/14/2018 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblGrading | AcresOfGrading | 15.00 | 0.00 |
| tblGrading | MaterialImported | 0.00 | 15,000.00 |
| tblOffRoadEquipment | HorsePower | 203.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 367.00 | 247.00 |
| tblOffRoadEquipment | LoadFactor | 0.36 | 0.40 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.40 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 6.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 8.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 3.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Concrete |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 4.00 |
| tblProjectCharacteristics | OperationalYear | 2018 | 2019 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 44.00 |
| tblTripsAndVMT | WorkerTripNumber | 23.00 | 56.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 48.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 24.00 |

| | | | |
|---|---|---|---|
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 40.00 |
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2017 | 0.0998 | 1.1831 | 0.6051 | 1.2900e-003 | 0.1179 | 0.0494 | 0.1673 | 0.0557 | 0.0457 | 0.1015 | 0.0000 | 120.4800 | 120.4800 | 0.0273 | 0.0000 | 121.1631 |
| 2018 | 1.4870 | 4.5415 | 3.7413 | 7.6200e-003 | 0.1804 | 0.2312 | 0.4116 | 0.0741 | 0.2251 | 0.2992 | 0.0000 | 680.1040 | 680.1040 | 0.0956 | 0.0000 | 682.4934 |
| **Maximum** | **1.4870** | **4.5415** | **3.7413** | **7.6200e-003** | **0.1804** | **0.2312** | **0.4116** | **0.0741** | **0.2251** | **0.2992** | **0.0000** | **680.1040** | **680.1040** | **0.0956** | **0.0000** | **682.4934** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2017 | 0.0998 | 1.1831 | 0.6051 | 1.2900e-003 | 0.0565 | 0.0494 | 0.1059 | 0.0245 | 0.0457 | 0.0702 | 0.0000 | 120.4799 | 120.4799 | 0.0273 | 0.0000 | 121.1630 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 1.4870 | 4.5415 | 3.7413 | 7.6200e-003 | 0.1253 | 0.2312 | 0.3565 | 0.0439 | 0.2251 | 0.2689 | 0.0000 | 680.1034 | 680.1034 | 0.0956 | 0.0000 | 682.4928 |
| **Maximum** | **1.4870** | **4.5415** | **3.7413** | **7.6200e-003** | **0.1253** | **0.2312** | **0.3565** | **0.0439** | **0.2251** | **0.2689** | **0.0000** | **680.1034** | **680.1034** | **0.0956** | **0.0000** | **682.4928** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **39.07** | **0.00** | **20.13** | **47.38** | **0.00** | **15.36** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **1** | **11-1-2017** | **1-31-2018** | 1.9448 | 1.9448 |
| **2** | **2-1-2018** | **4-30-2018** | 0.7652 | 0.7652 |
| **3** | **5-1-2018** | **7-31-2018** | 2.1190 | 2.1190 |
| **4** | **8-1-2018** | **9-30-2018** | 0.7048 | 0.7048 |
| | | **Highest** | 2.1190 | 2.1190 |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.8536 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |
| Energy | 2.6900e-003 | 0.0245 | 0.0206 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | 0.0000 | 1,998.1069 | 1,998.1069 | 0.0376 | 8.1500e-003 | 2,001.4755 |
| Mobile | 0.2734 | 2.7527 | 4.0916 | 0.0168 | 1.1923 | 0.0170 | 1.2093 | 0.3197 | 0.0160 | 0.3357 | 0.0000 | 1,555.6432 | 1,555.6432 | 0.0658 | 0.0000 | 1,557.2880 |
| Offroad | 0.0836 | 0.7464 | 0.6241 | 8.0000e-004 | | 0.0578 | 0.0578 | | 0.0532 | 0.0532 | 0.0000 | 71.7402 | 71.7402 | 0.0227 | 0.0000 | 72.3077 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 39.1285 | 0.0000 | 39.1285 | 2.3124 | 0.0000 | 96.9393 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 15.0442 | 432.2326 | 447.2768 | 1.5533 | 0.0382 | 497.4829 |
| **Total** | **1.2133** | **3.5236** | **4.7421** | **0.0177** | **1.1923** | **0.0767** | **1.2690** | **0.3197** | **0.0711** | **0.3908** | **54.1728** | **4,057.7342** | **4,111.9070** | **3.9918** | **0.0463** | **4,225.5053** |

## Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.8536 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |
| Energy | 2.5600e-003 | 0.0233 | 0.0196 | 1.4000e-004 | | 1.7700e-003 | 1.7700e-003 | | 1.7700e-003 | 1.7700e-003 | 0.0000 | 1,993.4673 | 1,993.4673 | 0.0375 | 8.1200e-003 | 1,996.8227 |
| Mobile | 0.2734 | 2.7527 | 4.0916 | 0.0168 | 1.1923 | 0.0170 | 1.2093 | 0.3197 | 0.0160 | 0.3357 | 0.0000 | 1,555.6432 | 1,555.6432 | 0.0658 | 0.0000 | 1,557.2880 |
| Offroad | 0.0836 | 0.7464 | 0.6241 | 8.0000e-004 | | 0.0578 | 0.0578 | | 0.0532 | 0.0532 | 0.0000 | 71.7402 | 71.7402 | 0.0227 | 0.0000 | 72.3077 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 39.1285 | 0.0000 | 39.1285 | 2.3124 | 0.0000 | 96.9393 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 12.0354 | 345.7861 | 357.8214 | 1.2427 | 0.0305 | 397.9863 |
| **Total** | **1.2132** | **3.5224** | **4.7411** | **0.0177** | **1.1923** | **0.0766** | **1.2689** | **0.3197** | **0.0710** | **0.3907** | **51.1639** | **3,966.6481** | **4,017.8120** | **3.6811** | **0.0387** | **4,121.3559** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.01** | **0.03** | **0.02** | **0.06** | **0.00** | **0.12** | **0.01** | **0.00** | **0.13** | **0.02** | **5.55** | **2.24** | **2.29** | **7.78** | **16.56** | **2.46** |

# 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 | 11/1/2017 | 11/28/2017 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 11/29/2017 | 12/12/2017 | 5 | 10 | |
| 3 | Grading | Grading | 12/13/2017 | 1/23/2018 | 5 | 30 | |
| 4 | Backbone Infrastructure | Trenching | 1/24/2018 | 2/20/2018 | 5 | 20 | |
| 5 | Concrete | Building Construction | 2/21/2018 | 4/27/2018 | 5 | 48 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | Building Erection | Building Construction | 3/5/2018 | 3/13/2018 | 5 | 7 | |
| 7 | Building Construction | Building Construction | 3/14/2018 | 8/21/2018 | 5 | 115 | |
| 8 | Architectural Coating | Architectural Coating | 7/2/2018 | 8/17/2018 | 5 | 35 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 4.92**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,590; Non-Residential Outdoor: 102,530; Striped Parking Area:**

**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 | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 0 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Loaders | 4 | 6.00 | 203 | 0.36 |
| Site Preparation | Scrapers | 2 | 6.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 8.00 | 158 | 0.38 |
| Grading | Graders | 0 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Grading | Scrapers | 4 | 6.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Excavators | 1 | 6.00 | 158 | 0.38 |
| Backbone Infrastructure | Plate Compactors | 2 | 6.00 | 8 | 0.43 |
| Backbone Infrastructure | Rollers | 1 | 6.00 | 80 | 0.38 |
| Backbone Infrastructure | Tractors/Loaders/Backhoes | 3 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Trenchers | 2 | 6.00 | 78 | 0.50 |
| Concrete | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Concrete | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |

| | | | | | |
|---|---|---|---|---|---|
| Concrete | Cranes | 0 | 7.00 | 231 | 0.29 |
| Concrete | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Concrete | Generator Sets | 4 | 6.00 | 84 | 0.74 |
| Concrete | Pavers | 1 | 6.00 | 130 | 0.42 |
| Concrete | Paving Equipment | 8 | 6.00 | 132 | 0.36 |
| Concrete | Rubber Tired Loaders | 2 | 6.00 | 247 | 0.40 |
| Concrete | Signal Boards | 4 | 6.00 | 6 | 0.82 |
| Concrete | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Concrete | Welders | 0 | 6.00 | 46 | 0.45 |
| Building Erection | Air Compressors | 2 | 6.00 | 78 | 0.48 |
| Building Erection | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |
| Building Erection | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Erection | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Building Erection | Generator Sets | 0 | 8.00 | 84 | 0.74 |
| Building Erection | Pavers | 0 | 0.00 | 130 | 0.42 |
| Building Erection | Paving Equipment | 0 | 0.00 | 132 | 0.36 |
| Building Erection | Rollers | 0 | 0.00 | 80 | 0.38 |
| Building Erection | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Building Erection | Welders | 0 | 0.00 | 46 | 0.45 |
| Building Construction | Aerial Lifts | 4 | 6.00 | 63 | 0.31 |
| Building Construction | Air Compressors | 4 | 6.00 | 78 | 0.48 |
| Building Construction | Cranes | 0 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 6 | 6.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 0 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 2 | 6.00 | 46 | 0.45 |
| Architectural Coating | Air Compressors | 2 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 96.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 44.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 7 | 18.00 | 2.00 | 1,483.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Backbone Infrastructure | 9 | 56.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Concrete | 24 | 48.00 | 2.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Erection | 5 | 24.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 16 | 40.00 | 69.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 2 | 35.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

## 3.2 Demolition - 2017

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0103 | 0.0000 | 0.0103 | 1.5600e-003 | 0.0000 | 1.5600e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0410 | 0.4275 | 0.2301 | 3.9000e-004 | | 0.0219 | 0.0219 | | 0.0204 | 0.0204 | 0.0000 | 35.6005 | 35.6005 | 9.7300e-003 | 0.0000 | 35.8438 |
| **Total** | **0.0410** | **0.4275** | **0.2301** | **3.9000e-004** | **0.0103** | **0.0219** | **0.0323** | **1.5600e-003** | **0.0204** | **0.0220** | **0.0000** | **35.6005** | **35.6005** | **9.7300e-003** | **0.0000** | **35.8438** |

**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 | 5.5000e-004 | 0.0173 | 3.5100e-003 | 4.0000e-005 | 8.2000e-004 | 9.0000e-005 | 9.1000e-004 | 2.3000e-004 | 8.0000e-005 | 3.1000e-004 | 0.0000 | 3.8182 | 3.8182 | 2.7000e-004 | 0.0000 | 3.8250 |
| 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 | 9.4000e-004 | 8.2000e-004 | 8.7500e-003 | 2.0000e-005 | 1.6400e-003 | 2.0000e-005 | 1.6600e-003 | 4.4000e-004 | 1.0000e-005 | 4.5000e-004 | 0.0000 | 1.6793 | 1.6793 | 7.0000e-005 | 0.0000 | 1.6810 |
| **Total** | **1.4900e-003** | **0.0181** | **0.0123** | **6.0000e-005** | **2.4600e-003** | **1.1000e-004** | **2.5700e-003** | **6.7000e-004** | **9.0000e-005** | **7.6000e-004** | **0.0000** | **5.4974** | **5.4974** | **3.4000e-004** | **0.0000** | **5.5060** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.0300e-003 | 0.0000 | 4.0300e-003 | 6.1000e-004 | 0.0000 | 6.1000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0410 | 0.4275 | 0.2301 | 3.9000e-004 | | 0.0219 | 0.0219 | | 0.0204 | 0.0204 | 0.0000 | 35.6005 | 35.6005 | 9.7300e-003 | 0.0000 | 35.8438 |
| **Total** | **0.0410** | **0.4275** | **0.2301** | **3.9000e-004** | **4.0300e-003** | **0.0219** | **0.0260** | **6.1000e-004** | **0.0204** | **0.0210** | **0.0000** | **35.6005** | **35.6005** | **9.7300e-003** | **0.0000** | **35.8438** |

## 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 | 5.5000e-004 | 0.0173 | 3.5100e-003 | 4.0000e-005 | 8.2000e-004 | 9.0000e-005 | 9.1000e-004 | 2.3000e-004 | 8.0000e-005 | 3.1000e-004 | 0.0000 | 3.8182 | 3.8182 | 2.7000e-004 | 0.0000 | 3.8250 |
| 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 | 9.4000e-004 | 8.2000e-004 | 8.7500e-003 | 2.0000e-005 | 1.6400e-003 | 2.0000e-005 | 1.6600e-003 | 4.4000e-004 | 1.0000e-005 | 4.5000e-004 | 0.0000 | 1.6793 | 1.6793 | 7.0000e-005 | 0.0000 | 1.6810 |
| **Total** | **1.4900e-003** | **0.0181** | **0.0123** | **6.0000e-005** | **2.4600e-003** | **1.1000e-004** | **2.5700e-003** | **6.7000e-004** | **9.0000e-005** | **7.6000e-004** | **0.0000** | **5.4974** | **5.4974** | **3.4000e-004** | **0.0000** | **5.5060** |

## 3.3 Site Preparation - 2017

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0166 | 0.2000 | 0.0710 | 1.7000e-004 | | 8.3400e-003 | 8.3400e-003 | | 7.6700e-003 | 7.6700e-003 | 0.0000 | 15.6444 | 15.6444 | 4.7900e-003 | 0.0000 | 15.7642 |
| **Total** | **0.0166** | **0.2000** | **0.0710** | **1.7000e-004** | **0.0000** | **8.3400e-003** | **8.3400e-003** | **0.0000** | **7.6700e-003** | **7.6700e-003** | **0.0000** | **15.6444** | **15.6444** | **4.7900e-003** | **0.0000** | **15.7642** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3800e-003 | 1.2000e-003 | 0.0128 | 3.0000e-005 | 2.4100e-003 | 2.0000e-005 | 2.4300e-003 | 6.4000e-004 | 2.0000e-005 | 6.6000e-004 | 0.0000 | 2.4629 | 2.4629 | 1.0000e-004 | 0.0000 | 2.4655 |
| **Total** | **1.3800e-003** | **1.2000e-003** | **0.0128** | **3.0000e-005** | **2.4100e-003** | **2.0000e-005** | **2.4300e-003** | **6.4000e-004** | **2.0000e-005** | **6.6000e-004** | **0.0000** | **2.4629** | **2.4629** | **1.0000e-004** | **0.0000** | **2.4655** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0166 | 0.2000 | 0.0710 | 1.7000e-004 | | 8.3400e-003 | 8.3400e-003 | | 7.6700e-003 | 7.6700e-003 | 0.0000 | 15.6443 | 15.6443 | 4.7900e-003 | 0.0000 | 15.7642 |
| **Total** | **0.0166** | **0.2000** | **0.0710** | **1.7000e-004** | **0.0000** | **8.3400e-003** | **8.3400e-003** | **0.0000** | **7.6700e-003** | **7.6700e-003** | **0.0000** | **15.6443** | **15.6443** | **4.7900e-003** | **0.0000** | **15.7642** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3800e-003 | 1.2000e-003 | 0.0128 | 3.0000e-005 | 2.4100e-003 | 2.0000e-005 | 2.4300e-003 | 6.4000e-004 | 2.0000e-005 | 6.6000e-004 | 0.0000 | 2.4629 | 2.4629 | 1.0000e-004 | 0.0000 | 2.4655 |
| **Total** | **1.3800e-003** | **1.2000e-003** | **0.0128** | **3.0000e-005** | **2.4100e-003** | **2.0000e-005** | **2.4300e-003** | **6.4000e-004** | **2.0000e-005** | **6.6000e-004** | **0.0000** | **2.4629** | **2.4629** | **1.0000e-004** | **0.0000** | **2.4655** |

## 3.4 Grading - 2017

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0903 | 0.0000 | 0.0903 | 0.0497 | 0.0000 | 0.0497 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0348 | 0.4183 | 0.2481 | 3.7000e-004 | | 0.0184 | 0.0184 | | 0.0169 | 0.0169 | 0.0000 | 34.0764 | 34.0764 | 0.0104 | 0.0000 | 34.3374 |
| **Total** | **0.0348** | **0.4183** | **0.2481** | **3.7000e-004** | **0.0903** | **0.0184** | **0.1087** | **0.0497** | **0.0169** | **0.0666** | **0.0000** | **34.0764** | **34.0764** | **0.0104** | **0.0000** | **34.3374** |

## 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 | 3.6600e-003 | 0.1156 | 0.0235 | 2.6000e-004 | 0.0110 | 5.9000e-004 | 0.0115 | 2.8500e-003 | 5.7000e-004 | 3.4200e-003 | 0.0000 | 25.5591 | 25.5591 | 1.8300e-003 | 0.0000 | 25.6048 |
| Vendor | 7.0000e-005 | 1.7300e-003 | 5.1000e-004 | 0.0000 | 8.0000e-005 | 1.0000e-005 | 1.0000e-004 | 2.0000e-005 | 1.0000e-005 | 4.0000e-005 | 0.0000 | 0.3296 | 0.3296 | 2.0000e-005 | 0.0000 | 0.3302 |
| Worker | 7.3000e-004 | 6.4000e-004 | 6.8300e-003 | 1.0000e-005 | 1.2800e-003 | 1.0000e-005 | 1.2900e-003 | 3.4000e-004 | 1.0000e-005 | 3.5000e-004 | 0.0000 | 1.3098 | 1.3098 | 5.0000e-005 | 0.0000 | 1.3112 |
| **Total** | **4.4600e-003** | **0.1179** | **0.0309** | **2.7000e-004** | **0.0123** | **6.1000e-004** | **0.0129** | **3.2100e-003** | **5.9000e-004** | **3.8100e-003** | **0.0000** | **27.1985** | **27.1985** | **1.9000e-003** | **0.0000** | **27.2462** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0352 | 0.0000 | 0.0352 | 0.0194 | 0.0000 | 0.0194 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.0348 | 0.4183 | 0.2481 | 3.7000e-004 | | 0.0184 | 0.0184 | | 0.0169 | 0.0169 | 0.0000 | 34.0763 | 34.0763 | 0.0104 | 0.0000 | 34.3373 |
| **Total** | **0.0348** | **0.4183** | **0.2481** | **3.7000e-004** | **0.0352** | **0.0184** | **0.0536** | **0.0194** | **0.0169** | **0.0363** | **0.0000** | **34.0763** | **34.0763** | **0.0104** | **0.0000** | **34.3373** |

## 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 | 3.6600e-003 | 0.1156 | 0.0235 | 2.6000e-004 | 0.0110 | 5.9000e-004 | 0.0115 | 2.8500e-003 | 5.7000e-004 | 3.4200e-003 | 0.0000 | 25.5591 | 25.5591 | 1.8300e-003 | 0.0000 | 25.6048 |
| Vendor | 7.0000e-005 | 1.7300e-003 | 5.1000e-004 | 0.0000 | 8.0000e-005 | 1.0000e-005 | 1.0000e-004 | 2.0000e-005 | 1.0000e-005 | 4.0000e-005 | 0.0000 | 0.3296 | 0.3296 | 2.0000e-005 | 0.0000 | 0.3302 |
| Worker | 7.3000e-004 | 6.4000e-004 | 6.8300e-003 | 1.0000e-005 | 1.2800e-003 | 1.0000e-005 | 1.2900e-003 | 3.4000e-004 | 1.0000e-005 | 3.5000e-004 | 0.0000 | 1.3098 | 1.3098 | 5.0000e-005 | 0.0000 | 1.3112 |
| **Total** | **4.4600e-003** | **0.1179** | **0.0309** | **2.7000e-004** | **0.0123** | **6.1000e-004** | **0.0129** | **3.2100e-003** | **5.9000e-004** | **3.8100e-003** | **0.0000** | **27.1985** | **27.1985** | **1.9000e-003** | **0.0000** | **27.2462** |

# 3.4 Grading - 2018

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0903 | 0.0000 | 0.0903 | 0.0497 | 0.0000 | 0.0497 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0401 | 0.4755 | 0.2818 | 4.8000e-004 | | 0.0205 | 0.0205 | | 0.0189 | 0.0189 | 0.0000 | 43.8659 | 43.8659 | 0.0137 | 0.0000 | 44.2073 |
| **Total** | **0.0401** | **0.4755** | **0.2818** | **4.8000e-004** | **0.0903** | **0.0205** | **0.1109** | **0.0497** | **0.0189** | **0.0685** | **0.0000** | **43.8659** | **43.8659** | **0.0137** | **0.0000** | **44.2073** |

## 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 | 4.2200e-003 | 0.1403 | 0.0289 | 3.4000e-004 | 0.0114 | 5.2000e-004 | 0.0119 | 3.0000e-003 | 5.0000e-004 | 3.5000e-003 | 0.0000 | 33.1425 | 33.1425 | 2.3400e-003 | 0.0000 | 33.2009 |
| Vendor | 8.0000e-005 | 2.1300e-003 | 6.0000e-004 | 0.0000 | 1.1000e-004 | 1.0000e-005 | 1.2000e-004 | 3.0000e-005 | 1.0000e-005 | 5.0000e-005 | 0.0000 | 0.4295 | 0.4295 | 3.0000e-005 | 0.0000 | 0.4303 |
| Worker | 8.5000e-004 | 7.3000e-004 | 7.8000e-003 | 2.0000e-005 | 1.6800e-003 | 2.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.6659 | 1.6659 | 6.0000e-005 | 0.0000 | 1.6674 |
| **Total** | **5.1500e-003** | **0.1432** | **0.0373** | **3.6000e-004** | **0.0132** | **5.5000e-004** | **0.0137** | **3.4800e-003** | **5.2000e-004** | **4.0100e-003** | **0.0000** | **35.2378** | **35.2378** | **2.4300e-003** | **0.0000** | **35.2986** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0352 | 0.0000 | 0.0352 | 0.0194 | 0.0000 | 0.0194 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0401 | 0.4755 | 0.2818 | 4.8000e-004 | | 0.0205 | 0.0205 | | 0.0189 | 0.0189 | 0.0000 | 43.8658 | 43.8658 | 0.0137 | 0.0000 | 44.2072 |
| **Total** | **0.0401** | **0.4755** | **0.2818** | **4.8000e-004** | **0.0352** | **0.0205** | **0.0558** | **0.0194** | **0.0189** | **0.0383** | **0.0000** | **43.8658** | **43.8658** | **0.0137** | **0.0000** | **44.2072** |

## 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 | 4.2200e-003 | 0.1403 | 0.0289 | 3.4000e-004 | 0.0114 | 5.2000e-004 | 0.0119 | 3.0000e-003 | 5.0000e-004 | 3.5000e-003 | 0.0000 | 33.1425 | 33.1425 | 2.3400e-003 | 0.0000 | 33.2009 |
| Vendor | 8.0000e-005 | 2.1300e-003 | 6.0000e-004 | 0.0000 | 1.1000e-004 | 1.0000e-005 | 1.2000e-004 | 3.0000e-005 | 1.0000e-005 | 5.0000e-005 | 0.0000 | 0.4295 | 0.4295 | 3.0000e-005 | 0.0000 | 0.4303 |
| Worker | 8.5000e-004 | 7.3000e-004 | 7.8000e-003 | 2.0000e-005 | 1.6800e-003 | 2.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.6659 | 1.6659 | 6.0000e-005 | 0.0000 | 1.6674 |
| **Total** | **5.1500e-003** | **0.1432** | **0.0373** | **3.6000e-004** | **0.0132** | **5.5000e-004** | **0.0137** | **3.4800e-003** | **5.2000e-004** | **4.0100e-003** | **0.0000** | **35.2378** | **35.2378** | **2.4300e-003** | **0.0000** | **35.2986** |

## 3.5 Backbone Infrastructure - 2018

### 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 | 0.0175 | 0.1659 | 0.1346 | 1.9000e-004 | | 0.0114 | 0.0114 | | 0.0105 | 0.0105 | 0.0000 | 16.8054 | 16.8054 | 5.1300e-003 | 0.0000 | 16.9338 |
| **Total** | **0.0175** | **0.1659** | **0.1346** | **1.9000e-004** | | **0.0114** | **0.0114** | | **0.0105** | **0.0105** | **0.0000** | **16.8054** | **16.8054** | **5.1300e-003** | **0.0000** | **16.9338** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.1000e-003 | 2.6500e-003 | 0.0286 | 7.0000e-005 | 6.1400e-003 | 6.0000e-005 | 6.1900e-003 | 1.6300e-003 | 5.0000e-005 | 1.6800e-003 | 0.0000 | 6.0973 | 6.0973 | 2.3000e-004 | 0.0000 | 6.1030 |
| **Total** | **3.1000e-003** | **2.6500e-003** | **0.0286** | **7.0000e-005** | **6.1400e-003** | **6.0000e-005** | **6.1900e-003** | **1.6300e-003** | **5.0000e-005** | **1.6800e-003** | **0.0000** | **6.0973** | **6.0973** | **2.3000e-004** | **0.0000** | **6.1030** |

## 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 | 0.0175 | 0.1659 | 0.1346 | 1.9000e-004 | | 0.0114 | 0.0114 | | 0.0105 | 0.0105 | 0.0000 | 16.8054 | 16.8054 | 5.1300e-003 | 0.0000 | 16.9338 |
| **Total** | **0.0175** | **0.1659** | **0.1346** | **1.9000e-004** | | **0.0114** | **0.0114** | | **0.0105** | **0.0105** | **0.0000** | **16.8054** | **16.8054** | **5.1300e-003** | **0.0000** | **16.9338** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.1000e-003 | 2.6500e-003 | 0.0286 | 7.0000e-005 | 6.1400e-003 | 6.0000e-005 | 6.1900e-003 | 1.6300e-003 | 5.0000e-005 | 1.6800e-003 | 0.0000 | 6.0973 | 6.0973 | 2.3000e-004 | 0.0000 | 6.1030 |
| **Total** | **3.1000e-003** | **2.6500e-003** | **0.0286** | **7.0000e-005** | **6.1400e-003** | **6.0000e-005** | **6.1900e-003** | **1.6300e-003** | **5.0000e-005** | **1.6800e-003** | **0.0000** | **6.0973** | **6.0973** | **2.3000e-004** | **0.0000** | **6.1030** |

# 3.6 Concrete - 2018

## 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 | 0.1370 | 1.3127 | 1.0565 | 1.9100e-003 | | 0.0705 | 0.0705 | | 0.0675 | 0.0675 | 0.0000 | 168.6670 | 168.6670 | 0.0363 | 0.0000 | 169.5734 |
| **Total** | **0.1370** | **1.3127** | **1.0565** | **1.9100e-003** | | **0.0705** | **0.0705** | | **0.0675** | **0.0675** | **0.0000** | **168.6670** | **168.6670** | **0.0363** | **0.0000** | **169.5734** |

## 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 | 6.0100e-003 | 1.6900e-003 | 1.0000e-005 | 3.0000e-004 | 4.0000e-005 | 3.4000e-004 | 9.0000e-005 | 4.0000e-005 | 1.3000e-004 | 0.0000 | 1.2128 | 1.2128 | 8.0000e-005 | 0.0000 | 1.2149 |
| Worker | 6.3800e-003 | 5.4600e-003 | 0.0587 | 1.4000e-004 | 0.0126 | 1.1000e-004 | 0.0127 | 3.3500e-003 | 1.1000e-004 | 3.4600e-003 | 0.0000 | 12.5429 | 12.5429 | 4.7000e-004 | 0.0000 | 12.5547 |
| **Total** | **6.6000e-003** | **0.0115** | **0.0604** | **1.5000e-004** | **0.0129** | **1.5000e-004** | **0.0131** | **3.4400e-003** | **1.5000e-004** | **3.5900e-003** | **0.0000** | **13.7557** | **13.7557** | **5.5000e-004** | **0.0000** | **13.7696** |

## 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 | 0.1370 | 1.3127 | 1.0565 | 1.9100e-003 | | 0.0705 | 0.0705 | | 0.0675 | 0.0675 | 0.0000 | 168.6668 | 168.6668 | 0.0363 | 0.0000 | 169.5732 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.1370** | **1.3127** | **1.0565** | **1.9100e-003** | | **0.0705** | **0.0705** | | **0.0675** | **0.0675** | **0.0000** | **168.6668** | **168.6668** | **0.0363** | **0.0000** | **169.5732** |

**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 | 6.0100e-003 | 1.6900e-003 | 1.0000e-005 | 3.0000e-004 | 4.0000e-005 | 3.4000e-004 | 9.0000e-005 | 4.0000e-005 | 1.3000e-004 | 0.0000 | 1.2128 | 1.2128 | 8.0000e-005 | 0.0000 | 1.2149 |
| Worker | 6.3800e-003 | 5.4600e-003 | 0.0587 | 1.4000e-004 | 0.0126 | 1.1000e-004 | 0.0127 | 3.3500e-003 | 1.1000e-004 | 3.4600e-003 | 0.0000 | 12.5429 | 12.5429 | 4.7000e-004 | 0.0000 | 12.5547 |
| **Total** | **6.6000e-003** | **0.0115** | **0.0604** | **1.5000e-004** | **0.0129** | **1.5000e-004** | **0.0131** | **3.4400e-003** | **1.5000e-004** | **3.5900e-003** | **0.0000** | **13.7557** | **13.7557** | **5.5000e-004** | **0.0000** | **13.7696** |

## 3.7 Building Erection - 2018

**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 | 6.5600e-003 | 0.0555 | 0.0403 | 7.0000e-005 | | 3.3600e-003 | 3.3600e-003 | | 3.2900e-003 | 3.2900e-003 | 0.0000 | 6.2230 | 6.2230 | 8.9000e-004 | 0.0000 | 6.2453 |
| **Total** | **6.5600e-003** | **0.0555** | **0.0403** | **7.0000e-005** | | **3.3600e-003** | **3.3600e-003** | | **3.2900e-003** | **3.2900e-003** | **0.0000** | **6.2230** | **6.2230** | **8.9000e-004** | **0.0000** | **6.2453** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.7000e-004 | 4.0000e-004 | 4.2800e-003 | 1.0000e-005 | 9.2000e-004 | 1.0000e-005 | 9.3000e-004 | 2.4000e-004 | 1.0000e-005 | 2.5000e-004 | 0.0000 | 0.9146 | 0.9146 | 3.0000e-005 | 0.0000 | 0.9155 |
| **Total** | **4.7000e-004** | **4.0000e-004** | **4.2800e-003** | **1.0000e-005** | **9.2000e-004** | **1.0000e-005** | **9.3000e-004** | **2.4000e-004** | **1.0000e-005** | **2.5000e-004** | **0.0000** | **0.9146** | **0.9146** | **3.0000e-005** | **0.0000** | **0.9155** |

## 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 | 6.5600e-003 | 0.0555 | 0.0403 | 7.0000e-005 | | 3.3600e-003 | 3.3600e-003 | | 3.2900e-003 | 3.2900e-003 | 0.0000 | 6.2230 | 6.2230 | 8.9000e-004 | 0.0000 | 6.2453 |
| **Total** | **6.5600e-003** | **0.0555** | **0.0403** | **7.0000e-005** | | **3.3600e-003** | **3.3600e-003** | | **3.2900e-003** | **3.2900e-003** | **0.0000** | **6.2230** | **6.2230** | **8.9000e-004** | **0.0000** | **6.2453** |

## Mitigated Construction Off-Site

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

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.7000e-004 | 4.0000e-004 | 4.2800e-003 | 1.0000e-005 | 9.2000e-004 | 1.0000e-005 | 9.3000e-004 | 2.4000e-004 | 1.0000e-005 | 2.5000e-004 | 0.0000 | 0.9146 | 0.9146 | 3.0000e-005 | 0.0000 | 0.9155 |
| **Total** | **4.7000e-004** | **4.0000e-004** | **4.2800e-003** | **1.0000e-005** | **9.2000e-004** | **1.0000e-005** | **9.3000e-004** | **2.4000e-004** | **1.0000e-005** | **2.5000e-004** | **0.0000** | **0.9146** | **0.9146** | **3.0000e-005** | **0.0000** | **0.9155** |

## 3.8 Building Construction - 2018

### 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 | 0.2448 | 1.7933 | 1.7446 | 2.9000e-003 | | 0.1156 | 0.1156 | | 0.1153 | 0.1153 | 0.0000 | 247.6443 | 247.6443 | 0.0275 | 0.0000 | 248.3312 |
| **Total** | **0.2448** | **1.7933** | **1.7446** | **2.9000e-003** | | **0.1156** | **0.1156** | | **0.1153** | **0.1153** | **0.0000** | **247.6443** | **247.6443** | **0.0275** | **0.0000** | **248.3312** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0186 | 0.4969 | 0.1397 | 1.0400e-003 | 0.0250 | 3.4500e-003 | 0.0284 | 7.2100e-003 | 3.3000e-003 | 0.0105 | 0.0000 | 100.2454 | 100.2454 | 6.8800e-003 | 0.0000 | 100.4173 |
| Worker | 0.0127 | 0.0109 | 0.1173 | 2.8000e-004 | 0.0252 | 2.3000e-004 | 0.0254 | 6.6900e-003 | 2.1000e-004 | 6.9100e-003 | 0.0000 | 25.0423 | 25.0423 | 9.4000e-004 | 0.0000 | 25.0658 |
| **Total** | **0.0313** | **0.5078** | **0.2570** | **1.3200e-003** | **0.0502** | **3.6800e-003** | **0.0539** | **0.0139** | **3.5100e-003** | **0.0174** | **0.0000** | **125.2877** | **125.2877** | **7.8200e-003** | **0.0000** | **125.4831** |

**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 | 0.2448 | 1.7933 | 1.7446 | 2.9000e-003 | | 0.1156 | 0.1156 | | 0.1153 | 0.1153 | 0.0000 | 247.6440 | 247.6440 | 0.0275 | 0.0000 | 248.3309 |
| **Total** | **0.2448** | **1.7933** | **1.7446** | **2.9000e-003** | | **0.1156** | **0.1156** | | **0.1153** | **0.1153** | **0.0000** | **247.6440** | **247.6440** | **0.0275** | **0.0000** | **248.3309** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0186 | 0.4969 | 0.1397 | 1.0400e-003 | 0.0250 | 3.4500e-003 | 0.0284 | 7.2100e-003 | 3.3000e-003 | 0.0105 | 0.0000 | 100.2454 | 100.2454 | 6.8800e-003 | 0.0000 | 100.4173 |
| Worker | 0.0127 | 0.0109 | 0.1173 | 2.8000e-004 | 0.0252 | 2.3000e-004 | 0.0254 | 6.6900e-003 | 2.1000e-004 | 6.9100e-003 | 0.0000 | 25.0423 | 25.0423 | 9.4000e-004 | 0.0000 | 25.0658 |
| **Total** | **0.0313** | **0.5078** | **0.2570** | **1.3200e-003** | **0.0502** | **3.6800e-003** | **0.0539** | **0.0139** | **3.5100e-003** | **0.0174** | **0.0000** | **125.2877** | **125.2877** | **7.8200e-003** | **0.0000** | **125.4831** |

## 3.9 Architectural Coating - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9806 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0105 | 0.0702 | 0.0649 | 1.0000e-004 | | 5.2700e-003 | 5.2700e-003 | | 5.2700e-003 | 5.2700e-003 | 0.0000 | 8.9364 | 8.9364 | 8.5000e-004 | 0.0000 | 8.9576 |
| **Total** | **0.9910** | **0.0702** | **0.0649** | **1.0000e-004** | | **5.2700e-003** | **5.2700e-003** | | **5.2700e-003** | **5.2700e-003** | **0.0000** | **8.9364** | **8.9364** | **8.5000e-004** | **0.0000** | **8.9576** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.3900e-003 | 2.9000e-003 | 0.0312 | 7.0000e-005 | 6.7100e-003 | 6.0000e-005 | 6.7700e-003 | 1.7800e-003 | 6.0000e-005 | 1.8400e-003 | 0.0000 | 6.6689 | 6.6689 | 2.5000e-004 | 0.0000 | 6.6751 |
| **Total** | **3.3900e-003** | **2.9000e-003** | **0.0312** | **7.0000e-005** | **6.7100e-003** | **6.0000e-005** | **6.7700e-003** | **1.7800e-003** | **6.0000e-005** | **1.8400e-003** | **0.0000** | **6.6689** | **6.6689** | **2.5000e-004** | **0.0000** | **6.6751** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9806 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.0105 | 0.0702 | 0.0649 | 1.0000e-004 | | 5.2700e-003 | 5.2700e-003 | | 5.2700e-003 | 5.2700e-003 | 0.0000 | 8.9364 | 8.9364 | 8.5000e-004 | 0.0000 | 8.9576 |
| **Total** | **0.9910** | **0.0702** | **0.0649** | **1.0000e-004** | | **5.2700e-003** | **5.2700e-003** | | **5.2700e-003** | **5.2700e-003** | **0.0000** | **8.9364** | **8.9364** | **8.5000e-004** | **0.0000** | **8.9576** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.3900e-003 | 2.9000e-003 | 0.0312 | 7.0000e-005 | 6.7100e-003 | 6.0000e-005 | 6.7700e-003 | 1.7800e-003 | 6.0000e-005 | 1.8400e-003 | 0.0000 | 6.6689 | 6.6689 | 2.5000e-004 | 0.0000 | 6.6751 |
| **Total** | **3.3900e-003** | **2.9000e-003** | **0.0312** | **7.0000e-005** | **6.7100e-003** | **6.0000e-005** | **6.7700e-003** | **1.7800e-003** | **6.0000e-005** | **1.8400e-003** | **0.0000** | **6.6689** | **6.6689** | **2.5000e-004** | **0.0000** | **6.6751** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.2734 | 2.7527 | 4.0916 | 0.0168 | 1.1923 | 0.0170 | 1.2093 | 0.3197 | 0.0160 | 0.3357 | 0.0000 | 1,555.6432 | 1,555.6432 | 0.0658 | 0.0000 | 1,557.2880 |
| Unmitigated | 0.2734 | 2.7527 | 4.0916 | 0.0168 | 1.1923 | 0.0170 | 1.2093 | 0.3197 | 0.0160 | 0.3357 | 0.0000 | 1,555.6432 | 1,555.6432 | 0.0658 | 0.0000 | 1,557.2880 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Unrefrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Total | 730.01 | 730.01 | 730.01 | 3,128,632 | 3,128,632 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |
| Unrefrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Unrefrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Other Non-Asphalt Surfaces | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Parking Lot | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

Exceed Title 24

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1,968.1238 | 1,968.1238 | 0.0370 | 7.6500e-003 | 1,971.3286 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1,971.4612 | 1,971.4612 | 0.0371 | 7.6600e-003 | 1,974.6715 |
| NaturalGas Mitigated | 2.5600e-003 | 0.0233 | 0.0196 | 1.4000e-004 | | 1.7700e-003 | 1.7700e-003 | | 1.7700e-003 | 1.7700e-003 | 0.0000 | 25.3435 | 25.3435 | 4.9000e-004 | 4.6000e-004 | 25.4941 |
| NaturalGas Unmitigated | 2.6900e-003 | 0.0245 | 0.0206 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | 0.0000 | 26.6457 | 26.6457 | 5.1000e-004 | 4.9000e-004 | 26.8040 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 94327.6 | 5.1000e-004 | 4.6200e-003 | 3.8800e-003 | 3.0000e-005 | | 3.5000e-004 | 3.5000e-004 | | 3.5000e-004 | 3.5000e-004 | 0.0000 | 5.0337 | 5.0337 | 1.0000e-004 | 9.0000e-005 | 5.0636 |
| Unrefrigerated Warehouse-No Rail | 404994 | 2.1800e-003 | 0.0199 | 0.0167 | 1.2000e-004 | | 1.5100e-003 | 1.5100e-003 | | 1.5100e-003 | 1.5100e-003 | 0.0000 | 21.6120 | 21.6120 | 4.1000e-004 | 4.0000e-004 | 21.7404 |
| **Total** | | **2.6900e-003** | **0.0245** | **0.0206** | **1.5000e-004** | | **1.8600e-003** | **1.8600e-003** | | **1.8600e-003** | **1.8600e-003** | **0.0000** | **26.6457** | **26.6457** | **5.1000e-004** | **4.9000e-004** | **26.8040** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 89918.8 | 4.8000e-004 | 4.4100e-003 | 3.7000e-003 | 3.0000e-005 | | 3.3000e-004 | 3.3000e-004 | | 3.3000e-004 | 3.3000e-004 | 0.0000 | 4.7984 | 4.7984 | 9.0000e-005 | 9.0000e-005 | 4.8269 |
| Unrefrigerated Warehouse-No Rail | 385000 | 2.0800e-003 | 0.0189 | 0.0159 | 1.1000e-004 | | 1.4300e-003 | 1.4300e-003 | | 1.4300e-003 | 1.4300e-003 | 0.0000 | 20.5451 | 20.5451 | 3.9000e-004 | 3.8000e-004 | 20.6672 |
| **Total** | | **2.5600e-003** | **0.0233** | **0.0196** | **1.4000e-004** | | **1.7600e-003** | **1.7600e-003** | | **1.7600e-003** | **1.7600e-003** | **0.0000** | **25.3435** | **25.3435** | **4.8000e-004** | **4.7000e-004** | **25.4941** |

## 5.3 Energy by Land Use - Electricity

### Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 86944 | 60.8625 | 1.1400e-003 | 2.4000e-004 | 60.9617 |
| Refrigerated Warehouse-No Rail | 2.29462e+006 | 1,606.2810 | 0.0302 | 6.2400e-003 | 1,608.8965 |
| Unrefrigerated Warehouse-No Rail | 434727 | 304.3178 | 5.7200e-003 | 1.1800e-003 | 304.8133 |
| **Total** | | **1,971.4612** | **0.0370** | **7.6600e-003** | **1,974.6715** |

### Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|

| Land Use | kWh/yr | MT/yr | | | |
|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 86944 | 60.8625 | 1.1400e-003 | 2.4000e-004 | 60.9617 |
| Refrigerated Warehouse-No Rail | 2.29303e+006 | 1,605.1685 | 0.0302 | 6.2400e-003 | 1,607.7822 |
| Unrefrigerated Warehouse-No Rail | 431549 | 302.0928 | 5.6800e-003 | 1.1700e-003 | 302.5847 |
| **Total** | | **1,968.1238** | **0.0370** | **7.6500e-003** | **1,971.3286** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.8536 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |
| Unmitigated | 0.8536 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |

## 6.2 Area by SubCategory

**Unmitigated**

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

| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | 0.0981 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.7550 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.6000e-004 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |
| **Total** | **0.8536** | **5.0000e-005** | **5.8600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0113** | **0.0113** | **3.0000e-005** | **0.0000** | **0.0121** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0981 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.7550 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.6000e-004 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0113 | 0.0113 | 3.0000e-005 | 0.0000 | 0.0121 |
| **Total** | **0.8536** | **5.0000e-005** | **5.8600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | **0.0000** | **0.0113** | **0.0113** | **3.0000e-005** | **0.0000** | **0.0121** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 357.8214 | 1.2427 | 0.0305 | 397.9863 |
| Unmitigated | 447.2768 | 1.5533 | 0.0382 | 497.4829 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 23.7101 / 0 | 223.6384 | 0.7767 | 0.0191 | 248.7414 |
| Unrefrigerated Warehouse-No Rail | 23.7101 / 0 | 223.6384 | 0.7767 | 0.0191 | 248.7414 |
| **Total** | | **447.2768** | **1.5533** | **0.0382** | **497.4828** |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 18.9681 / 0 | 178.9107 | 0.6213 | 0.0153 | 198.9931 |
| Unrefrigerated Warehouse-No Rail | 18.9681 / 0 | 178.9107 | 0.6213 | 0.0153 | 198.9931 |
| **Total** | | **357.8214** | **1.2426** | **0.0305** | **397.9863** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 39.1285 | 2.3124 | 0.0000 | 96.9393 |
| Unmitigated | 39.1285 | 2.3124 | 0.0000 | 96.9393 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 96.38 | 19.5643 | 1.1562 | 0.0000 | 48.4697 |
| Unrefrigerated Warehouse-No Rail | 96.38 | 19.5643 | 1.1562 | 0.0000 | 48.4697 |
| **Total** | | **39.1285** | **2.3124** | **0.0000** | **96.9393** |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 96.38 | 19.5643 | 1.1562 | 0.0000 | 48.4697 |
| Unrefrigerated Warehouse-No Rail | 96.38 | 19.5643 | 1.1562 | 0.0000 | 48.4697 |
| **Total** | | **39.1285** | **2.3124** | **0.0000** | **96.9393** |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Forklifts | 4 | 8.00 | 260 | 89 | 0.20 | Diesel |

**UnMitigated/Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Forklifts | 0.0836 | 0.7464 | 0.6241 | 8.0000e-004 | | 0.0578 | 0.0578 | | 0.0532 | 0.0532 | 0.0000 | 71.7402 | 71.7402 | 0.0227 | 0.0000 | 72.3077 |
| **Total** | **0.0836** | **0.7464** | **0.6241** | **8.0000e-004** | | **0.0578** | **0.0578** | | **0.0532** | **0.0532** | **0.0000** | **71.7402** | **71.7402** | **0.0227** | **0.0000** | **72.3077** |

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# CLB 1704

**Los Angeles-South Coast County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Unrefrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Other Non-Asphalt Surfaces | 2.70 | Acre | 2.70 | 117,612.00 | 0 |
| Parking Lot | 247.00 | Space | 2.22 | 98,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 33 |
| **Climate Zone** | 8 | | | **Operational Year** | 2019 |
| **Utility Company** | Anaheim Public Utilities | | | | |
| **CO2 Intensity (lb/MWhr)** | 1543.28 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project Info

Construction Phase - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment -

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Trips and VMT - Project Specific Info

Demolition - Project Specific Info

Grading - Project Specific Info

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Vehicle Trips - From Traffic Study (Kunzman Associates, 2017).

Fleet Mix - From Traffic Study

Operational Off-Road Equipment - Assuming 4 Forklifts to be used in Warehouse operations

Energy Mitigation - 2016 building standards 5% more efficient than 2013 standards

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 40 | 15 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 9.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 5.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 10.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 3.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |

| | | | |
|---|---|---|---|
| tblConstructionPhase | NumDays | 20.00 | 35.00 |
| tblConstructionPhase | NumDays | 230.00 | 48.00 |
| tblConstructionPhase | NumDays | 230.00 | 7.00 |
| tblConstructionPhase | NumDays | 230.00 | 115.00 |
| tblConstructionPhase | NumDays | 20.00 | 30.00 |
| tblConstructionPhase | PhaseEndDate | 11/29/2018 | 8/17/2018 |
| tblConstructionPhase | PhaseEndDate | 4/24/2018 | 4/27/2018 |
| tblConstructionPhase | PhaseEndDate | 5/3/2018 | 3/13/2018 |
| tblConstructionPhase | PhaseEndDate | 10/11/2018 | 8/21/2018 |
| tblConstructionPhase | PhaseStartDate | 10/12/2018 | 7/2/2018 |
| tblConstructionPhase | PhaseStartDate | 4/25/2018 | 3/5/2018 |
| tblConstructionPhase | PhaseStartDate | 5/4/2018 | 3/14/2018 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |

| | | | |
|---|---|---|---|
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblGrading | AcresOfGrading | 15.00 | 0.00 |
| tblGrading | MaterialImported | 0.00 | 15,000.00 |
| tblOffRoadEquipment | HorsePower | 203.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 367.00 | 247.00 |
| tblOffRoadEquipment | LoadFactor | 0.36 | 0.40 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.40 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 6.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 8.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 3.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 4.00 |
| tblProjectCharacteristics | OperationalYear | 2018 | 2019 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 44.00 |
| tblTripsAndVMT | WorkerTripNumber | 23.00 | 56.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 48.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 24.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 40.00 |
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |

| | | | |
|---|---|---|---|
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2017 | 6.0417 | 81.8895 | 42.8557 | 0.0998 | 7.9550 | 2.9261 | 10.8810 | 3.8140 | 2.6954 | 6.5094 | 0.0000 | 10,431.5848 | 10,431.5848 | 2.0891 | 0.0000 | 10,483.8118 |
| 2018 | 61.6177 | 94.9544 | 81.4933 | 0.1597 | 7.6001 | 5.0186 | 10.0797 | 3.7269 | 4.8858 | 6.0103 | 0.0000 | 15,597.4826 | 15,597.4826 | 2.3650 | 0.0000 | 15,656.6062 |
| **Maximum** | **61.6177** | **94.9544** | **81.4933** | **0.1597** | **7.9550** | **5.0186** | **10.8810** | **3.8140** | **4.8858** | **6.5094** | **0.0000** | **15,597.4826** | **15,597.4826** | **2.3650** | **0.0000** | **15,656.6062** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2017 | 6.0417 | 81.8895 | 42.8557 | 0.0998 | 4.2815 | 2.9261 | 7.2076 | 1.7947 | 2.6954 | 4.4901 | 0.0000 | 10,431.5848 | 10,431.5848 | 2.0891 | 0.0000 | 10,483.8118 |
| 2018 | 61.6177 | 94.9544 | 81.4933 | 0.1597 | 3.9267 | 5.0186 | 6.4567 | 1.7076 | 4.8858 | 5.2775 | 0.0000 | 15,597.4826 | 15,597.4826 | 2.3650 | 0.0000 | 15,656.6062 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum** | **61.6177** | **94.9544** | **81.4933** | **0.1597** | **4.2815** | **5.0186** | **7.2076** | **1.7947** | **4.8858** | **5.2775** | **0.0000** | **15,597.4826** | **15,597.4826** | **2.3650** | **0.0000** | **15,656.6062** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **47.23** | **0.00** | **34.81** | **53.56** | **0.00** | **21.98** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| Energy | 0.0148 | 0.1341 | 0.1127 | 8.0000e-004 | | 0.0102 | 0.0102 | | 0.0102 | 0.0102 | | 160.9415 | 160.9415 | 3.0800e-003 | 2.9500e-003 | 161.8979 |
| Mobile | 1.5668 | 14.5558 | 23.4679 | 0.0951 | 6.6794 | 0.0931 | 6.7724 | 1.7881 | 0.0876 | 1.8757 | | 9,716.1172 | 9,716.1172 | 0.4010 | | 9,726.1408 |
| Offroad | 0.6430 | 5.7418 | 4.8007 | 6.1400e-003 | | 0.4448 | 0.4448 | | 0.4092 | 0.4092 | | 608.3080 | 608.3080 | 0.1925 | | 613.1196 |
| **Total** | **6.9031** | **20.4322** | **28.4281** | **0.1020** | **6.6794** | **0.5483** | **7.2276** | **1.7881** | **0.5072** | **2.2952** | | **10,485.4663** | **10,485.4663** | **0.5968** | **2.9500e-003** | **10,501.2646** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| Energy | 0.0140 | 0.1276 | 0.1072 | 7.7000e-004 | | 9.6900e-003 | 9.6900e-003 | | 9.6900e-003 | 9.6900e-003 | | 153.0762 | 153.0762 | 2.9300e-003 | 2.8100e-003 | 153.9859 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mobile | 1.5668 | 14.5558 | 23.4679 | 0.0951 | 6.6794 | 0.0931 | 6.7724 | 1.7881 | 0.0876 | 1.8757 | | 9,716.1172 | 9,716.1172 | 0.4010 | | 9,726.1408 |
| Offroad | 0.6430 | 5.7418 | 4.8007 | 6.1400e-003 | | 0.4448 | 0.4448 | | 0.4092 | 0.4092 | | 608.3080 | 608.3080 | 0.1925 | | 613.1196 |
| **Total** | **6.9024** | **20.4256** | **28.4226** | **0.1020** | **6.6794** | **0.5478** | **7.2271** | **1.7881** | **0.5067** | **2.2947** | | **10,477.6009** | **10,477.6009** | **0.5966** | **2.8100e-003** | **10,493.3525** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.01** | **0.03** | **0.02** | **0.03** | **0.00** | **0.09** | **0.01** | **0.00** | **0.10** | **0.02** | **0.00** | **0.08** | **0.08** | **0.03** | **4.75** | **0.08** |

## 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 | 11/1/2017 | 11/28/2017 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 11/29/2017 | 12/12/2017 | 5 | 10 | |
| 3 | Grading | Grading | 12/13/2017 | 1/23/2018 | 5 | 30 | |
| 4 | Backbone Infrastructure | Trenching | 1/24/2018 | 2/20/2018 | 5 | 20 | |
| 5 | Concrete | Building Construction | 2/21/2018 | 4/27/2018 | 5 | 48 | |
| 6 | Building Erection | Building Construction | 3/5/2018 | 3/13/2018 | 5 | 7 | |
| 7 | Building Construction | Building Construction | 3/14/2018 | 8/21/2018 | 5 | 115 | |
| 8 | Architectural Coating | Architectural Coating | 7/2/2018 | 8/17/2018 | 5 | 35 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 4.92**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,590; Non-Residential Outdoor: 102,530; Striped Parking Area:**

### 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 | Excavators | 3 | 8.00 | 158 | 0.38 |

| | | | | | |
|---|---|---|---|---|---|
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 0 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Loaders | 4 | 6.00 | 203 | 0.36 |
| Site Preparation | Scrapers | 2 | 6.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 8.00 | 158 | 0.38 |
| Grading | Graders | 0 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Grading | Scrapers | 4 | 6.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Excavators | 1 | 6.00 | 158 | 0.38 |
| Backbone Infrastructure | Plate Compactors | 2 | 6.00 | 8 | 0.43 |
| Backbone Infrastructure | Rollers | 1 | 6.00 | 80 | 0.38 |
| Backbone Infrastructure | Tractors/Loaders/Backhoes | 3 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Trenchers | 2 | 6.00 | 78 | 0.50 |
| Concrete | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Concrete | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |
| Concrete | Cranes | 0 | 7.00 | 231 | 0.29 |
| Concrete | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Concrete | Generator Sets | 4 | 6.00 | 84 | 0.74 |
| Concrete | Pavers | 1 | 6.00 | 130 | 0.42 |
| Concrete | Paving Equipment | 8 | 6.00 | 132 | 0.36 |
| Concrete | Rubber Tired Loaders | 2 | 6.00 | 247 | 0.40 |
| Concrete | Signal Boards | 4 | 6.00 | 6 | 0.82 |
| Concrete | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Concrete | Welders | 0 | 6.00 | 46 | 0.45 |
| Building Erection | Air Compressors | 2 | 6.00 | 78 | 0.48 |
| Building Erection | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |
| Building Erection | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Erection | Forklifts | 0 | 8.00 | 89 | 0.20 |

| | | | | | |
|---|---|---|---|---|---|
| Building Erection | Generator Sets | 0 | 8.00 | 84 | 0.74 |
| Building Erection | Pavers | 0 | 0.00 | 130 | 0.42 |
| Building Erection | Paving Equipment | 0 | 0.00 | 132 | 0.36 |
| Building Erection | Rollers | 0 | 0.00 | 80 | 0.38 |
| Building Erection | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Building Erection | Welders | 0 | 0.00 | 46 | 0.45 |
| Building Construction | Aerial Lifts | 4 | 6.00 | 63 | 0.31 |
| Building Construction | Air Compressors | 4 | 6.00 | 78 | 0.48 |
| Building Construction | Cranes | 0 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 6 | 6.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 0 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 2 | 6.00 | 46 | 0.45 |
| Architectural Coating | Air Compressors | 2 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 96.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 44.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 7 | 18.00 | 2.00 | 1,483.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Backbone Infrastructure | 9 | 56.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Concrete | 24 | 48.00 | 2.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Erection | 5 | 24.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 16 | 40.00 | 69.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 2 | 35.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

## 3.2 Demolition - 2017

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 1.0336 | 0.0000 | 1.0336 | 0.1565 | 0.0000 | 0.1565 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.1031 | 42.7475 | 23.0122 | 0.0388 | | 2.1935 | 2.1935 | | 2.0425 | 2.0425 | | 3,924.2833 | 3,924.2833 | 1.0730 | | 3,951.1070 |
| **Total** | **4.1031** | **42.7475** | **23.0122** | **0.0388** | **1.0336** | **2.1935** | **3.2270** | **0.1565** | **2.0425** | **2.1990** | | **3,924.2833** | **3,924.2833** | **1.0730** | | **3,951.1070** |

### 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 | 0.0542 | 1.6685 | 0.3408 | 3.9300e-003 | 0.0839 | 8.8100e-003 | 0.0927 | 0.0230 | 8.4300e-003 | 0.0314 | | 423.7636 | 423.7636 | 0.0296 | | 424.5037 |
| 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 | 0.0938 | 0.0720 | 0.9234 | 1.9500e-003 | 0.1677 | 1.5600e-003 | 0.1692 | 0.0445 | 1.4400e-003 | 0.0459 | | 193.3376 | 193.3376 | 8.0300e-003 | | 193.5383 |
| **Total** | **0.1480** | **1.7404** | **1.2642** | **5.8800e-003** | **0.2516** | **0.0104** | **0.2620** | **0.0675** | **9.8700e-003** | **0.0773** | | **617.1012** | **617.1012** | **0.0376** | | **618.0420** |

### 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 | | | | | 0.4031 | 0.0000 | 0.4031 | 0.0610 | 0.0000 | 0.0610 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.1031 | 42.7475 | 23.0122 | 0.0388 | | 2.1935 | 2.1935 | | 2.0425 | 2.0425 | 0.0000 | 3,924.2833 | 3,924.2833 | 1.0730 | | 3,951.1070 |
| **Total** | **4.1031** | **42.7475** | **23.0122** | **0.0388** | **0.4031** | **2.1935** | **2.5966** | **0.0610** | **2.0425** | **2.1035** | **0.0000** | **3,924.2833** | **3,924.2833** | **1.0730** | | **3,951.1070** |

**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 | 0.0542 | 1.6685 | 0.3408 | 3.9300e-003 | 0.0839 | 8.8100e-003 | 0.0927 | 0.0230 | 8.4300e-003 | 0.0314 | | 423.7636 | 423.7636 | 0.0296 | | 424.5037 |
| 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 | 0.0938 | 0.0720 | 0.9234 | 1.9500e-003 | 0.1677 | 1.5600e-003 | 0.1692 | 0.0445 | 1.4400e-003 | 0.0459 | | 193.3376 | 193.3376 | 8.0300e-003 | | 193.5383 |
| **Total** | **0.1480** | **1.7404** | **1.2642** | **5.8800e-003** | **0.2516** | **0.0104** | **0.2620** | **0.0675** | **9.8700e-003** | **0.0773** | | **617.1012** | **617.1012** | **0.0376** | | **618.0420** |

## 3.3 Site Preparation - 2017

**Unmitigated Construction On-Site**

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

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.3173 | 40.0068 | 14.1934 | 0.0337 | | 1.6675 | 1.6675 | | 1.5341 | 1.5341 | | 3,448.9887 | 3,448.9887 | 1.0568 | | 3,475.4078 |
| **Total** | **3.3173** | **40.0068** | **14.1934** | **0.0337** | **0.0000** | **1.6675** | **1.6675** | **0.0000** | **1.5341** | **1.5341** | | **3,448.9887** | **3,448.9887** | **1.0568** | | **3,475.4078** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.2752 | 0.2110 | 2.7087 | 5.7100e-003 | 0.4918 | 4.5700e-003 | 0.4964 | 0.1304 | 4.2200e-003 | 0.1347 | | 567.1237 | 567.1237 | 0.0235 | | 567.7123 |
| **Total** | **0.2752** | **0.2110** | **2.7087** | **5.7100e-003** | **0.4918** | **4.5700e-003** | **0.4964** | **0.1304** | **4.2200e-003** | **0.1347** | | **567.1237** | **567.1237** | **0.0235** | | **567.7123** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.3173 | 40.0068 | 14.1934 | 0.0337 | | 1.6675 | 1.6675 | | 1.5341 | 1.5341 | 0.0000 | 3,448.9887 | 3,448.9887 | 1.0568 | | 3,475.4078 |
| **Total** | **3.3173** | **40.0068** | **14.1934** | **0.0337** | **0.0000** | **1.6675** | **1.6675** | **0.0000** | **1.5341** | **1.5341** | **0.0000** | **3,448.9887** | **3,448.9887** | **1.0568** | | **3,475.4078** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.2752 | 0.2110 | 2.7087 | 5.7100e-003 | 0.4918 | 4.5700e-003 | 0.4964 | 0.1304 | 4.2200e-003 | 0.1347 | | 567.1237 | 567.1237 | 0.0235 | | 567.7123 |
| **Total** | **0.2752** | **0.2110** | **2.7087** | **5.7100e-003** | **0.4918** | **4.5700e-003** | **0.4964** | **0.1304** | **4.2200e-003** | **0.1347** | | **567.1237** | **567.1237** | **0.0235** | | **567.7123** |

## 3.4 Grading - 2017

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 5.3606 | 64.3593 | 38.1642 | 0.0565 | | 2.8313 | 2.8313 | | 2.6048 | 2.6048 | | 5,778.8849 | 5,778.8849 | 1.7706 | | 5,823.1509 |
| **Total** | **5.3606** | **64.3593** | **38.1642** | **0.0565** | **6.0221** | **2.8313** | **8.8533** | **3.3102** | **2.6048** | **5.9150** | | **5,778.8849** | **5,778.8849** | **1.7706** | | **5,823.1509** |

## 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 | 0.5580 | 17.1832 | 3.5093 | 0.0405 | 1.7189 | 0.0908 | 1.8096 | 0.4467 | 0.0868 | 0.5335 | | 4,364.1762 | 4,364.1762 | 0.3049 | | 4,371.7987 |
| Vendor | 0.0104 | 0.2608 | 0.0742 | 5.3000e-004 | 0.0128 | 2.1800e-003 | 0.0150 | 3.6900e-003 | 2.0900e-003 | 5.7800e-003 | | 56.5186 | 56.5186 | 3.9100e-003 | | 56.6163 |
| Worker | 0.1126 | 0.0863 | 1.1081 | 2.3300e-003 | 0.2012 | 1.8700e-003 | 0.2031 | 0.0534 | 1.7300e-003 | 0.0551 | | 232.0052 | 232.0052 | 9.6300e-003 | | 232.2460 |
| **Total** | **0.6810** | **17.5303** | **4.6916** | **0.0433** | **1.9329** | **0.0948** | **2.0277** | **0.5037** | **0.0907** | **0.5944** | | **4,652.6999** | **4,652.6999** | **0.3184** | | **4,660.6609** |

## 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 | | | | | 2.3486 | 0.0000 | 2.3486 | 1.2910 | 0.0000 | 1.2910 | | | 0.0000 | | | 0.0000 |
| Off-Road | 5.3606 | 64.3593 | 38.1642 | 0.0565 | | 2.8313 | 2.8313 | | 2.6048 | 2.6048 | 0.0000 | 5,778.8849 | 5,778.8849 | 1.7706 | | 5,823.1509 |
| **Total** | **5.3606** | **64.3593** | **38.1642** | **0.0565** | **2.3486** | **2.8313** | **5.1799** | **1.2910** | **2.6048** | **3.8957** | **0.0000** | **5,778.8849** | **5,778.8849** | **1.7706** | | **5,823.1509** |

## 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 | 0.5580 | 17.1832 | 3.5093 | 0.0405 | 1.7189 | 0.0908 | 1.8096 | 0.4467 | 0.0868 | 0.5335 | | 4,364.1762 | 4,364.1762 | 0.3049 | | 4,371.7987 |
| Vendor | 0.0104 | 0.2608 | 0.0742 | 5.3000e-004 | 0.0128 | 2.1800e-003 | 0.0150 | 3.6900e-003 | 2.0900e-003 | 5.7800e-003 | | 56.5186 | 56.5186 | 3.9100e-003 | | 56.6163 |
| Worker | 0.1126 | 0.0863 | 1.1081 | 2.3300e-003 | 0.2012 | 1.8700e-003 | 0.2031 | 0.0534 | 1.7300e-003 | 0.0551 | | 232.0052 | 232.0052 | 9.6300e-003 | | 232.2460 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.6810** | **17.5303** | **4.6916** | **0.0433** | **1.9329** | **0.0948** | **2.0277** | **0.5037** | **0.0907** | **0.5944** | | **4,652.6999** | **4,652.6999** | **0.3184** | | **4,660.6609** |

## 3.4 Grading - 2018

### 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 | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.7145 | 55.9392 | 33.1476 | 0.0565 | | 2.4153 | 2.4153 | | 2.2220 | 2.2220 | | 5,688.6905 | 5,688.6905 | 1.7710 | | 5,732.9647 |
| **Total** | **4.7145** | **55.9392** | **33.1476** | **0.0565** | **6.0221** | **2.4153** | **8.4373** | **3.3102** | **2.2220** | **5.5323** | | **5,688.6905** | **5,688.6905** | **1.7710** | | **5,732.9647** |

### 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 | 0.4907 | 15.9701 | 3.3045 | 0.0401 | 1.3640 | 0.0608 | 1.4248 | 0.3596 | 0.0581 | 0.4177 | | 4,328.4547 | 4,328.4547 | 0.2980 | | 4,335.9041 |
| Vendor | 9.2000e-003 | 0.2451 | 0.0670 | 5.3000e-004 | 0.0128 | 1.7300e-003 | 0.0145 | 3.6900e-003 | 1.6500e-003 | 5.3400e-003 | | 56.3359 | 56.3359 | 3.7100e-003 | | 56.4286 |
| Worker | 0.0995 | 0.0751 | 0.9721 | 2.2700e-003 | 0.2012 | 1.7900e-003 | 0.2030 | 0.0534 | 1.6500e-003 | 0.0550 | | 225.6642 | 225.6642 | 8.4600e-003 | | 225.8758 |
| **Total** | **0.5993** | **16.2903** | **4.3436** | **0.0429** | **1.5780** | **0.0643** | **1.6423** | **0.4166** | **0.0614** | **0.4780** | | **4,610.4547** | **4,610.4547** | **0.3102** | | **4,618.2085** |

### 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 | | | | | 2.3486 | 0.0000 | 2.3486 | 1.2910 | 0.0000 | 1.2910 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.7145 | 55.9392 | 33.1476 | 0.0565 | | 2.4153 | 2.4153 | | 2.2220 | 2.2220 | 0.0000 | 5,688.6905 | 5,688.6905 | 1.7710 | | 5,732.9647 |
| **Total** | **4.7145** | **55.9392** | **33.1476** | **0.0565** | **2.3486** | **2.4153** | **4.7639** | **1.2910** | **2.2220** | **3.5130** | **0.0000** | **5,688.6905** | **5,688.6905** | **1.7710** | | **5,732.9647** |

## 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 | 0.4907 | 15.9701 | 3.3045 | 0.0401 | 1.3640 | 0.0608 | 1.4248 | 0.3596 | 0.0581 | 0.4177 | | 4,328.4547 | 4,328.4547 | 0.2980 | | 4,335.9041 |
| Vendor | 9.2000e-003 | 0.2451 | 0.0670 | 5.3000e-004 | 0.0128 | 1.7300e-003 | 0.0145 | 3.6900e-003 | 1.6500e-003 | 5.3400e-003 | | 56.3359 | 56.3359 | 3.7100e-003 | | 56.4286 |
| Worker | 0.0995 | 0.0751 | 0.9721 | 2.2700e-003 | 0.2012 | 1.7900e-003 | 0.2030 | 0.0534 | 1.6500e-003 | 0.0550 | | 225.6642 | 225.6642 | 8.4600e-003 | | 225.8758 |
| **Total** | **0.5993** | **16.2903** | **4.3436** | **0.0429** | **1.5780** | **0.0643** | **1.6423** | **0.4166** | **0.0614** | **0.4780** | | **4,610.4547** | **4,610.4547** | **0.3102** | | **4,618.2085** |

## 3.5 Backbone Infrastructure - 2018

### 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 | 1.7482 | 16.5890 | 13.4591 | 0.0186 | | 1.1394 | 1.1394 | | 1.0494 | 1.0494 | | 1,852.4807 | 1,852.4807 | 0.5660 | | 1,866.6300 |
| **Total** | **1.7482** | **16.5890** | **13.4591** | **0.0186** | | **1.1394** | **1.1394** | | **1.0494** | **1.0494** | | **1,852.4807** | **1,852.4807** | **0.5660** | | **1,866.6300** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3094 | 0.2335 | 3.0244 | 7.0600e-003 | 0.6260 | 5.5800e-003 | 0.6315 | 0.1660 | 5.1500e-003 | 0.1712 | | 702.0663 | 702.0663 | 0.0263 | | 702.7246 |
| **Total** | **0.3094** | **0.2335** | **3.0244** | **7.0600e-003** | **0.6260** | **5.5800e-003** | **0.6315** | **0.1660** | **5.1500e-003** | **0.1712** | | **702.0663** | **702.0663** | **0.0263** | | **702.7246** |

## 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 | 1.7482 | 16.5890 | 13.4591 | 0.0186 | | 1.1394 | 1.1394 | | 1.0494 | 1.0494 | 0.0000 | 1,852.4807 | 1,852.4807 | 0.5660 | | 1,866.6300 |
| **Total** | **1.7482** | **16.5890** | **13.4591** | **0.0186** | | **1.1394** | **1.1394** | | **1.0494** | **1.0494** | **0.0000** | **1,852.4807** | **1,852.4807** | **0.5660** | | **1,866.6300** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3094 | 0.2335 | 3.0244 | 7.0600e-003 | 0.6260 | 5.5800e-003 | 0.6315 | 0.1660 | 5.1500e-003 | 0.1712 | | 702.0663 | 702.0663 | 0.0263 | | 702.7246 |
| **Total** | **0.3094** | **0.2335** | **3.0244** | **7.0600e-003** | **0.6260** | **5.5800e-003** | **0.6315** | **0.1660** | **5.1500e-003** | **0.1712** | | **702.0663** | **702.0663** | **0.0263** | | **702.7246** |

## 3.6 Concrete - 2018

## 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 | 5.7079 | 54.6972 | 44.0212 | 0.0795 | | 2.9379 | 2.9379 | | 2.8132 | 2.8132 | | 7,746.8136 | 7,746.8136 | 1.6652 | | 7,788.4425 |
| **Total** | **5.7079** | **54.6972** | **44.0212** | **0.0795** | | **2.9379** | **2.9379** | | **2.8132** | **2.8132** | | **7,746.8136** | **7,746.8136** | **1.6652** | | **7,788.4425** |

## 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 | 9.2000e-003 | 0.2451 | 0.0670 | 5.3000e-004 | 0.0128 | 1.7300e-003 | 0.0145 | 3.6900e-003 | 1.6500e-003 | 5.3400e-003 | | 56.3359 | 56.3359 | 3.7100e-003 | | 56.4286 |
| Worker | 0.2652 | 0.2001 | 2.5924 | 6.0500e-003 | 0.5365 | 4.7800e-003 | 0.5413 | 0.1423 | 4.4100e-003 | 0.1467 | | 601.7711 | 601.7711 | 0.0226 | | 602.3354 |
| **Total** | **0.2744** | **0.4452** | **2.6594** | **6.5800e-003** | **0.5493** | **6.5100e-003** | **0.5558** | **0.1460** | **6.0600e-003** | **0.1520** | | **658.1070** | **658.1070** | **0.0263** | | **658.7640** |

## 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 | 5.7079 | 54.6972 | 44.0212 | 0.0795 | | 2.9379 | 2.9379 | | 2.8132 | 2.8132 | 0.0000 | 7,746.8136 | 7,746.8136 | 1.6652 | | 7,788.4425 |
| **Total** | **5.7079** | **54.6972** | **44.0212** | **0.0795** | | **2.9379** | **2.9379** | | **2.8132** | **2.8132** | **0.0000** | **7,746.8136** | **7,746.8136** | **1.6652** | | **7,788.4425** |

## 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 | 9.2000e-003 | 0.2451 | 0.0670 | 5.3000e-004 | 0.0128 | 1.7300e-003 | 0.0145 | 3.6900e-003 | 1.6500e-003 | 5.3400e-003 | | 56.3359 | 56.3359 | 3.7100e-003 | | 56.4286 |
| Worker | 0.2652 | 0.2001 | 2.5924 | 6.0500e-003 | 0.5365 | 4.7800e-003 | 0.5413 | 0.1423 | 4.4100e-003 | 0.1467 | | 601.7711 | 601.7711 | 0.0226 | | 602.3354 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.2744** | **0.4452** | **2.6594** | **6.5800e-003** | **0.5493** | **6.5100e-003** | **0.5558** | **0.1460** | **6.0600e-003** | **0.1520** | | **658.1070** | **658.1070** | **0.0263** | | **658.7640** |

## 3.7 Building Erection - 2018

### 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 | 1.8757 | 15.8521 | 11.5012 | 0.0204 | | 0.9599 | 0.9599 | | 0.9392 | 0.9392 | | 1,959.9172 | 1,959.9172 | 0.2805 | | 1,966.9290 |
| **Total** | **1.8757** | **15.8521** | **11.5012** | **0.0204** | | **0.9599** | **0.9599** | | **0.9392** | **0.9392** | | **1,959.9172** | **1,959.9172** | **0.2805** | | **1,966.9290** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1326 | 0.1001 | 1.2962 | 3.0200e-003 | 0.2683 | 2.3900e-003 | 0.2707 | 0.0711 | 2.2100e-003 | 0.0734 | | 300.8856 | 300.8856 | 0.0113 | | 301.1677 |
| **Total** | **0.1326** | **0.1001** | **1.2962** | **3.0200e-003** | **0.2683** | **2.3900e-003** | **0.2707** | **0.0711** | **2.2100e-003** | **0.0734** | | **300.8856** | **300.8856** | **0.0113** | | **301.1677** |

### 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 | 1.8757 | 15.8521 | 11.5012 | 0.0204 | | 0.9599 | 0.9599 | | 0.9392 | 0.9392 | 0.0000 | 1,959.9172 | 1,959.9172 | 0.2805 | | 1,966.9290 |
| **Total** | **1.8757** | **15.8521** | **11.5012** | **0.0204** | | **0.9599** | **0.9599** | | **0.9392** | **0.9392** | **0.0000** | **1,959.9172** | **1,959.9172** | **0.2805** | | **1,966.9290** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1326 | 0.1001 | 1.2962 | 3.0200e-003 | 0.2683 | 2.3900e-003 | 0.2707 | 0.0711 | 2.2100e-003 | 0.0734 | | 300.8856 | 300.8856 | 0.0113 | | 301.1677 |
| **Total** | **0.1326** | **0.1001** | **1.2962** | **3.0200e-003** | **0.2683** | **2.3900e-003** | **0.2707** | **0.0711** | **2.2100e-003** | **0.0734** | | **300.8856** | **300.8856** | **0.0113** | | **301.1677** |

## 3.8 Building Construction - 2018

**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 | 4.2575 | 31.1885 | 30.3402 | 0.0504 | | 2.0106 | 2.0106 | | 2.0059 | 2.0059 | | 4,747.4982 | 4,747.4982 | 0.5267 | | 4,760.6662 |
| **Total** | **4.2575** | **31.1885** | **30.3402** | **0.0504** | | **2.0106** | **2.0106** | | **2.0059** | **2.0059** | | **4,747.4982** | **4,747.4982** | **0.5267** | | **4,760.6662** |

## 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 | 0.3174 | 8.4567 | 2.3122 | 0.0182 | 0.4417 | 0.0596 | 0.5013 | 0.1272 | 0.0570 | 0.1842 | | 1,943.5880 | 1,943.5880 | 0.1280 | | 1,946.7874 |
| Worker | 0.2210 | 0.1668 | 2.1603 | 5.0400e-003 | 0.4471 | 3.9900e-003 | 0.4511 | 0.1186 | 3.6800e-003 | 0.1223 | | 501.4759 | 501.4759 | 0.0188 | | 501.9462 |
| **Total** | **0.5384** | **8.6234** | **4.4725** | **0.0233** | **0.8888** | **0.0636** | **0.9524** | **0.2458** | **0.0607** | **0.3064** | | **2,445.0639** | **2,445.0639** | **0.1468** | | **2,448.7336** |

## 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 | 4.2575 | 31.1885 | 30.3402 | 0.0504 | | 2.0106 | 2.0106 | | 2.0059 | 2.0059 | 0.0000 | 4,747.4982 | 4,747.4982 | 0.5267 | | 4,760.6661 |
| **Total** | **4.2575** | **31.1885** | **30.3402** | **0.0504** | | **2.0106** | **2.0106** | | **2.0059** | **2.0059** | **0.0000** | **4,747.4982** | **4,747.4982** | **0.5267** | | **4,760.6661** |

**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 | 0.3174 | 8.4567 | 2.3122 | 0.0182 | 0.4417 | 0.0596 | 0.5013 | 0.1272 | 0.0570 | 0.1842 | | 1,943.5880 | 1,943.5880 | 0.1280 | | 1,946.7874 |
| Worker | 0.2210 | 0.1668 | 2.1603 | 5.0400e-003 | 0.4471 | 3.9900e-003 | 0.4511 | 0.1186 | 3.6800e-003 | 0.1223 | | 501.4759 | 501.4759 | 0.0188 | | 501.9462 |
| **Total** | **0.5384** | **8.6234** | **4.4725** | **0.0233** | **0.8888** | **0.0636** | **0.9524** | **0.2458** | **0.0607** | **0.3064** | | **2,445.0639** | **2,445.0639** | **0.1468** | | **2,448.7336** |

## 3.9 Architectural Coating - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 56.0312 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5973 | 4.0115 | 3.7084 | 5.9400e-003 | | 0.3011 | 0.3011 | | 0.3011 | 0.3011 | | 562.8971 | 562.8971 | 0.0535 | | 564.2343 |
| **Total** | **56.6285** | **4.0115** | **3.7084** | **5.9400e-003** | | **0.3011** | **0.3011** | | **0.3011** | **0.3011** | | **562.8971** | **562.8971** | **0.0535** | | **564.2343** |

**Unmitigated Construction Off-Site**

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

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1934 | 0.1459 | 1.8903 | 4.4100e-003 | 0.3912 | 3.4900e-003 | 0.3947 | 0.1038 | 3.2200e-003 | 0.1070 | | 438.7914 | 438.7914 | 0.0165 | | 439.2029 |
| **Total** | **0.1934** | **0.1459** | **1.8903** | **4.4100e-003** | **0.3912** | **3.4900e-003** | **0.3947** | **0.1038** | **3.2200e-003** | **0.1070** | | **438.7914** | **438.7914** | **0.0165** | | **439.2029** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 56.0312 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5973 | 4.0115 | 3.7084 | 5.9400e-003 | | 0.3011 | 0.3011 | | 0.3011 | 0.3011 | 0.0000 | 562.8971 | 562.8971 | 0.0535 | | 564.2343 |
| **Total** | **56.6285** | **4.0115** | **3.7084** | **5.9400e-003** | | **0.3011** | **0.3011** | | **0.3011** | **0.3011** | **0.0000** | **562.8971** | **562.8971** | **0.0535** | | **564.2343** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1934 | 0.1459 | 1.8903 | 4.4100e-003 | 0.3912 | 3.4900e-003 | 0.3947 | 0.1038 | 3.2200e-003 | 0.1070 | | 438.7914 | 438.7914 | 0.0165 | | 439.2029 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.1934** | **0.1459** | **1.8903** | **4.4100e-003** | **0.3912** | **3.4900e-003** | **0.3947** | **0.1038** | **3.2200e-003** | **0.1070** | | **438.7914** | **438.7914** | **0.0165** | | **439.2029** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.5668 | 14.5558 | 23.4679 | 0.0951 | 6.6794 | 0.0931 | 6.7724 | 1.7881 | 0.0876 | 1.8757 | | 9,716.1172 | 9,716.1172 | 0.4010 | | 9,726.1408 |
| Unmitigated | 1.5668 | 14.5558 | 23.4679 | 0.0951 | 6.6794 | 0.0931 | 6.7724 | 1.7881 | 0.0876 | 1.8757 | | 9,716.1172 | 9,716.1172 | 0.4010 | | 9,726.1408 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Unrefrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Total | 730.01 | 730.01 | 730.01 | 3,128,632 | 3,128,632 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unrefrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Unrefrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Other Non-Asphalt Surfaces | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Parking Lot | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

Exceed Title 24

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0140 | 0.1276 | 0.1072 | 7.7000e-004 | | 9.6900e-003 | 9.6900e-003 | | 9.6900e-003 | 9.6900e-003 | | 153.0762 | 153.0762 | 2.9300e-003 | 2.8100e-003 | 153.9859 |
| NaturalGas Unmitigated | 0.0148 | 0.1341 | 0.1127 | 8.0000e-004 | | 0.0102 | 0.0102 | | 0.0102 | 0.0102 | | 160.9415 | 160.9415 | 3.0800e-003 | 2.9500e-003 | 161.8979 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 258.432 | 2.7900e-003 | 0.0253 | 0.0213 | 1.5000e-004 | | 1.9300e-003 | 1.9300e-003 | | 1.9300e-003 | 1.9300e-003 | | 30.4037 | 30.4037 | 5.8000e-004 | 5.6000e-004 | 30.5844 |
| Unrefrigerated Warehouse-No Rail | 1109.57 | 0.0120 | 0.1088 | 0.0914 | 6.5000e-004 | | 8.2700e-003 | 8.2700e-003 | | 8.2700e-003 | 8.2700e-003 | | 130.5378 | 130.5378 | 2.5000e-003 | 2.3900e-003 | 131.3135 |
| **Total** | | **0.0148** | **0.1341** | **0.1127** | **8.0000e-004** | | **0.0102** | **0.0102** | | **0.0102** | **0.0102** | | **160.9415** | **160.9415** | **3.0800e-003** | **2.9500e-003** | **161.8979** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 0.246353 | 2.6600e-003 | 0.0242 | 0.0203 | 1.4000e-004 | | 1.8400e-003 | 1.8400e-003 | | 1.8400e-003 | 1.8400e-003 | | 28.9827 | 28.9827 | 5.6000e-004 | 5.3000e-004 | 29.1549 |
| Unrefrigerated Warehouse-No Rail | 1.05479 | 0.0114 | 0.1034 | 0.0869 | 6.2000e-004 | | 7.8600e-003 | 7.8600e-003 | | 7.8600e-003 | 7.8600e-003 | | 124.0935 | 124.0935 | 2.3800e-003 | 2.2800e-003 | 124.8310 |
| **Total** | | **0.0140** | **0.1276** | **0.1072** | **7.6000e-004** | | **9.7000e-003** | **9.7000e-003** | | **9.7000e-003** | **9.7000e-003** | | **153.0762** | **153.0762** | **2.9400e-003** | **2.8100e-003** | **153.9859** |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| Unmitigated | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 4.1368 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 4.4400e-003 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| **Total** | **4.6786** | **4.4000e-004** | **0.0469** | **0.0000** | | **1.7000e-004** | **1.7000e-004** | | **1.7000e-004** | **1.7000e-004** | | **0.0995** | **0.0995** | **2.7000e-004** | | **0.1063** |

**Mitigated**

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

| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 4.1368 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 4.4400e-003 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| **Total** | **4.6786** | **4.4000e-004** | **0.0469** | **0.0000** | | **1.7000e-004** | **1.7000e-004** | | **1.7000e-004** | **1.7000e-004** | | **0.0995** | **0.0995** | **2.7000e-004** | | **0.1063** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Forklifts | 4 | 8.00 | 260 | 89 | 0.20 | Diesel |

**UnMitigated/Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | lb/day | | | | | | | | | | lb/day | | | | | |
| Forklifts | 0.6430 | 5.7418 | 4.8007 | 6.1400e-003 | | 0.4448 | 0.4448 | | 0.4092 | 0.4092 | | 608.3080 | 608.3080 | 0.1925 | | 613.1196 |
| **Total** | **0.6430** | **5.7418** | **4.8007** | **6.1400e-003** | | **0.4448** | **0.4448** | | **0.4092** | **0.4092** | | **608.3080** | **608.3080** | **0.1925** | | **613.1196** |

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# CLB 1704

**Los Angeles-South Coast County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Unrefrigerated Warehouse-No Rail | 102.53 | 1000sqft | 2.35 | 102,530.00 | 0 |
| Other Non-Asphalt Surfaces | 2.70 | Acre | 2.70 | 117,612.00 | 0 |
| Parking Lot | 247.00 | Space | 2.22 | 98,800.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 33 |
| **Climate Zone** | 8 | | | **Operational Year** | 2019 |
| **Utility Company** | Anaheim Public Utilities | | | | |
| **CO2 Intensity (lb/MWhr)** | 1543.28 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project Info

Construction Phase - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment -

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Off-road Equipment - Project Specific Info. Equipment would run for 6 hours.

Trips and VMT - Project Specific Info

Demolition - Project Specific Info

Grading - Project Specific Info

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Vehicle Trips - From Traffic Study (Kunzman Associates, 2017).

Fleet Mix - From Traffic Study

Operational Off-Road Equipment - Assuming 2 Forklifts to be used in Warehouse operations

Energy Mitigation - 2016 building standards 5% more efficient than 2013 standards

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 40 | 15 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 9.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 5.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 10.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 3.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 6.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 8.00 |

| | | | |
|---|---|---|---|
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstructionPhase | NumDays | 20.00 | 35.00 |
| tblConstructionPhase | NumDays | 230.00 | 48.00 |
| tblConstructionPhase | NumDays | 230.00 | 7.00 |
| tblConstructionPhase | NumDays | 230.00 | 115.00 |
| tblConstructionPhase | NumDays | 20.00 | 30.00 |
| tblConstructionPhase | PhaseEndDate | 11/29/2018 | 8/17/2018 |
| tblConstructionPhase | PhaseEndDate | 4/24/2018 | 4/27/2018 |
| tblConstructionPhase | PhaseEndDate | 5/3/2018 | 3/13/2018 |
| tblConstructionPhase | PhaseEndDate | 10/11/2018 | 8/21/2018 |
| tblConstructionPhase | PhaseStartDate | 10/12/2018 | 7/2/2018 |
| tblConstructionPhase | PhaseStartDate | 4/25/2018 | 3/5/2018 |
| tblConstructionPhase | PhaseStartDate | 5/4/2018 | 3/14/2018 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | HHD | 0.03 | 0.07 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDA | 0.55 | 0.71 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT1 | 0.05 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |
| tblFleetMix | LDT2 | 0.20 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD1 | 0.02 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | LHD2 | 6.0250e-003 | 0.05 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MCY | 4.9150e-003 | 0.00 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MDV | 0.12 | 0.13 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MH | 9.2500e-004 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | MHD | 0.02 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | OBUS | 2.3910e-003 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | SBUS | 6.7200e-004 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblFleetMix | UBUS | 2.4690e-003 | 0.00 |
| tblGrading | AcresOfGrading | 15.00 | 0.00 |
| tblGrading | MaterialImported | 0.00 | 15,000.00 |
| tblOffRoadEquipment | HorsePower | 203.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 367.00 | 247.00 |
| tblOffRoadEquipment | LoadFactor | 0.36 | 0.40 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.40 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 6.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 8.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 4.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 3.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 0.00 | 2.00 |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Building Construction |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Concrete |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Building Erection |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Site Preparation |
| tblOffRoadEquipment | PhaseName | | Grading |
| tblOffRoadEquipment | PhaseName | | Concrete |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | PhaseName | | Backbone Infrastructure |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 7.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 2.00 |
| tblProjectCharacteristics | OperationalYear | 2018 | 2019 |
| tblTripsAndVMT | VendorTripNumber | 0.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 2.00 |
| tblTripsAndVMT | VendorTripNumber | 69.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 44.00 |
| tblTripsAndVMT | WorkerTripNumber | 23.00 | 56.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 48.00 |
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 24.00 |

| | | | |
|---|---|---|---|
| tblTripsAndVMT | WorkerTripNumber | 177.00 | 40.00 |
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |
| tblVehicleTrips | ST_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | SU_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |
| tblVehicleTrips | WD_TR | 1.68 | 3.56 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2017 | 6.0674 | 82.1516 | 43.0281 | 0.0990 | 7.9550 | 2.9275 | 10.8825 | 3.8140 | 2.6968 | 6.5108 | 0.0000 | 10,345.8878 | 10,345.8878 | 2.1010 | 0.0000 | 10,398.4126 |
| 2018 | 61.6753 | 95.0134 | 81.3526 | 0.1586 | 7.6001 | 5.0196 | 10.0809 | 3.7269 | 4.8867 | 6.0115 | 0.0000 | 15,479.6826 | 15,479.6826 | 2.3714 | 0.0000 | 15,538.9680 |
| **Maximum** | **61.6753** | **95.0134** | **81.3526** | **0.1586** | **7.9550** | **5.0196** | **10.8825** | **3.8140** | **4.8867** | **6.5108** | **0.0000** | **15,479.6826** | **15,479.6826** | **2.3714** | **0.0000** | **15,538.9680** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2017 | 6.0674 | 82.1516 | 43.0281 | 0.0990 | 4.2815 | 2.9275 | 7.2090 | 1.7947 | 2.6968 | 4.4915 | 0.0000 | 10,345.8878 | 10,345.8878 | 2.1010 | 0.0000 | 10,398.4126 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 61.6753 | 95.0134 | 81.3526 | 0.1586 | 3.9267 | 5.0196 | 6.4577 | 1.7076 | 4.8867 | 5.2785 | 0.0000 | 15,479.6826 | 15,479.6826 | 2.3714 | 0.0000 | 15,538.9680 |
| **Maximum** | **61.6753** | **95.0134** | **81.3526** | **0.1586** | **4.2815** | **5.0196** | **7.2090** | **1.7947** | **4.8867** | **5.2785** | **0.0000** | **15,479.6826** | **15,479.6826** | **2.3714** | **0.0000** | **15,538.9680** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **47.23** | **0.00** | **34.81** | **53.56** | **0.00** | **21.98** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| Energy | 0.0148 | 0.1341 | 0.1127 | 8.0000e-004 | | 0.0102 | 0.0102 | | 0.0102 | 0.0102 | | 160.9415 | 160.9415 | 3.0800e-003 | 2.9500e-003 | 161.8979 |
| Mobile | 1.5336 | 14.8356 | 22.1821 | 0.0909 | 6.6794 | 0.0941 | 6.7735 | 1.7881 | 0.0886 | 1.8767 | | 9,298.1683 | 9,298.1683 | 0.4028 | | 9,308.2385 |
| Offroad | 0.3199 | 2.8566 | 2.3884 | 3.0500e-003 | | 0.2213 | 0.2213 | | 0.2036 | 0.2036 | | 302.6408 | 302.6408 | 0.0958 | | 305.0346 |
| **Total** | **6.5468** | **17.8268** | **24.7300** | **0.0948** | **6.6794** | **0.3258** | **7.0052** | **1.7881** | **0.3026** | **2.0906** | | **9,761.8502** | **9,761.8502** | **0.5019** | **2.9500e-003** | **9,775.2774** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy | 0.0140 | 0.1276 | 0.1072 | 7.7000e-004 | | 9.6900e-003 | 9.6900e-003 | | 9.6900e-003 | 9.6900e-003 | | 153.0762 | 153.0762 | 2.9300e-003 | 2.8100e-003 | 153.9859 |
| Mobile | 1.5336 | 14.8356 | 22.1821 | 0.0909 | 6.6794 | 0.0941 | 6.7735 | 1.7881 | 0.0886 | 1.8767 | | 9,298.1683 | 9,298.1683 | 0.4028 | | 9,308.2385 |
| Offroad | 0.3199 | 2.8566 | 2.3884 | 3.0500e-003 | | 0.2213 | 0.2213 | | 0.2036 | 0.2036 | | 302.6408 | 302.6408 | 0.0958 | | 305.0346 |
| **Total** | **6.5461** | **17.8203** | **24.7245** | **0.0947** | **6.6794** | **0.3253** | **7.0047** | **1.7881** | **0.3021** | **2.0901** | | **9,753.9848** | **9,753.9848** | **0.5018** | **2.8100e-003** | **9,767.3653** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.01** | **0.04** | **0.02** | **0.03** | **0.00** | **0.15** | **0.01** | **0.00** | **0.17** | **0.02** | **0.00** | **0.08** | **0.08** | **0.03** | **4.75** | **0.08** |

## 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 | 11/1/2017 | 11/28/2017 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 11/29/2017 | 12/12/2017 | 5 | 10 | |
| 3 | Grading | Grading | 12/13/2017 | 1/23/2018 | 5 | 30 | |
| 4 | Backbone Infrastructure | Trenching | 1/24/2018 | 2/20/2018 | 5 | 20 | |
| 5 | Concrete | Building Construction | 2/21/2018 | 4/27/2018 | 5 | 48 | |
| 6 | Building Erection | Building Construction | 3/5/2018 | 3/13/2018 | 5 | 7 | |
| 7 | Building Construction | Building Construction | 3/14/2018 | 8/21/2018 | 5 | 115 | |
| 8 | Architectural Coating | Architectural Coating | 7/2/2018 | 8/17/2018 | 5 | 35 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 4.92**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 307,590; Non-Residential Outdoor: 102,530; Striped Parking Area:**

### 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 | Excavators | 3 | 8.00 | 158 | 0.38 |
| Demolition | Rubber Tired Dozers | 2 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Dozers | 0 | 8.00 | 247 | 0.40 |
| Site Preparation | Rubber Tired Loaders | 4 | 6.00 | 203 | 0.36 |
| Site Preparation | Scrapers | 2 | 6.00 | 247 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 8.00 | 158 | 0.38 |
| Grading | Graders | 0 | 8.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Grading | Scrapers | 4 | 6.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Excavators | 1 | 6.00 | 158 | 0.38 |
| Backbone Infrastructure | Plate Compactors | 2 | 6.00 | 8 | 0.43 |
| Backbone Infrastructure | Rollers | 1 | 6.00 | 80 | 0.38 |
| Backbone Infrastructure | Tractors/Loaders/Backhoes | 3 | 6.00 | 97 | 0.37 |
| Backbone Infrastructure | Trenchers | 2 | 6.00 | 78 | 0.50 |
| Concrete | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Concrete | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |
| Concrete | Cranes | 0 | 7.00 | 231 | 0.29 |
| Concrete | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Concrete | Generator Sets | 4 | 6.00 | 84 | 0.74 |
| Concrete | Pavers | 1 | 6.00 | 130 | 0.42 |
| Concrete | Paving Equipment | 8 | 6.00 | 132 | 0.36 |
| Concrete | Rubber Tired Loaders | 2 | 6.00 | 247 | 0.40 |
| Concrete | Signal Boards | 4 | 6.00 | 6 | 0.82 |
| Concrete | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Concrete | Welders | 0 | 6.00 | 46 | 0.45 |
| Building Erection | Air Compressors | 2 | 6.00 | 78 | 0.48 |
| Building Erection | Concrete/Industrial Saws | 2 | 6.00 | 81 | 0.73 |

| | | | | | |
|---|---|---|---|---|---|
| Building Erection | Cranes | 1 | 7.00 | 231 | 0.29 |
| Building Erection | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Building Erection | Generator Sets | 0 | 8.00 | 84 | 0.74 |
| Building Erection | Pavers | 0 | 0.00 | 130 | 0.42 |
| Building Erection | Paving Equipment | 0 | 0.00 | 132 | 0.36 |
| Building Erection | Rollers | 0 | 0.00 | 80 | 0.38 |
| Building Erection | Tractors/Loaders/Backhoes | 0 | 0.00 | 97 | 0.37 |
| Building Erection | Welders | 0 | 0.00 | 46 | 0.45 |
| Building Construction | Aerial Lifts | 4 | 6.00 | 63 | 0.31 |
| Building Construction | Air Compressors | 4 | 6.00 | 78 | 0.48 |
| Building Construction | Cranes | 0 | 7.00 | 231 | 0.29 |
| Building Construction | Forklifts | 0 | 8.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 6 | 6.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 0 | 7.00 | 97 | 0.37 |
| Building Construction | Welders | 2 | 6.00 | 46 | 0.45 |
| Architectural Coating | Air Compressors | 2 | 6.00 | 78 | 0.48 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 6 | 15.00 | 0.00 | 96.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 7 | 44.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 7 | 18.00 | 2.00 | 1,483.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Backbone Infrastructure | 9 | 56.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Concrete | 24 | 48.00 | 2.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Erection | 5 | 24.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 16 | 40.00 | 69.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 2 | 35.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

## 3.2 Demolition - 2017

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 1.0336 | 0.0000 | 1.0336 | 0.1565 | 0.0000 | 0.1565 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.1031 | 42.7475 | 23.0122 | 0.0388 | | 2.1935 | 2.1935 | | 2.0425 | 2.0425 | | 3,924.2833 | 3,924.2833 | 1.0730 | | 3,951.1070 |
| **Total** | **4.1031** | **42.7475** | **23.0122** | **0.0388** | **1.0336** | **2.1935** | **3.2270** | **0.1565** | **2.0425** | **2.1990** | | **3,924.2833** | **3,924.2833** | **1.0730** | | **3,951.1070** |

### 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 | 0.0555 | 1.6930 | 0.3648 | 3.8700e-003 | 0.0839 | 8.9500e-003 | 0.0929 | 0.0230 | 8.5700e-003 | 0.0316 | | 416.8961 | 416.8961 | 0.0308 | | 417.6658 |
| 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 | 0.1037 | 0.0797 | 0.8549 | 1.8300e-003 | 0.1677 | 1.5600e-003 | 0.1692 | 0.0445 | 1.4400e-003 | 0.0459 | | 182.0869 | 182.0869 | 7.6100e-003 | | 182.2772 |
| **Total** | **0.1592** | **1.7726** | **1.2197** | **5.7000e-003** | **0.2516** | **0.0105** | **0.2621** | **0.0675** | **0.0100** | **0.0775** | | **598.9830** | **598.9830** | **0.0384** | | **599.9429** |

## 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 | | | | | 0.4031 | 0.0000 | 0.4031 | 0.0610 | 0.0000 | 0.0610 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.1031 | 42.7475 | 23.0122 | 0.0388 | | 2.1935 | 2.1935 | | 2.0425 | 2.0425 | 0.0000 | 3,924.2833 | 3,924.2833 | 1.0730 | | 3,951.1070 |
| **Total** | **4.1031** | **42.7475** | **23.0122** | **0.0388** | **0.4031** | **2.1935** | **2.5966** | **0.0610** | **2.0425** | **2.1035** | **0.0000** | **3,924.2833** | **3,924.2833** | **1.0730** | | **3,951.1070** |

## 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 | 0.0555 | 1.6930 | 0.3648 | 3.8700e-003 | 0.0839 | 8.9500e-003 | 0.0929 | 0.0230 | 8.5700e-003 | 0.0316 | | 416.8961 | 416.8961 | 0.0308 | | 417.6658 |
| 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 | 0.1037 | 0.0797 | 0.8549 | 1.8300e-003 | 0.1677 | 1.5600e-003 | 0.1692 | 0.0445 | 1.4400e-003 | 0.0459 | | 182.0869 | 182.0869 | 7.6100e-003 | | 182.2772 |
| **Total** | **0.1592** | **1.7726** | **1.2197** | **5.7000e-003** | **0.2516** | **0.0105** | **0.2621** | **0.0675** | **0.0100** | **0.0775** | | **598.9830** | **598.9830** | **0.0384** | | **599.9429** |

# 3.3 Site Preparation - 2017

## Unmitigated Construction On-Site

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

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.3173 | 40.0068 | 14.1934 | 0.0337 | | 1.6675 | 1.6675 | | 1.5341 | 1.5341 | | 3,448.9887 | 3,448.9887 | 1.0568 | | 3,475.4078 |
| **Total** | **3.3173** | **40.0068** | **14.1934** | **0.0337** | **0.0000** | **1.6675** | **1.6675** | **0.0000** | **1.5341** | **1.5341** | | **3,448.9887** | **3,448.9887** | **1.0568** | | **3,475.4078** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3043 | 0.2337 | 2.5077 | 5.3700e-003 | 0.4918 | 4.5700e-003 | 0.4964 | 0.1304 | 4.2200e-003 | 0.1347 | | 534.1217 | 534.1217 | 0.0223 | | 534.6797 |
| **Total** | **0.3043** | **0.2337** | **2.5077** | **5.3700e-003** | **0.4918** | **4.5700e-003** | **0.4964** | **0.1304** | **4.2200e-003** | **0.1347** | | **534.1217** | **534.1217** | **0.0223** | | **534.6797** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 3.3173 | 40.0068 | 14.1934 | 0.0337 | | 1.6675 | 1.6675 | | 1.5341 | 1.5341 | 0.0000 | 3,448.9887 | 3,448.9887 | 1.0568 | | 3,475.4078 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **3.3173** | **40.0068** | **14.1934** | **0.0337** | **0.0000** | **1.6675** | **1.6675** | **0.0000** | **1.5341** | **1.5341** | **0.0000** | **3,448.9887** | **3,448.9887** | **1.0568** | | **3,475.4078** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3043 | 0.2337 | 2.5077 | 5.3700e-003 | 0.4918 | 4.5700e-003 | 0.4964 | 0.1304 | 4.2200e-003 | 0.1347 | | 534.1217 | 534.1217 | 0.0223 | | 534.6797 |
| **Total** | **0.3043** | **0.2337** | **2.5077** | **5.3700e-003** | **0.4918** | **4.5700e-003** | **0.4964** | **0.1304** | **4.2200e-003** | **0.1347** | | **534.1217** | **534.1217** | **0.0223** | | **534.6797** |

## 3.4 Grading - 2017

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 5.3606 | 64.3593 | 38.1642 | 0.0565 | | 2.8313 | 2.8313 | | 2.6048 | 2.6048 | | 5,778.8849 | 5,778.8849 | 1.7706 | | 5,823.1509 |
| **Total** | **5.3606** | **64.3593** | **38.1642** | **0.0565** | **6.0221** | **2.8313** | **8.8533** | **3.3102** | **2.6048** | **5.9150** | | **5,778.8849** | **5,778.8849** | **1.7706** | | **5,823.1509** |

**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 | 0.5714 | 17.4350 | 3.7568 | 0.0398 | 1.7189 | 0.0922 | 1.8111 | 0.4467 | 0.0882 | 0.5349 | | 4,293.4509 | 4,293.4509 | 0.3171 | | 4,301.3773 |
| Vendor | 0.0109 | 0.2617 | 0.0813 | 5.2000e-004 | 0.0128 | 2.2200e-003 | 0.0150 | 3.6900e-003 | 2.1200e-003 | 5.8100e-003 | | 55.0477 | 55.0477 | 4.1700e-003 | | 55.1518 |
| Worker | 0.1245 | 0.0956 | 1.0259 | 2.2000e-003 | 0.2012 | 1.8700e-003 | 0.2031 | 0.0534 | 1.7300e-003 | 0.0551 | | 218.5043 | 218.5043 | 9.1300e-003 | | 218.7326 |
| **Total** | **0.7068** | **17.7923** | **4.8639** | **0.0425** | **1.9329** | **0.0963** | **2.0292** | **0.5037** | **0.0921** | **0.5958** | | **4,567.0029** | **4,567.0029** | **0.3304** | | **4,575.2617** |

## 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 | | | | | 2.3486 | 0.0000 | 2.3486 | 1.2910 | 0.0000 | 1.2910 | | | 0.0000 | | | 0.0000 |
| Off-Road | 5.3606 | 64.3593 | 38.1642 | 0.0565 | | 2.8313 | 2.8313 | | 2.6048 | 2.6048 | 0.0000 | 5,778.8849 | 5,778.8849 | 1.7706 | | 5,823.1509 |
| **Total** | **5.3606** | **64.3593** | **38.1642** | **0.0565** | **2.3486** | **2.8313** | **5.1799** | **1.2910** | **2.6048** | **3.8957** | **0.0000** | **5,778.8849** | **5,778.8849** | **1.7706** | | **5,823.1509** |

## 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 | 0.5714 | 17.4350 | 3.7568 | 0.0398 | 1.7189 | 0.0922 | 1.8111 | 0.4467 | 0.0882 | 0.5349 | | 4,293.4509 | 4,293.4509 | 0.3171 | | 4,301.3773 |
| Vendor | 0.0109 | 0.2617 | 0.0813 | 5.2000e-004 | 0.0128 | 2.2200e-003 | 0.0150 | 3.6900e-003 | 2.1200e-003 | 5.8100e-003 | | 55.0477 | 55.0477 | 4.1700e-003 | | 55.1518 |
| Worker | 0.1245 | 0.0956 | 1.0259 | 2.2000e-003 | 0.2012 | 1.8700e-003 | 0.2031 | 0.0534 | 1.7300e-003 | 0.0551 | | 218.5043 | 218.5043 | 9.1300e-003 | | 218.7326 |
| **Total** | **0.7068** | **17.7923** | **4.8639** | **0.0425** | **1.9329** | **0.0963** | **2.0292** | **0.5037** | **0.0921** | **0.5958** | | **4,567.0029** | **4,567.0029** | **0.3304** | | **4,575.2617** |

## 3.4 Grading - 2018

### 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 | | | | | 6.0221 | 0.0000 | 6.0221 | 3.3102 | 0.0000 | 3.3102 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.7145 | 55.9392 | 33.1476 | 0.0565 | | 2.4153 | 2.4153 | | 2.2220 | 2.2220 | | 5,688.6905 | 5,688.6905 | 1.7710 | | 5,732.9647 |
| **Total** | **4.7145** | **55.9392** | **33.1476** | **0.0565** | **6.0221** | **2.4153** | **8.4373** | **3.3102** | **2.2220** | **5.5323** | | **5,688.6905** | **5,688.6905** | **1.7710** | | **5,732.9647** |

### 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 | 0.5031 | 16.1889 | 3.5351 | 0.0394 | 1.3640 | 0.0619 | 1.4260 | 0.3596 | 0.0593 | 0.4188 | | 4,256.0279 | 4,256.0279 | 0.3096 | | 4,263.7680 |
| Vendor | 9.5900e-003 | 0.2457 | 0.0737 | 5.1000e-004 | 0.0128 | 1.7500e-003 | 0.0146 | 3.6900e-003 | 1.6800e-003 | 5.3700e-003 | | 54.8300 | 54.8300 | 3.9600e-003 | | 54.9289 |
| Worker | 0.1101 | 0.0831 | 0.8951 | 2.1400e-003 | 0.2012 | 1.7900e-003 | 0.2030 | 0.0534 | 1.6500e-003 | 0.0550 | | 212.5037 | 212.5037 | 8.0000e-003 | | 212.7036 |
| **Total** | **0.6227** | **16.5177** | **4.5038** | **0.0421** | **1.5780** | **0.0655** | **1.6435** | **0.4166** | **0.0626** | **0.4792** | | **4,523.3615** | **4,523.3615** | **0.3216** | | **4,531.4005** |

## 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 | | | | | 2.3486 | 0.0000 | 2.3486 | 1.2910 | 0.0000 | 1.2910 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.7145 | 55.9392 | 33.1476 | 0.0565 | | 2.4153 | 2.4153 | | 2.2220 | 2.2220 | 0.0000 | 5,688.6905 | 5,688.6905 | 1.7710 | | 5,732.9647 |
| **Total** | **4.7145** | **55.9392** | **33.1476** | **0.0565** | **2.3486** | **2.4153** | **4.7639** | **1.2910** | **2.2220** | **3.5130** | **0.0000** | **5,688.6905** | **5,688.6905** | **1.7710** | | **5,732.9647** |

## 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 | 0.5031 | 16.1889 | 3.5351 | 0.0394 | 1.3640 | 0.0619 | 1.4260 | 0.3596 | 0.0593 | 0.4188 | | 4,256.0279 | 4,256.0279 | 0.3096 | | 4,263.7680 |
| Vendor | 9.5900e-003 | 0.2457 | 0.0737 | 5.1000e-004 | 0.0128 | 1.7500e-003 | 0.0146 | 3.6900e-003 | 1.6800e-003 | 5.3700e-003 | | 54.8300 | 54.8300 | 3.9600e-003 | | 54.9289 |
| Worker | 0.1101 | 0.0831 | 0.8951 | 2.1400e-003 | 0.2012 | 1.7900e-003 | 0.2030 | 0.0534 | 1.6500e-003 | 0.0550 | | 212.5037 | 212.5037 | 8.0000e-003 | | 212.7036 |
| **Total** | **0.6227** | **16.5177** | **4.5038** | **0.0421** | **1.5780** | **0.0655** | **1.6435** | **0.4166** | **0.0626** | **0.4792** | | **4,523.3615** | **4,523.3615** | **0.3216** | | **4,531.4005** |

## 3.5 Backbone Infrastructure - 2018

## 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 | 1.7482 | 16.5890 | 13.4591 | 0.0186 | | 1.1394 | 1.1394 | | 1.0494 | 1.0494 | | 1,852.4807 | 1,852.4807 | 0.5660 | | 1,866.6300 |
| **Total** | **1.7482** | **16.5890** | **13.4591** | **0.0186** | | **1.1394** | **1.1394** | | **1.0494** | **1.0494** | | **1,852.4807** | **1,852.4807** | **0.5660** | | **1,866.6300** |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3424 | 0.2586 | 2.7847 | 6.6400e-003 | 0.6260 | 5.5800e-003 | 0.6315 | 0.1660 | 5.1500e-003 | 0.1712 | | 661.1225 | 661.1225 | 0.0249 | | 661.7446 |
| **Total** | **0.3424** | **0.2586** | **2.7847** | **6.6400e-003** | **0.6260** | **5.5800e-003** | **0.6315** | **0.1660** | **5.1500e-003** | **0.1712** | | **661.1225** | **661.1225** | **0.0249** | | **661.7446** |

## 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 | 1.7482 | 16.5890 | 13.4591 | 0.0186 | | 1.1394 | 1.1394 | | 1.0494 | 1.0494 | 0.0000 | 1,852.4807 | 1,852.4807 | 0.5660 | | 1,866.6300 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **1.7482** | **16.5890** | **13.4591** | **0.0186** | | **1.1394** | **1.1394** | | **1.0494** | **1.0494** | **0.0000** | **1,852.4807** | **1,852.4807** | **0.5660** | | **1,866.6300** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.3424 | 0.2586 | 2.7847 | 6.6400e-003 | 0.6260 | 5.5800e-003 | 0.6315 | 0.1660 | 5.1500e-003 | 0.1712 | | 661.1225 | 661.1225 | 0.0249 | | 661.7446 |
| **Total** | **0.3424** | **0.2586** | **2.7847** | **6.6400e-003** | **0.6260** | **5.5800e-003** | **0.6315** | **0.1660** | **5.1500e-003** | **0.1712** | | **661.1225** | **661.1225** | **0.0249** | | **661.7446** |

## 3.6 Concrete - 2018

**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 | 5.7079 | 54.6972 | 44.0212 | 0.0795 | | 2.9379 | 2.9379 | | 2.8132 | 2.8132 | | 7,746.8136 | 7,746.8136 | 1.6652 | | 7,788.4425 |
| **Total** | **5.7079** | **54.6972** | **44.0212** | **0.0795** | | **2.9379** | **2.9379** | | **2.8132** | **2.8132** | | **7,746.8136** | **7,746.8136** | **1.6652** | | **7,788.4425** |

**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 | 9.5900e-003 | 0.2457 | 0.0737 | 5.1000e-004 | 0.0128 | 1.7500e-003 | 0.0146 | 3.6900e-003 | 1.6800e-003 | 5.3700e-003 | | 54.8300 | 54.8300 | 3.9600e-003 | | 54.9289 |
| Worker | 0.2935 | 0.2216 | 2.3869 | 5.7000e-003 | 0.5365 | 4.7800e-003 | 0.5413 | 0.1423 | 4.4100e-003 | 0.1467 | | 566.6765 | 566.6765 | 0.0213 | | 567.2096 |
| **Total** | **0.3031** | **0.4673** | **2.4606** | **6.2100e-003** | **0.5493** | **6.5300e-003** | **0.5559** | **0.1460** | **6.0900e-003** | **0.1521** | | **621.5064** | **621.5064** | **0.0253** | | **622.1385** |

## 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 | 5.7079 | 54.6972 | 44.0212 | 0.0795 | | 2.9379 | 2.9379 | | 2.8132 | 2.8132 | 0.0000 | 7,746.8136 | 7,746.8136 | 1.6652 | | 7,788.4425 |
| **Total** | **5.7079** | **54.6972** | **44.0212** | **0.0795** | | **2.9379** | **2.9379** | | **2.8132** | **2.8132** | **0.0000** | **7,746.8136** | **7,746.8136** | **1.6652** | | **7,788.4425** |

## 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 | 9.5900e-003 | 0.2457 | 0.0737 | 5.1000e-004 | 0.0128 | 1.7500e-003 | 0.0146 | 3.6900e-003 | 1.6800e-003 | 5.3700e-003 | | 54.8300 | 54.8300 | 3.9600e-003 | | 54.9289 |
| Worker | 0.2935 | 0.2216 | 2.3869 | 5.7000e-003 | 0.5365 | 4.7800e-003 | 0.5413 | 0.1423 | 4.4100e-003 | 0.1467 | | 566.6765 | 566.6765 | 0.0213 | | 567.2096 |
| **Total** | **0.3031** | **0.4673** | **2.4606** | **6.2100e-003** | **0.5493** | **6.5300e-003** | **0.5559** | **0.1460** | **6.0900e-003** | **0.1521** | | **621.5064** | **621.5064** | **0.0253** | | **622.1385** |

## 3.7 Building Erection - 2018

### 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 | 1.8757 | 15.8521 | 11.5012 | 0.0204 | | 0.9599 | 0.9599 | | 0.9392 | 0.9392 | | 1,959.9172 | 1,959.9172 | 0.2805 | | 1,966.9290 |
| **Total** | **1.8757** | **15.8521** | **11.5012** | **0.0204** | | **0.9599** | **0.9599** | | **0.9392** | **0.9392** | | **1,959.9172** | **1,959.9172** | **0.2805** | | **1,966.9290** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1468 | 0.1108 | 1.1935 | 2.8500e-003 | 0.2683 | 2.3900e-003 | 0.2707 | 0.0711 | 2.2100e-003 | 0.0734 | | 283.3382 | 283.3382 | 0.0107 | | 283.6048 |
| **Total** | **0.1468** | **0.1108** | **1.1935** | **2.8500e-003** | **0.2683** | **2.3900e-003** | **0.2707** | **0.0711** | **2.2100e-003** | **0.0734** | | **283.3382** | **283.3382** | **0.0107** | | **283.6048** |

## 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 | 1.8757 | 15.8521 | 11.5012 | 0.0204 | | 0.9599 | 0.9599 | | 0.9392 | 0.9392 | 0.0000 | 1,959.9172 | 1,959.9172 | 0.2805 | | 1,966.9290 |
| **Total** | **1.8757** | **15.8521** | **11.5012** | **0.0204** | | **0.9599** | **0.9599** | | **0.9392** | **0.9392** | **0.0000** | **1,959.9172** | **1,959.9172** | **0.2805** | | **1,966.9290** |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1468 | 0.1108 | 1.1935 | 2.8500e-003 | 0.2683 | 2.3900e-003 | 0.2707 | 0.0711 | 2.2100e-003 | 0.0734 | | 283.3382 | 283.3382 | 0.0107 | | 283.6048 |
| **Total** | **0.1468** | **0.1108** | **1.1935** | **2.8500e-003** | **0.2683** | **2.3900e-003** | **0.2707** | **0.0711** | **2.2100e-003** | **0.0734** | | **283.3382** | **283.3382** | **0.0107** | | **283.6048** |

# 3.8 Building Construction - 2018

## 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 | 4.2575 | 31.1885 | 30.3402 | 0.0504 | | 2.0106 | 2.0106 | | 2.0059 | 2.0059 | | 4,747.4982 | 4,747.4982 | 0.5267 | | 4,760.6662 |
| **Total** | **4.2575** | **31.1885** | **30.3402** | **0.0504** | | **2.0106** | **2.0106** | | **2.0059** | **2.0059** | | **4,747.4982** | **4,747.4982** | **0.5267** | | **4,760.6662** |

## 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 | 0.3308 | 8.4756 | 2.5415 | 0.0178 | 0.4417 | 0.0605 | 0.5023 | 0.1272 | 0.0579 | 0.1851 | | 1,891.6340 | 1,891.6340 | 0.1365 | | 1,895.0462 |
| Worker | 0.2446 | 0.1847 | 1.9891 | 4.7500e-003 | 0.4471 | 3.9900e-003 | 0.4511 | 0.1186 | 3.6800e-003 | 0.1223 | | 472.2304 | 472.2304 | 0.0178 | | 472.6747 |
| **Total** | **0.5754** | **8.6603** | **4.5306** | **0.0225** | **0.8888** | **0.0645** | **0.9534** | **0.2458** | **0.0616** | **0.3074** | | **2,363.8644** | **2,363.8644** | **0.1543** | | **2,367.7208** |

## 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 | 4.2575 | 31.1885 | 30.3402 | 0.0504 | | 2.0106 | 2.0106 | | 2.0059 | 2.0059 | 0.0000 | 4,747.4982 | 4,747.4982 | 0.5267 | | 4,760.6661 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **4.2575** | **31.1885** | **30.3402** | **0.0504** | | **2.0106** | **2.0106** | | **2.0059** | **2.0059** | **0.0000** | **4,747.4982** | **4,747.4982** | **0.5267** | | **4,760.6661** |

**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 | 0.3308 | 8.4756 | 2.5415 | 0.0178 | 0.4417 | 0.0605 | 0.5023 | 0.1272 | 0.0579 | 0.1851 | | 1,891.6340 | 1,891.6340 | 0.1365 | | 1,895.0462 |
| Worker | 0.2446 | 0.1847 | 1.9891 | 4.7500e-003 | 0.4471 | 3.9900e-003 | 0.4511 | 0.1186 | 3.6800e-003 | 0.1223 | | 472.2304 | 472.2304 | 0.0178 | | 472.6747 |
| **Total** | **0.5754** | **8.6603** | **4.5306** | **0.0225** | **0.8888** | **0.0645** | **0.9534** | **0.2458** | **0.0616** | **0.3074** | | **2,363.8644** | **2,363.8644** | **0.1543** | | **2,367.7208** |

## 3.9 Architectural Coating - 2018

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 56.0312 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5973 | 4.0115 | 3.7084 | 5.9400e-003 | | 0.3011 | 0.3011 | | 0.3011 | 0.3011 | | 562.8971 | 562.8971 | 0.0535 | | 564.2343 |
| **Total** | **56.6285** | **4.0115** | **3.7084** | **5.9400e-003** | | **0.3011** | **0.3011** | | **0.3011** | **0.3011** | | **562.8971** | **562.8971** | **0.0535** | | **564.2343** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.2140 | 0.1616 | 1.7404 | 4.1500e-003 | 0.3912 | 3.4900e-003 | 0.3947 | 0.1038 | 3.2200e-003 | 0.1070 | | 413.2016 | 413.2016 | 0.0156 | | 413.5904 |
| **Total** | **0.2140** | **0.1616** | **1.7404** | **4.1500e-003** | **0.3912** | **3.4900e-003** | **0.3947** | **0.1038** | **3.2200e-003** | **0.1070** | | **413.2016** | **413.2016** | **0.0156** | | **413.5904** |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 56.0312 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.5973 | 4.0115 | 3.7084 | 5.9400e-003 | | 0.3011 | 0.3011 | | 0.3011 | 0.3011 | 0.0000 | 562.8971 | 562.8971 | 0.0535 | | 564.2343 |
| **Total** | **56.6285** | **4.0115** | **3.7084** | **5.9400e-003** | | **0.3011** | **0.3011** | | **0.3011** | **0.3011** | **0.0000** | **562.8971** | **562.8971** | **0.0535** | | **564.2343** |

## Mitigated Construction Off-Site

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

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.2140 | 0.1616 | 1.7404 | 4.1500e-003 | 0.3912 | 3.4900e-003 | 0.3947 | 0.1038 | 3.2200e-003 | 0.1070 | | 413.2016 | 413.2016 | 0.0156 | | 413.5904 |
| **Total** | **0.2140** | **0.1616** | **1.7404** | **4.1500e-003** | **0.3912** | **3.4900e-003** | **0.3947** | **0.1038** | **3.2200e-003** | **0.1070** | | **413.2016** | **413.2016** | **0.0156** | | **413.5904** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.5336 | 14.8356 | 22.1821 | 0.0909 | 6.6794 | 0.0941 | 6.7735 | 1.7881 | 0.0886 | 1.8767 | | 9,298.1683 | 9,298.1683 | 0.4028 | | 9,308.2385 |
| Unmitigated | 1.5336 | 14.8356 | 22.1821 | 0.0909 | 6.6794 | 0.0941 | 6.7735 | 1.7881 | 0.0886 | 1.8767 | | 9,298.1683 | 9,298.1683 | 0.4028 | | 9,308.2385 |

### 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Refrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Unrefrigerated Warehouse-No Rail | 365.01 | 365.01 | 365.01 | 1,564,316 | 1,564,316 |
| Total | 730.01 | 730.01 | 730.01 | 3,128,632 | 3,128,632 |

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Non-Asphalt Surfaces | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 16.60 | 8.40 | 6.90 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Refrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |
| Unrefrigerated Warehouse-No Rail | 16.60 | 8.40 | 6.90 | 59.00 | 0.00 | 41.00 | 92 | 5 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Unrefrigerated Warehouse-No Rail | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Other Non-Asphalt Surfaces | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Parking Lot | 0.714000 | 0.000000 | 0.000000 | 0.125000 | 0.045500 | 0.045500 | 0.000000 | 0.069000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

Exceed Title 24

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0140 | 0.1276 | 0.1072 | 7.7000e-004 | | 9.6900e-003 | 9.6900e-003 | | 9.6900e-003 | 9.6900e-003 | | 153.0762 | 153.0762 | 2.9300e-003 | 2.8100e-003 | 153.9859 |
| NaturalGas Unmitigated | 0.0148 | 0.1341 | 0.1127 | 8.0000e-004 | | 0.0102 | 0.0102 | | 0.0102 | 0.0102 | | 160.9415 | 160.9415 | 3.0800e-003 | 2.9500e-003 | 161.8979 |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 258.432 | 2.7900e-003 | 0.0253 | 0.0213 | 1.5000e-004 | | 1.9300e-003 | 1.9300e-003 | | 1.9300e-003 | 1.9300e-003 | | 30.4037 | 30.4037 | 5.8000e-004 | 5.6000e-004 | 30.5844 |
| Unrefrigerated Warehouse-No Rail | 1109.57 | 0.0120 | 0.1088 | 0.0914 | 6.5000e-004 | | 8.2700e-003 | 8.2700e-003 | | 8.2700e-003 | 8.2700e-003 | | 130.5378 | 130.5378 | 2.5000e-003 | 2.3900e-003 | 131.3135 |
| **Total** | | **0.0148** | **0.1341** | **0.1127** | **8.0000e-004** | | **0.0102** | **0.0102** | | **0.0102** | **0.0102** | | **160.9415** | **160.9415** | **3.0800e-003** | **2.9500e-003** | **161.8979** |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Refrigerated Warehouse-No Rail | 0.246353 | 2.6600e-003 | 0.0242 | 0.0203 | 1.4000e-004 | | 1.8400e-003 | 1.8400e-003 | | 1.8400e-003 | 1.8400e-003 | | 28.9827 | 28.9827 | 5.6000e-004 | 5.3000e-004 | 29.1549 |
| Unrefrigerated Warehouse-No Rail | 1.05479 | 0.0114 | 0.1034 | 0.0869 | 6.2000e-004 | | 7.8600e-003 | 7.8600e-003 | | 7.8600e-003 | 7.8600e-003 | | 124.0935 | 124.0935 | 2.3800e-003 | 2.2800e-003 | 124.8310 |
| **Total** | | **0.0140** | **0.1276** | **0.1072** | **7.6000e-004** | | **9.7000e-003** | **9.7000e-003** | | **9.7000e-003** | **9.7000e-003** | | **153.0762** | **153.0762** | **2.9400e-003** | **2.8100e-003** | **153.9859** |

## 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| Unmitigated | 4.6786 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 4.1368 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 4.4400e-003 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| **Total** | **4.6786** | **4.4000e-004** | **0.0469** | **0.0000** | | **1.7000e-004** | **1.7000e-004** | | **1.7000e-004** | **1.7000e-004** | | **0.0995** | **0.0995** | **2.7000e-004** | | **0.1063** |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.5373 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 4.1368 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 4.4400e-003 | 4.4000e-004 | 0.0469 | 0.0000 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 0.0995 | 0.0995 | 2.7000e-004 | | 0.1063 |
| **Total** | **4.6786** | **4.4000e-004** | **0.0469** | **0.0000** | | **1.7000e-004** | **1.7000e-004** | | **1.7000e-004** | **1.7000e-004** | | **0.0995** | **0.0995** | **2.7000e-004** | | **0.1063** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|
| Forklifts | 2 | 8.00 | 260 | 89 | 0.20 | Diesel |

**UnMitigated/Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment Type | lb/day | | | | | | | | | | lb/day | | | | | |
| Forklifts | 0.3199 | 2.8566 | 2.3884 | 3.0500e-003 | | 0.2213 | 0.2213 | | 0.2036 | 0.2036 | | 302.6408 | 302.6408 | 0.0958 | | 305.0346 |
| **Total** | **0.3199** | **2.8566** | **2.3884** | **3.0500e-003** | | **0.2213** | **0.2213** | | **0.2036** | **0.2036** | | **302.6408** | **302.6408** | **0.0958** | | **305.0346** |

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

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

**Boilers**

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

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# HEALTH RISK ASSESSMENT

**This page intentionally left blank**

# HEALTH RISK ASSESSMENT

This Health Risk Assessment (HRA) was prepared in accordance with the South Coast Air Quality Management District (SCAQMD) *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis* (SCAQMD 2003) (Health Risk Assessment Guidance) guidelines to produce conservative estimates of risk posed by exposure to diesel particulate matter (DPM) associated with the proposed project. An HRA is a process used to estimate the increased risk of health effects in people who are exposed to toxic air contaminants (TACs). An HRA combines the results of studies on the health effects of various animal and human exposures to TACs and the levels of people's exposure at different distances from the sources of pollutants. This HRA examines the potential health effects from project-related emissions of TACs in the exhaust of diesel-powered delivery trucks on existing surrounding sensitive receptors, including residences and schools.

This HRA has been conducted using three models: the California Air Resources Board's (ARB) California Emissions Factor Model, Version 2014 (EMFAC2014) for vehicle emissions factors and percentages of fuel type within the overall vehicle fleet, the United States Environmental Protection Agency's (EPA) AERMOD air dispersion model to determine how the TACs would move through the atmosphere after release from sources both on site and on surrounding roadways, and the ARB's *Hot Spots Analysis and Reporting Program* (HARP2) model to translate the pollutant concentrations from AERMOD into individual health risks at any sensitive receptor locations surrounding the project site.

The Office of Environmental Health and Hazards Assessment (OEHHA) has determined that long-term exposure to DPM poses the highest cancer risk of any TAC it has evaluated. Short-term exposure to diesel exhaust can also have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, DPM made people with allergies more susceptible to the materials to which they are allergic (e.g., dust and pollen). Short-term exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

The conservative nature of this analysis is due primarily to the following factor: the ARB-adopted diesel exhaust unit risk factor (URF) of 300 in 1 million per micrograms per cubic meter ($\mu g/m^3$) is based on the upper 95$^{th}$ percentile of estimated risk for each of the epidemiological studies used to develop the URF. Therefore, the risk factor is already representative of the conservative risk posed by DPM.

The risk estimates assume sensitive receptors will be subject to DPM for 24 hours per day, 350 days per year. As a conservative measure, SCAQMD does not recognize indoor adjustments for residents.

However, the typical person spends the majority of their time indoors versus remaining outdoors for 24 hours per day, 350 days per year.[1]

The exposure to DPM is assumed to be constant for the given period analyzed (i.e., 30 years). However, emissions from DPM are expected to substantially decrease in the future with the implementation of standard regulatory requirements and technological advancement to reduce DPM.

The emissions derived for the proposed project assume every truck accessing the project site will idle for 15 minutes. This is a 200 percent overestimation of actual idling times and, thus, a conservative estimation as ARB requires idling be limited to 5 minutes.[2]

## EMISSIONS ESTIMATION

Vehicle DPM emissions were estimated using emission factors for particulate matter less than 10 micrometers (µm) in diameter ($PM_{10}$) generated with the 2014 version of the California Emission Factor Model (EMFAC) developed by the ARB. EMFAC 2014 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC 2014, incorporates regional motor vehicle data, information, and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

In recent years, implementation of ARB's *Diesel Risk Reduction Plan* (September 2000) has reduced emissions of these TACs. This plan has already resulted in a 75 percent reduction in particle emissions from diesel-powered trucks and other equipment (compared to 2000 levels), and by 2020, when fully implemented, the plan will result in an 85 percent reduction (OEHHA 2015). The *Diesel Risk Reduction Plan* calls for the use of cleaner-burning diesel fuel, retrofitting existing engines with particle-trapping filters, and the use in new diesel engines of advanced technologies that produce nearly 90 percent fewer particle emissions, as well as the use of alternative fuels. The ARB *Truck and Bus Regulation Compliance Requirements Summary* (2014) requires the installation of exhaust after-treatment devices to reduce emissions of PM and oxides of nitrogen ($NO_x$) from on-road diesel engines. As of January 2016, all heavy-duty diesel trucks must be equipped with diesel particulate filters and all pre-1996 engines must be replaced with newer engines. The most important improvement in EMFAC 2014 is the integration of the new data and methods to estimate emissions from diesel trucks and buses. The model includes the emissions benefits of the truck and bus rule

[1] In May 1991, the ARB Research Division, in association with the University of California, Berkeley, published research findings titled *Activity Patterns of California Residents*. The findings of that study indicate that on average, adults and adolescents in California spent almost 15 hours per day inside their homes and 6 hours in other indoor locations, for a total of 21 hours (87 percent of the day). About 2 hours per day were spent in transit, and just over 1 hour per day was spent in outdoor locations.

[2] Although the project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommend that the on-site idling emissions should be estimated for 15 minutes of truck idling, which would take into account on-site idling that occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, and idling at check-in and check-out.

and the previously adopted rules for other on-road diesel equipment. Finally, the impacts of the recession on emissions that were quantified as part of the truck and bus rulemaking are included.

Several distinct emission processes are included in EMFAC 2014. Emission factors calculated using EMFAC 2014 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this project are presented below.

For the proposed project, annual average $PM_{10}$ emission factors were generated by running EMFAC 2014 in EMFAC Mode for vehicles in the SCAQMD district. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the project site. The vehicle travel speeds for each segment modeled are summarized below.

- Idling: on-site loading/unloading and truck gate
- 5 miles per hour (mph): on-site vehicle movement including driving and maneuvering
- 35 mph: off-site vehicle movement including driving and maneuvering

The average $PM_{10}$ emission factors for each type of vehicle were calculated based on the annual average emission factors from different model years for various exposure periods associated with assumptions for evaluating exposure to residential receptors in the neighborhood.

Calculated emission factors for each of these scenarios are shown in Table A. The emission factors for model years beyond 2035 were assumed to be the same as emission factors in 2035 due to the fact that no improvements to fuel or vehicle combustion technology are anticipated beyond 2035. In addition, this analysis is conservative by assuming that residents will live in the same home (and thus be exposed to emissions) for 30 years.

## Table A: Weighted Average Diesel Particulate Matter Emissions Factors

| **30-Year Residential Exposure Scenario (Years 2018–2048)** | |
|---|---|
| **Speed** | **Weighted Average** |
| 0 mph (idling) | 0.1 (g/idle-hr) |
| 5 mph | 0.016 (g/s) |
| 35 mph | 0.000017 (g/s) |

Source: California Air Resources Board *EMFAC2014 Model* (2016).
Note: Average $PM_{10}$ emission factors for each type of diesel vehicle were calculated based on the annual average emission factors from different model years.
ARB = California Air Resources Board
EMFAC2014 = California Emission Factor Model, version 2014
g/idle-hr = grams per idle-hour
g/s = grams per second
mph = miles per hour
$PM_{10}$ = particulate matter less than 10 microns in size

The use of emissions factors for the year 2018 was selected as a reasonable balance between using emissions factors for the existing vehicle fleet, using emissions factors for a 2027 vehicle fleet (the end of the 9-year exposure period), and using emissions factors for a 2048 vehicle fleet (the end of the 30-year exposure period).

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust $PM_{10}$ emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources:

$Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day)/ seconds per day

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;
$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust $PM_{10}$ emission factor at speed A; and
Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust $PM_{10}$ emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions.

In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust $PM_{10}$ emission factor (g/idle-hr) from EMFAC and the total truck trip over the total idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes:

$Emissions_{idle}$ (g/s) = $EF_{idle}$ (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) * 60 minutes per hour/seconds per day

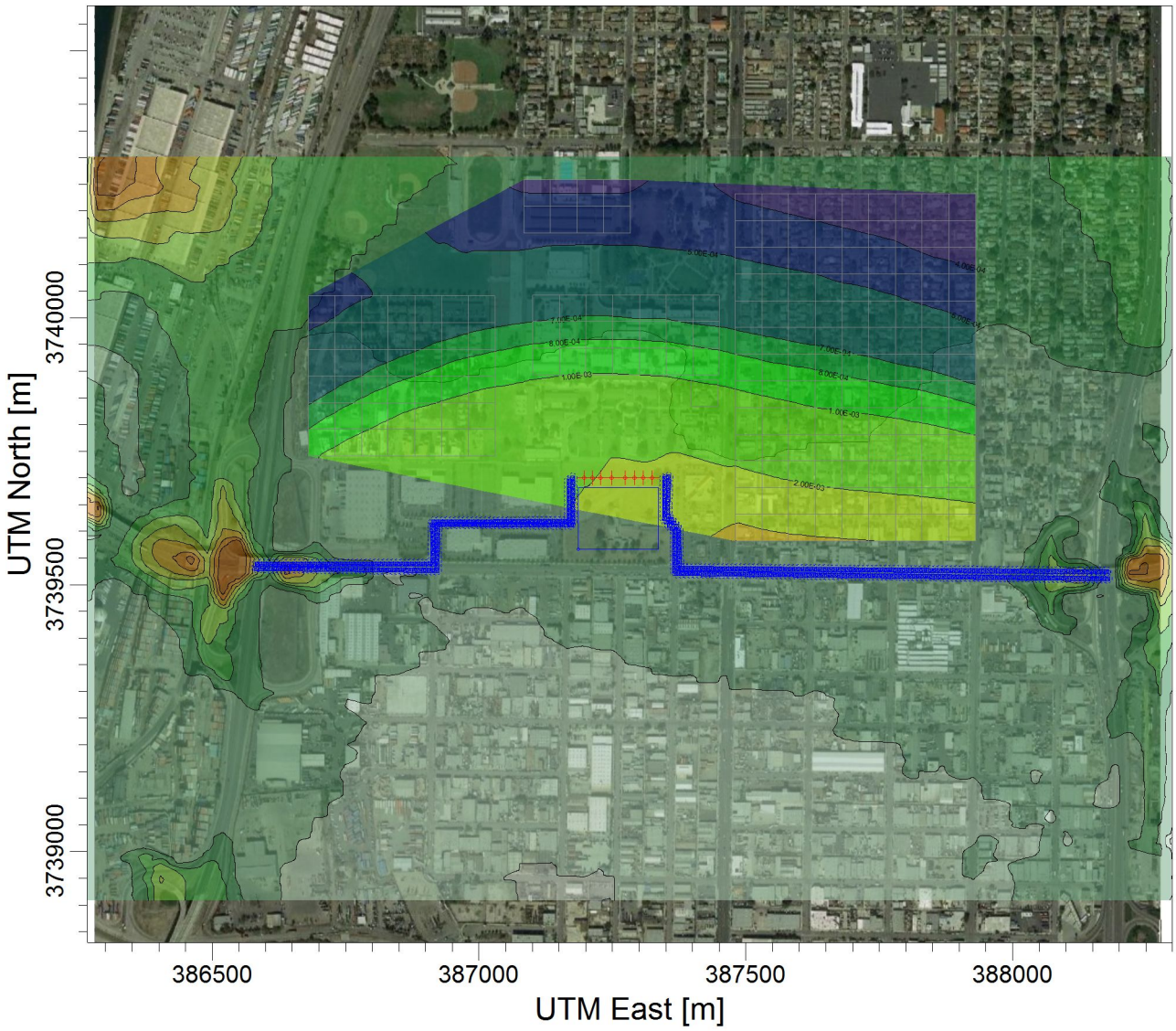
Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling; and
$EF_{idle}$(g/s): EMFAC idle exhaust $PM_{10}$ emission factor.

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report, but are included in the appendix. The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway. The modeled emission sources are illustrated on Figure 1, AERMOD Modeling. The modeled truck travel routes included in the HRA are based on the truck trip distributions (inbound and outbound) available from the *Traffic Impact Analysis for the CSULB Technology Park Phase III*

PROJECT TITLE:

**C:\Lakes\AERMOD View\CSULB_Technology_Park\CSULB_Technology_Park.isc**




PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 5.02E-03 [ug/m^3] at (387480.31, 3739582.03)

3.00E-04 4.00E-04 5.00E-04 7.00E-04 8.00E-04 1.00E-03 2.00E-03 4.00E-03 5.00E-03 5.02E-03

| COMMENTS: | SOURCES: | COMPANY NAME: | |
|---|---|---|---|
| Figure 1<br>AERMOD Modeling | **12** | **LSA Associates** | |
| | RECEPTORS: | MODELER: | |
| | **247** | **Michael Slavick** | |
| | OUTPUT TYPE: | SCALE: 1:12,957 | |
| | **Concentration** | 0 0.5 km | |
| | MAX: | | PROJECT NO.: |
| | **5.02E-03 ug/m^3** | | **CLB1704** |

AERMOD View - Lakes Environmental Software

**This page intentionally left blank**

*Building 9 Project (Revised)* (Traffic Impact Analysis) (Kunzman Associates, August 2017) prepared for the proposed project). The total truck trip distribution is projected as 522 passenger vehicles, 91 two-axle trucks, 67 three-axle trucks, and 50 four-axle trucks.

On-site truck idling was estimated to occur as trucks enter and travel through the facility. Although the proposed project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommend that the on-site idling emissions should be estimated for 15 minutes of truck idling, which would take into account on-site idling that occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, and idling at check-in and check-out. As such, this analysis estimated truck idling at 15 minutes, consistent with SCAQMD's recommendation.

Trip characteristics available from the Traffic Impact Analysis (Kunzman Associates 2017) were used in this analysis. Project operational vehicular impacts are dependent on both overall daily vehicle trip generation and the effect of the project on peak-hour traffic volumes and traffic operations. Project-related operational air quality impacts derive predominantly from mobile sources (vehicles). The Traffic Impact Analysis presents the total project vehicle trips in terms of passenger car equivalents (PCEs) and actual vehicles in an effort to recognize and acknowledge the effects of heavy vehicles at the study area intersections. Notwithstanding, for the purposes of the HRA study, the PCE trips were not used. Rather, to more accurately estimate and model vehicular-source emissions, the actual number of vehicles, separated by vehicle classification (e.g., passenger cars, light trucks, and heavy trucks) was used in the analysis.

The vehicle fleet mix, in terms of actual vehicles, as derived from Table 2 in the Traffic Impact Analysis, comprises approximately 71 percent passenger cars and approximately 29 percent total trucks. For analysis purposes, 13 percent of all vehicles are assumed to be Light-Heavy-Duty (LHD), 9 percent of all vehicles are assumed to be Medium-Heavy-Duty (MHD), and 7 percent of all vehicles are assumed to be Heavy-Heavy-Duty (HHD).

### Vehicle Trip Length Approach for Mobile Source Emission Analysis

A technical deficiency inherent in calculating the projected vehicle emissions associated with any project is related to the estimation of trip length and VMT. VMT for a given project is calculated by the total number of vehicle trips to and from the project multiplied by the average trip length. Localized truck trip travels between the project site and freeways were utilized in the model. The estimated travel distances from the project site to Interstate 710 and State Route 103 are 0.6 mile and 0.36 mile, respectively. These travel distances along with the truck trip distribution data in the Traffic Impact Analysis were used to estimate the vehicle trip length and related VMT. This same methodology is employed in analyses for similar projects in the City of Long Beach and other jurisdictions in the County of Los Angeles and is considered by the Lead Agency to be appropriate and accurate.

### Exposure Quantification

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance (SCAQMD 2003). SCAQMD recommends using the EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). For the

purposes of this analysis, AERMOD was used to calculate annual average particulate concentrations associated with site operations.

The AERMOD model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameter for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. According to the AERMOD user's guide, the initial horizontal standard deviation (σy) of individual volume sources should be estimated as the distance between adjacent volume sources divided by 2.15. In a similar manner, the AERMOD user guide specifies that the source initial vertical standard deviation (σz) for a surface-based source should be estimated as the height of the source divided by a factor of 2.15. The release height of 6 meters (m) was assumed for the diesel trucks, consistent with the methodology used in ARB's *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach* (April 2006), and the vertical (sigma z) dispersion parameter of 1.86 m was used in the AERMOD.

The model requires additional input parameters including emission data and local meteorology. Meteorological data from SCAQMD's Long Beach Monitoring Station (Long Beach Municipal Airport), approximately 3.2 miles northeast of the project site, was used to represent local weather conditions and prevailing winds.

Universal Transverse Mercator coordinates for North American Datum 83 were used to locate the project boundaries, each volume source location, and receptor locations in the project vicinity. The AERMOD dispersion model summary output files for the proposed facility are attached.

Modeled sensitive receptors were placed at discrete residential locations for the applicable residential scenarios. Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the OEHHA guidance document *Air Toxic Hot Spots Program Risk Assessment Guidelines Technical Support Document for Exposure Assessment and Stochastic Analysis* (2012) and guidance from SCAQMD. The detailed emissions and risk calculation outputs are attached.

### Carcinogenic Chemical Risk

The SCAQMD *CEQA Air Quality Handbook* (1993) states that emissions of toxic air contaminants (TACs) are considered significant if an HRA shows an increased risk of greater than 10 in 1 million. Based on guidance from SCAQMD in its Health Risk Assessment Guidance (2003), and for the purposes of this analysis, 10 in 1 million is used as the cancer risk threshold for the proposed project.

Per guidance from ARB and the California Environmental Protection Agency, OEHHA recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are used to assess risk for susceptible subpopulations (e.g., children). For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose.

Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was used:

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)
Cair = concentration of contaminant in air ($ug/m^3$)
[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)
A = inhalation absorption factor
EF = exposure frequency (days/365 days)
BW = body weight (kg)
$1 \times 10^{-6}$ = conversion factors (ug to mg, L to $m^3$)
RISKair = DOSEair x CPF x ED/AT

Where:

DOSEair = chronic daily intake (mg/kg/day)
CPF = cancer potency factor
ED = number of years within particular age group
AT = averaging time

## Non-Carcinogenic Exposures

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 $\mu g/m^3$ (OEHHA 2016).

The non-cancer hazard index of DPM was calculated (consistent with SCAQMD methodology) as follows:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

$HI_{DPM}$ = Hazard Index; an expression of the potential for non-cancer health effects;
CDPM = Annual average DPM concentration ($\mu g/m^3$); and
$REL_{DPM}$ = REL for DPM; the DPM concentration at which no adverse health effects are anticipated.

For the purposes of this analysis, the hazard index for the chronic health risk levels are less than one for all receptors in the project vicinity, and thus, impacts would be less than significant.

### Air Toxics Hot Spots Analysis

The calculation of health risks was conducted using the information from the Air Toxics "Hot Spots" Program (Assembly Bill 2588). Following the guidance in the SCAQMD Risk Assessment Guidelines, estimated long-term carcinogenic and chronic health risk levels were calculated using the DPM concentrations from AERMOD. To estimate chronic noncancer risks at residential receptors, the "OEHHA-Derived Method" risk-calculation option was used. Following the OEHHA guidance, 8-hour chronic noncancer risk was calculated for residential receptors because the proposed project would operate for more than 8 hours per day and 5 days per week.

## POTENTIAL PROJECT-RELATED DIESEL PARTICULATE MATTER SOURCE CANCER AND NON-CANCER RISKS

**Residential and School Exposure Scenario**Table B presents the maximum health risks. The residential land uses with the greatest potential exposure to project DPM source emissions are the multi-family residential units approximately 385 feet east of the project site across Santa Fe Avenue. The nearest school, the Head Start facility at the Long Beach Job Corps Center, is located 385 feet northeast of the project site. At the maximally exposed individual receptors, the maximum incremental cancer risk attributable to project DPM source emissions is estimated at 3.8 in 1 million for the Santa Fe Avenue residential receptor and 0.06 in 1 million for the Head Start facility receptor, which are each less than the threshold of 10 in 1 million. At the Santa Fe Avenue residential receptor location, maximum non-cancer risks were estimated to be 0.001, which would not exceed the applicable threshold of 1.0.

### Table B: Maximum Health Risk Impact from Project Operation

| Risk | Maximum Cancer Risk (risk per million) | Maximum Chronic Risk (Hazard Index[1]) |
|---|---|---|
| **SCAQMD Threshold** | **10.0** | **1.0** |
| 9-Year School Exposure | 0.06 | 0.001 |
| 30-Year Residential Exposure | 3.82 | |
| **Significant?** | **No** | **No** |

Source: Compiled by LSA (August 2017).

[1] The Hazard Index is the unitless ratio of the estimated long-term level of exposure to a toxic air contaminant for a potential maximum exposed individual to its reference exposure level.

SCAQMD = South Coast Air Quality Management District

Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations from operational emission associated with the proposed project. Impacts related to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant, and no mitigation is required.

## REFERENCES

California Air Resources Board (ARB). 2017. *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*. April. Website: https://www.arb.ca.gov/ch/rd_technical_advisory_final.pdf (accessed July 2017).

_____. 2014. *Truck and Bus Regulation Compliance Requirements Summary.* August 29. Website: http://www.arb.ca.gov/msprog/onrdiesel/documents/fsregsum.pdf (accessed July 2017).

_____. 2006. *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach.* April.

_____. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April. Website: http://www.arb.ca.gov/ch/handbook.pdf (accessed July 2017).

_____. 2003. *Air Resources Board Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk*. October 9. Website: http://www.arb.ca.gov/toxics/harp/docs/rmpolicy.pdf (accessed July 2017).

_____. 2000. *Diesel Risk Reduction Plan*. September.

_____. California Emissions Factor Model, Version 2014 (EMFAC2014). Webpage last updated by ARB on November 17, 2015. Website: http://www.arb.ca.gov/msei/categories.htm (accessed July 2017).

_____. HARP. HARP Overview. Webpage last reviewed by ARB on February 23, 2017. Website: http://www.arb.ca.gov/toxics/harp/harp.htm (accessed July 2017).

_____. Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant. Webpage last reviewed by ARB on July 29, 2008. Website: http://www.arb.ca.gov/toxics/dieseltac/dieseltac.htm (accessed July 2017).

_____. Statewide Truck and Bus Regulations. Webpage last reviewed by ARB on January 8, 2014. Website: http://www.arb.ca.gov/regact/2008/truckbus08/truckbus08.htm (accessed July 2017).

_____. Toxic Air Contaminant Identification List. Webpage last reviewed by ARB on July 18, 2011. Website: http://www.arb.ca.gov/toxics/id/taclist.htm (accessed July 2017).

California Environmental Protection Agency (CalEPA). 2015. California Office of Environmental Health Hazard Assessment (OEHHA), *Air Toxics Hot Spots Program Risk Assessment Guidelines*. Website: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf (accessed July 2017).

_____. 2015. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. Table last updated February 23, 2017. Website: http://www.arb.ca.gov/toxics/healthval/contable.pdf (accessed July 2017).

_____. 2001. *Health Effects of Diesel Exhaust,* prepared by the California Office of Environmental Health Hazard Assessment (OEHHA) and the American Lung Association of California. May 21. Website: https://oehha.ca.gov/air/health-effects-diesel-exhaust (accessed July 2017).

Kunzman Associates, Inc. 2017. *Traffic Impact Analysis for the CSULB Technology Park Phase III Building 9 Project (Revised).* August.

Office of Environmental Health and Hazards Assessment (OEHHA). 2016. *OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary* as of June 28, 2016. Website: https://oehha. ca.gov/ air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure- level-rel-summary (accessed August 2016).

_____. 2012. *Air Toxic Hot Spots Program Risk Assessment Guidelines Technical Support Document for Exposure Assessment and Stochastic Analysis*.

South Coast Air Quality Management District (SCAQMD). 2015. *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)*. June 5. Website: http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588_guidelines.pdf (accessed July 2017).

_____. 2003. *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis* (SCAQMD 2003).

_____. 1993. *CEQA Air Quality Handbook.*

_____. SCAQMD Meteorological Data for AERMOD. Website: http://www.aqmd.gov/home/library/ air-quality-data-studies/meteorological-data/data-for-aermo ( accessed July 2017).

United States Environmental Protection Agency (EPA). 1999. Integrated Urban Air Toxics Strategy. July. Website: https://www.federalregister.gov/documents/1999/07/19/99-17774/national-air-toxics-program-the-integrated-urban-strategy (accessed July 2017).

_____. 1991. Risk Assessment for Toxic Air Pollutants: A Citizen's Guide, EPA No. 450/3-90-024. March. Website: http://www.epa.gov/ttn/atw/3_90_024.html (accessed July 2017).

_____. AERMOD Modeling System. Website: http://www.epa.gov/ttn/scram/dispersion_prefrec. htm#aermod (accessed July 2017).

Western Regional Climate Center. Website: http://www.wrcc.dri.edu (accessed July 2017).

## CSULB Technology Park Warehouse -- DPM Cancer Risk Estimates from Truck Activities

**DPM Cancer Risk Values at maximum concentrations on residential and school receptors**

| Pollutant* | Sensitive Receptor Type | Sensitive Receptor Age Group | 25 meters | | |
|---|---|---|---|---|---|
| | | | Estimated Concentration ($\mu g/m^3$)* | Cancer Risk (per million)** | Chronic Hazard Quotient*** |
| DPM | Residential | 16 < 70 year | 0.005 | 9.53E-07 | 1.00E-03 |
| | | 16 < 30 year | 0.005 | 2.77E-07 | |
| | | 2 < 16 year | 0.005 | 1.82E-06 | |
| | | 2 < 9 Year | 0.005 | 1.00E-06 | |
| | | 0 < 2 year | 0.005 | 1.65E-06 | |
| | | 3rd trimester | 0.005 | 6.83E-08 | |
| 30 year Residential HRA Total | | | | 3.82E-06 | 1.00E-03 |
| DPM | School | 16 < 70 year | NA | NA | NA |
| | | 16 < 30 year | NA | NA | NA |
| | | 2 < 16 year | 0.001 | 2.88E-08 | NA |
| | | 2 < 9 Year | 0.001 | 3.55E-08 | NA |
| | | 0 < 2 year | 0.001 | 6.02E-08 | NA |
| | | 3rd trimester | 0.001 | 0.00E+00 | NA |
| 9 year School HRA Total | | | | 6.43E-08 | NA |

**Notes:**

* Based on the estimated 5-year meterological average annual ground-level concentrations

** Regulatory acceptable threshold is 10 per million, or 1.00E-05.

***Chronic hazard quotient calculated for the maximally exposed individual. This is assumed to be the 30 to 70 year residential exposure. Average annual exposure concentration is used.

**Acronymes and abbreviations:**

| | |
|---|---|
| NA | Not applicable |
| DPM | diesel particulate matter |
| ($\mu g/m^3$) | micrograms per cubic meter |
| | Unacceptable cancer risk level, greater than 1.00E-5 |
| | Unacceptable chronic hazard quotient, greater than 1.0E+0 |
| UTM | Universal Transverse Mercator coordinate system (standard system to locate objects or |

| CSULB Technology Park Warehouse -- DPM Cancer Risk Estimates from Truck Activities<br>Construction DPM Cancer Risk Values at Different Distances from Construction Area fenceline<br>Diesel Particulate Matter (DPM) Cancer Risk Calculations (assuming DPM = 100% PM10 exhaust emissions from project) | | | | | | | | | DPM Cancer Risk Estimates |
|---|---|---|---|---|---|---|---|---|---|
| **Receptor Age Categories** | | | **3rd trimester** | **0<2 years** | **2<9 years** | **2<16 years** | **16<30 years** | **16<70 years** | **Chronic Hazard Quotient** |
| **Cancer $Risk_{inh:}$ (1) - Residential** | | | 6.83E-08 | 1.65E-06 | 1.00E-06 | 1.82E-06 | 2.77E-07 | 9.53E-07 | 1.00E-03 |
| **Cancer $Risk_{inh:}$ (1) - Recreational** | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| **Cancer $Risk_{inh:}$ (1) - School** | | | 0.00E+00 | 6.02E-08 | 3.55E-08 | 2.88E-08 | 0.00E+00 | 0.00E+00 | |
| **Equations used in calculating Cancer Risk:**<br>**Cancer $Risk_{inh}$ = $Dose_{air}$ * CPF * ASF * ED/AT * FAH**<br>**$Dose_{air}$ = $C_{air}$ * {BR/BW} * A * EF * $10^{-6}$** | | | **Acceptable Risk: 1.00E-05**<br>**(ten in a million, SCAQMD and CARB)** | | | | | | **Equation uesd in calculating Chronic Hazard Quotient:**<br>**Hazard Quotient= $C_{air}/REL_{DPM}$**<br>**The hazard quotient is for the maximally exposed individual: assumed 16 to 70 year resident.** |
| **Definition of terms** | | | | | | | | | **Reference Source** |
| **CPF** | Inhalation Cancer Potency Factor | $(mg/kg\text{-}day)^{-1}$ | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | |
| **$C_{air}$** | 25 meters from source area: Concentration in air (from AERMOD model results, receptor analysis) | $\mu g/m^3$ (Residential) | 0.00502 | 0.00502 | 0.00502 | 0.00502 | 0.00502 | 0.00502 | Using Annual Average $C_{air}$ from AERMOD output data file for applicable receptor |
| | | $\mu g/m^3$ (Recreational) | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | |
| | | $\mu g/m^3$ (School) | 0.00140 | 0.00140 | 0.00140 | 0.00140 | 0.00140 | 0.00140 | |
| **{BR/BW}** | Daily Breathing Rate normalized to body weight | L/kg-day (Residential) | 361 | 1090 | 631 | 572 | 261 | 233 | OEHHA 2015, Table 5.6, 95th percentile for 3rd trimester – 2 yrs old; 80th percentile for other age groups |
| | | L/kg-day (Recreational) | 0 | 1200 | 640 | 520 | 240 | 230 | OEHHA 2015, Table 5.8 (95th, moderate) for all age bins but 3rd trimester; assume no 3rd trimester receptors |
| | | L/kg-day (School) | 0 | 1200 | 640 | 520 | 240 | 230 | Same as recreational |
| **A** | Inhalation absorption factor | unitless | 1 | 1 | 1 | 1 | 1 | 1 | Constant |
| **EF** | Exposure Frequency, (Fraction of time exposed) | days/365 days (Residential) | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | OEHHA 2015, page 5-24, 350 days/year |
| | | days/365 days (Recreational) | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | Yearly, based on estimated 350 day/yr, 2 hrs/day exposure |
| | | days/365 days (School) | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | Based on 180 days/yr, 6 hrs/day |
| **ED** | Exposure duration for a specified age | years (Residential - 70 years) | 0.25 | 2 | | 14 | | 54 | Equation 8.2.4 A, OEHHA 2015 |
| | | years (Residential - 30 years) | 0.25 | 2 | | 14 | 14 | 0 | Equation 8.2.4 A, OEHHA 2015 |
| | | years (Residential - 9 years) | 0.25 | 2 | 7 | | | | Equation 8.2.4 A, OEHHA 2015 |
| | | years (Recreational) | | 2 | 7 | 2 | 6 | | Equation 8.2.4 A, OEHHA 2015 |
| | | years (School - 9 years)) | | 1.9 | 7 | 7 | | | BAAQMD Health Risk Screening Analysis Guidelines, Jan 2010, page 3 |
| **AT** | Averaging time for lifetime cancer risk | years | 70 | 70 | 70 | 70 | 70 | 70 | Exposure years for lifetime cancer risk (years), (construction period) |
| **FAH** | Fraction of time spent at home | unitless | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | Table 8.4, OEHHA 2015 (only for residential, but worst-case to assume 1.0; recreation assumed to be 1.0) |
| **ASF** | Age sensitivity Factor | unitless | 10 | 10 | 3 | 3 | 1 | 1 | OEHHA 2015, Table 8.3 |
| **WAF** | Worker Adjustment Factor | unitless | | | | | 1 | 1 | Source is constant; WAF of 1 assumed per OEHHA 2015 page 5-31 |
| **1.00E-06** | Conversion Factor | unitless | 1.00E-06 | 1.00E-06 | 1.00E-06 | 1.00E-06 | 1.00E-06 | 1.00E-06 | Micrograms to milligrams and liters to cubic meters conversion factor |
| **$REL_{DPM}$** | Chronic Reference Exposure Level (DPM REL) | $\mu g/m^3$ | 5.00E+00 | 5.00E+00 | 5.00E+00 | 5.00E+00 | 5.00E+00 | 5.00E+00 | OEHHA 2015 |
| **NOTES:** | | | | | | | | | |
| (1) | (Estimated Inhalation Cancer Risk from Diesel Truck Operations with the EMFAC2014 HHDT emission factors on local roadways and idling at warehouse docks) | | | | | | | | |

# CSULB Technology Park
## Assumptions

EMFAC 2014-PL Inputs

| | |
|---|---|
| Vehicle Category Scheme: | Trucks/Non-Trucks Category |
| Region type: | County |
| Region: | Los Angeles |
| Year: | 2020-2035 |
| Season: | Annual |
| Vehicle Category: | All |
| Fuel Type: | Dsl |
| Speed: | All |

Car = 45 and Truck = 35 as they represents the more conservative emissions based on vehicle type.

EMFAC 2011-SG inputs
Regional Scenario

| | |
|---|---|
| Group: | 1 |
| Area Type: | County |
| Area: | Los Angeles |
| Year: | 2018 |
| Season: | Annual |

**AERMOD Inputs**

| | | | | | |
|---|---|---|---|---|---|
| Met Data Files: | Long Beach 2006 - 2011 | | | Projection: | UTM |
| | Surface Characteristics: | | | Datum: | WGS84 |
| | Surface Albedo: | 0.18 | | UTM Zone | 11N |
| | Surface Roughness: | 0.504 | Coords: | Lat: | 33:49:25 N |
| | Bowen Ratio: | 1.0 | | Long: | 118:11:19 W |
| | Elevation: | 30 (m) | | diameter: | 4.5 km |
| | Obtained from: | http://www.aqmd.gov/smog/metdata/AERMOD.html 12/17/2015 | | | |
| | Flagpole Receptors: | 1.8 m | | | |
| Terrain Data: | Developed in AERMAP. NED 30m | | | | |

# CSULB Technology Park
## Assumptions

Receptor Information:

Receptor Grids:

| | | X | | | | Y | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | SW (UTM) | No. of points | Spacing (m) | Length (m) | SW (UTM) | No. of points | Spacing (m) | Length (m) | # of Receptors |
| Residences | UCART1 | 386679.82 | 8 | 50 | 350 | 3739741.01 | 7 | 50 | 300 | 56 |
| Residences | UCART2 | 387480.31 | 10 | 50 | 450 | 3739582.03 | 14 | 50 | 650 | 140 |
| High Schoo | UCART3 | 387083.58 | 5 | 50 | 200 | 3740158.84 | 3 | 50 | 100 | 15 |
| High Schoo | UCART4 | 387100.60 | 8 | 50 | 350 | 3739892.86 | 4 | 50 | 150 | 32 |
| Head Start | UCART5 | 387397.93 | 2 | 50 | 50 | 3739833.92 | 2 | 50 | 50 | 4 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Discrete Receptors:

| | X | Y | ELEV | HILL |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

# CSULB Technology Park
## Assumptions

Source Information:

**SOURCE 1**

| | | |
|---|---|---|
| Source Type: | Line Volume | |
| Source ID: | SLINE1 | |
| Source ID Prefix: | N/A | |
| Description: | Western Outbound from facility to SR 103 | |
| Configuration: | Adjacent | |
| Plume Height (m): | 3.855 | (average vehicle height * 2) |
| | 104 | Trucks |
| | 3.0 | Vehicle Height (m) |
| | 261 | Passenger Vehicles |
| | 1.5 | Vehicle Height (m) |
| | 1.93 | Average vehicle height (m) |
| Plume Width (m): | 27 | (roadway width + 3 meters on either side) |
| Emissin Rate (g/s): | 5.81E-08 | |
| Elevation: | Surface Based | |
| Total Length (m) | 747.3 | |
| Release Height (ft): | 2.78 | (average release height of all vehicles) |
| | 104 | Trucks |
| | 6 | Release Height (ft) |
| | 261 | Passenger Vehicles |
| | 1.5 | Release Height (Ft) |

**SOURCE 2**

| | | |
|---|---|---|
| Source Type: | Line Volume | |
| Source ID: | SLINE2 | |
| Source ID Prefix: | N/A | |
| Description: | Eastern Outbound from facility to I-710 | |
| Configuration: | Separated | |
| Plume Height (m): | 3.855 | (average vehicle height * 2) |
| | 104 | Trucks |
| | 3.0 | Vehicle Height (m) |
| | 261 | Passenger Vehicles |
| | 1.5 | Vehicle Height (m) |
| | 1.93 | Average vehicle height (m) |
| Plume Width (m): | 27 | (roadway width + 3 meters on either side) |
| Emissin Rate (g/s): | 0 | |
| Elevation: | Surface Based | |
| Total Length (m) | 1003.3 | |
| Release Height (ft): | 2.78 | (average release height of all vehicles) |
| | 104 | Trucks |
| | 6 | Release Height (ft) |
| | 261 | Passenger Vehicles |
| | 1.5 | Release Height (Ft) |

# CSULB Technology Park
## Assumptions

**SOURCE 3**

| | | |
|---|---|---|
| Source Type: | Line Volume | |
| Source ID: | SLINE3 | |
| Source ID Prefix: | N/A | |
| Description: | Eastern Inbound to facility from I-710 | |
| Configuration: | Separated | |
| Plume Height (m): | 3.659 | (average vehicle height * 2) |
| | 125 | Trucks |
| | 3.0 | Vehicle Height (m) |
| | 444 | Passenger Vehicles |
| | 1.5 | Vehicle Height (m) |
| | 1.83 | Average vehicle height (m) |
| Plume Width (m): | 14 | (roadway width + 3 meters on either side) |
| Emissin Rate (g/s): | 0 | |
| Elevation: | Surface Based | |
| Total Length (m) | 987.5 | |
| Release Height (ft) | 2.78 | (average release height of all vehicles) |
| | 125 | Trucks |
| | 6 | Release Height (ft) |
| | 444 | Passenger Vehicles |
| | 1.5 | Release Height (Ft) |

**SOURCE 4**

| | | |
|---|---|---|
| Source Type: | Line Volume | |
| Source ID: | SLINE4 | |
| Source ID Prefix: | N/A | |
| Description: | Western Inbound to facility from SR-103 | |
| Configuration: | Separated | |
| Plume Height (m): | 4.547 | (average vehicle height * 2) |
| | 83 | Trucks |
| | 3.0 | Vehicle Height (m) |
| | 78 | Passenger Vehicles |
| | 1.5 | Vehicle Height (m) |
| | 2.27 | Average vehicle height (m) |
| Plume Width (m): | 14 | (roadway width + 3 meters on either side) |
| Emissin Rate (g/s): | 0 | |
| Elevation: | Surface Based | |
| Total Length (m) | 770.9 | |
| Release Height (ft) | 2.78 | (average release height of all vehicles) |
| | 83 | Trucks |
| | 6 | Release Height (ft) |
| | 78 | Passenger Vehicles |
| | 1.5 | Release Height (Ft) |

# CSULB Technology Park
## Assumptions

**SOURCE 5**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK1 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 1-4 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

**SOURCE 6**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK2 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 5-8 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

# CSULB Technology Park
## Assumptions

**SOURCE 7**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK3 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 9-12 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

**SOURCE 8**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK4 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 13-17 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

**SOURCE 9**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK5 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 18-21 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

# CSULB Technology Park
## Assumptions

**SOURCE 10**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK6 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 22-25 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

**SOURCE 11**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK7 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 26-30 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |
| gas exit flow rate | 0.3927 | m2/sec |

**SOURCE 12**

| | | |
|---|---|---|
| Source Type: | Point | |
| Source ID: | STCK8 | |
| Source ID Prefix: | N/A | |
| Description: | Truck idling at Docks 31-33 | |
| Base Elevation | 3.52 | meter |
| Release Height | 3.0 | truck tail pipe height |
| | 26 | Trucks |
| | 3.0 | Vehicle Height (m) |

| | | |
|---|---|---|
| Emissin Rate (g/s): | 3.17E-07 | g/sec |
| exhaust gas temp | 366 | K |
| stack diameter | 0.1 | meter |
| gas exit velocity | 50.00 | m/sec |

# CSULB Technology Park
## Assumptions

gas exit flow rate 0.3927 m2/sec

Paremeters:

| | | |
|---|---|---|
| Output Type: | Concentration | |
| Pollutant: PM10 | | |
| Averaging Time: | Annual | |
| Dispersion Coefficient: | | Rural |
| Terrain Height Options | | Elevated |
| Receptor Elevations | | Aermap |
| Urban Group: | | Single |
| Population: | | 2100516 http://www.aqmd.gov/smog/metdata/AERMOD_ModelingGuidance.html |

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Los Angeles (SC)
Calendar Year: 2018
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

| Region | CalYr | VehClass | MdlYr | Speed | Fuel | VMT | ROG_RUNE | TOG_RUNE | CO_RUNEX | NOx_RUNE | CO2_RUNE | PM10_RUN | PM2_5_RU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Los Angeles | 2018 | HHDT | Aggregated | 5 | DSL | 46315.76 | 1.295915 | 3.534367 | 8.711436 | 20.37038 | 3988.613 | 0.051395 | 0.049172 |
| Los Angeles | 2018 | HHDT | Aggregated | 10 | DSL | 102409.6 | 0.997875 | 2.919027 | 7.247295 | 16.79188 | 3597.908 | 0.045613 | 0.043639 |
| Los Angeles | 2018 | HHDT | Aggregated | 15 | DSL | 147041.5 | 0.687174 | 1.157928 | 3.356137 | 11.87337 | 2613.82 | 0.041593 | 0.039793 |
| Los Angeles | 2018 | HHDT | Aggregated | 20 | DSL | 341806.9 | 0.431585 | 0.592451 | 1.926265 | 8.504852 | 2171.443 | 0.043277 | 0.041405 |
| Los Angeles | 2018 | HHDT | Aggregated | 25 | DSL | 486685.9 | 0.31062 | 0.429134 | 1.448896 | 6.656921 | 1967.379 | 0.030258 | 0.028949 |
| Los Angeles | 2018 | HHDT | Aggregated | 30 | DSL | 660260.9 | 0.232504 | 0.311585 | 1.060442 | 5.70337 | 1836.758 | 0.02765 | 0.026454 |
| Los Angeles | 2018 | HHDT | Aggregated | 35 | DSL | 534625.7 | 0.171882 | 0.303352 | 0.9497 | 5.264311 | 1822.694 | 0.024866 | 0.023791 |
| Los Angeles | 2018 | HHDT | Aggregated | 40 | DSL | 525289.8 | 0.131537 | 0.209384 | 0.668563 | 4.817698 | 1711.261 | 0.023915 | 0.022881 |
| Los Angeles | 2018 | HHDT | Aggregated | 45 | DSL | 524351.8 | 0.1008 | 0.151899 | 0.488923 | 4.517139 | 1630.657 | 0.023269 | 0.022263 |
| Los Angeles | 2018 | HHDT | Aggregated | 50 | DSL | 466511.5 | 0.076463 | 0.098277 | 0.338122 | 4.135758 | 1529.543 | 0.023063 | 0.022065 |
| Los Angeles | 2018 | HHDT | Aggregated | 55 | DSL | 607822.7 | 0.062982 | 0.0717 | 0.248311 | 4.199667 | 1477.988 | 0.023628 | 0.022606 |
| Los Angeles | 2018 | HHDT | Aggregated | 60 | DSL | 1150386 | 0.05401 | 0.061486 | 0.220164 | 3.92403 | 1446.955 | 0.02357 | 0.02255 |
| Los Angeles | 2018 | HHDT | Aggregated | 65 | DSL | 657551.3 | 0.051592 | 0.058733 | 0.220914 | 3.620389 | 1430.286 | 0.023504 | 0.022487 |
| Los Angeles | 2018 | HHDT | Aggregated | 70 | DSL | 505.7891 | 0.051592 | 0.058733 | 0.220914 | 3.629071 | 1430.286 | 0.023504 | 0.022487 |
| Los Angeles | 2018 | HHDT | Aggregated | 75 | DSL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Los Angeles | 2018 | HHDT | Aggregated | 80 | DSL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Los Angeles | 2018 | HHDT | Aggregated | 85 | DSL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Los Angeles | 2018 | HHDT | Aggregated | 90 | DSL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 5 | DSL | 2147.084 | 0.732247 | 0.833615 | 2.785636 | 2.036668 | 1263.274 | 0.074882 | 0.071642 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 10 | DSL | 9548.817 | 0.5337 | 0.607582 | 2.03951 | 2.058952 | 1061.979 | 0.055133 | 0.052748 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 15 | DSL | 27030.82 | 0.306677 | 0.349131 | 1.21616 | 2.042855 | 693.561 | 0.041828 | 0.040018 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 20 | DSL | 73137.04 | 0.171433 | 0.195165 | 0.725947 | 2.062438 | 591.156 | 0.032806 | 0.031387 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 25 | DSL | 140817.5 | 0.123941 | 0.141099 | 0.550355 | 2.121368 | 524.2991 | 0.026684 | 0.025529 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 30 | DSL | 182709.1 | 0.100369 | 0.114263 | 0.464738 | 2.200251 | 476.1203 | 0.022654 | 0.021674 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 35 | DSL | 134977.8 | 0.085369 | 0.097187 | 0.414754 | 2.284759 | 476.1203 | 0.01999 | 0.019125 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 40 | DSL | 122229.8 | 0.075936 | 0.086448 | 0.390054 | 2.369679 | 463.0859 | 0.018292 | 0.017501 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 45 | DSL | 113285.4 | 0.070517 | 0.080279 | 0.386302 | 2.458346 | 451.7038 | 0.017339 | 0.016589 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 50 | DSL | 119749 | 0.068352 | 0.077814 | 0.403112 | 2.555147 | 473.5511 | 0.017025 | 0.016288 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 55 | DSL | 132372.3 | 0.069209 | 0.07879 | 0.443693 | 2.65756 | 494.8441 | 0.017334 | 0.016584 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 60 | DSL | 373512.5 | 0.073952 | 0.084189 | 0.517956 | 2.763348 | 499.7141 | 0.018451 | 0.017653 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 65 | DSL | 271111.3 | 0.083111 | 0.094616 | 0.639652 | 2.86211 | 506.2198 | 0.02053 | 0.019642 |
| Los Angeles | 2018 | LHDT1 | Aggregated | 70 | DSL | 231.2885 | 0.089497 | 0.101887 | 0.724832 | 2.91701 | 500.4673 | 0.02198 | 0.021029 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 5 | DSL | 1030.384 | 0.715696 | 0.814773 | 2.626905 | 1.570735 | 1324.543 | 0.058225 | 0.055706 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 10 | DSL | 4582.467 | 0.525849 | 0.598644 | 1.93504 | 1.556528 | 1177.163 | 0.043944 | 0.042043 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 15 | DSL | 12972.06 | 0.288374 | 0.328294 | 1.096098 | 1.497535 | 783.6018 | 0.033902 | 0.032435 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 20 | DSL | 35098.39 | 0.147925 | 0.168403 | 0.599931 | 1.477782 | 668.3547 | 0.026888 | 0.025725 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 25 | DSL | 67578.16 | 0.103224 | 0.117514 | 0.438794 | 1.502784 | 595.6086 | 0.022032 | 0.021079 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 30 | DSL | 87681.92 | 0.082601 | 0.094036 | 0.365104 | 1.548757 | 537.1439 | 0.018823 | 0.018008 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 35 | DSL | 64775.72 | 0.069495 | 0.079115 | 0.321357 | 1.601236 | 537.1439 | 0.01667 | 0.015949 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 40 | DSL | 58657.94 | 0.061103 | 0.069562 | 0.297969 | 1.655495 | 517.5249 | 0.015261 | 0.0146 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 45 | DSL | 54365.56 | 0.056003 | 0.063756 | 0.290765 | 1.713313 | 497.4685 | 0.014417 | 0.013794 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 50 | DSL | 57467.4 | 0.053481 | 0.060884 | 0.298834 | 1.777425 | 515.7911 | 0.014055 | 0.013447 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 55 | DSL | 63525.35 | 0.053266 | 0.060639 | 0.324007 | 1.845866 | 533.8687 | 0.014156 | 0.013543 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 60 | DSL | 179248.3 | 0.056183 | 0.06396 | 0.373867 | 1.91767 | 535.7293 | 0.014893 | 0.014249 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 65 | DSL | 130106 | 0.062466 | 0.071113 | 0.45742 | 1.985375 | 537.1439 | 0.016363 | 0.015655 |
| Los Angeles | 2018 | LHDT2 | Aggregated | 70 | DSL | 110.9951 | 0.066847 | 0.076101 | 0.515903 | 2.023056 | 530.6331 | 0.017388 | 0.016636 |
| Los Angeles | 2018 | MDV | Aggregated | 5 | DSL | 1051.206 | 0.211952 | 0.241293 | 3.412122 | 0.161924 | 1095.713 | 0.026179 | 0.025046 |
| Los Angeles | 2018 | MDV | Aggregated | 10 | DSL | 4880.414 | 0.157414 | 0.179206 | 2.550913 | 0.13951 | 930.5274 | 0.020093 | 0.019223 |
| Los Angeles | 2018 | MDV | Aggregated | 15 | DSL | 13803.74 | 0.080852 | 0.092045 | 1.261818 | 0.102454 | 789.1497 | 0.015672 | 0.014994 |
| Los Angeles | 2018 | MDV | Aggregated | 20 | DSL | 38666.15 | 0.035953 | 0.040931 | 0.509247 | 0.07719 | 655.3857 | 0.012519 | 0.011978 |
| Los Angeles | 2018 | MDV | Aggregated | 25 | DSL | 80210.49 | 0.023403 | 0.026642 | 0.314135 | 0.066182 | 554.196 | 0.010306 | 0.00986 |
| Los Angeles | 2018 | MDV | Aggregated | 30 | DSL | 90086.54 | 0.018262 | 0.02079 | 0.240904 | 0.060989 | 478.6528 | 0.008839 | 0.008457 |
| Los Angeles | 2018 | MDV | Aggregated | 35 | DSL | 50455.67 | 0.015002 | 0.017079 | 0.194888 | 0.057955 | 434.3112 | 0.007846 | 0.007507 |
| Los Angeles | 2018 | MDV | Aggregated | 40 | DSL | 35786.19 | 0.012848 | 0.014627 | 0.164204 | 0.056114 | 406.2384 | 0.007184 | 0.006874 |
| Los Angeles | 2018 | MDV | Aggregated | 45 | DSL | 29740.53 | 0.011417 | 0.012997 | 0.143151 | 0.05507 | 390.9458 | 0.006774 | 0.006481 |
| Los Angeles | 2018 | MDV | Aggregated | 50 | DSL | 26714.52 | 0.010507 | 0.011962 | 0.128808 | 0.054585 | 392.9048 | 0.006574 | 0.00629 |
| Los Angeles | 2018 | MDV | Aggregated | 55 | DSL | 22403.75 | 0.010022 | 0.01141 | 0.119734 | 0.054532 | 414.6518 | 0.006576 | 0.006291 |
| Los Angeles | 2018 | MDV | Aggregated | 60 | DSL | 34997.55 | 0.010199 | 0.01161 | 0.120157 | 0.055401 | 448.9845 | 0.006866 | 0.006569 |
| Los Angeles | 2018 | MDV | Aggregated | 65 | DSL | 15068.41 | 0.010992 | 0.012513 | 0.12914 | 0.056799 | 504.1467 | 0.007482 | 0.007158 |
| Los Angeles | 2018 | MDV | Aggregated | 70 | DSL | 8.507816 | 0.011545 | 0.013143 | 0.135427 | 0.057525 | 542.7223 | 0.007911 | 0.007568 |

# CSULB Technology Park

## Roadway Emission Factors (2018)

| ***Roadway Segment*** | ***Western Outbound from facility to SR 103*** | ***Eastern Outbound from facility to I-710*** | ***Eastern Inbound to facility from I-710*** | ***Western Inbound to facility from SR-103*** | |
|---|---|---|---|---|---|
| length of segment | | | | | |
| meters | 747.3 | 1003.3 | 987.5 | 770.9 | |
| miles | 0.464 | 0.623 | 0.614 | 0.479 | |
| 2018 ADT | 208 | 208 | 208 | 208 | |
| Trucks[1] | | | | | |
| % total | 39.62% | 39.62% | 4.00% | 4.00% | |
| %dsl | 16% | 16% | 16% | 16% | |
| #dsl | 104 | 104 | 125 | 83 | |
| Cars[1] | | | | | |
| % cars | 60.38% | 60.38% | 96.00% | 96.00% | |
| % dsl | 0.22% | 0.22% | 0.22% | 0.22% | |
| #dsl | 261 | 261 | 444 | 78 | |
| Average speed[2] | 35/45 | 35/45 | 35/45 | 35/45 | |
| g/mile car[3] | 0.055124297 | 0.055124297 | 0.055124297 | 0.055124297 | |
| g/mile truck[3] | 0.024866238 | 0.024866238 | 0.024866238 | 0.024866238 | |
| g/day car | 6.680818424 | 8.969443496 | 15.01807446 | 2.059618704 | |
| g/day truck | 1.200852117 | 1.612223912 | 1.907253075 | 0.988638103 | |
| g/day total | 7.881670541 | 10.58166741 | 16.92532753 | 3.048256807 | |
| g/sec (EF) | 9.1223E-05 | 0.000122473 | 0.000195895 | 3.52808E-05 | |
| % distance | 42.68822118 | 57.31177882 | 56.15900819 | 43.84099181 | |
| Truck weighted average (EF - g/sec) | 1.38988E-05 | 1.866E-05 | 2.20747E-05 | 1.14426E-05 | g/sec |

**Conversion Factors**

0.000621371 miles per meter

86400 sec/day

Notes:

1 Percentage total for trucks and cars was taken from Traffic Impact Analysis, Kunzman Associates 2017.
% total for trucks/cars that are diesel were taken from EMFAC2014 for Los Angeles County for 2018.

2 Estimated speeds on PCH: 45 mph for passenger cars and 35 mph for trucks

3 Emission Rates taken from EMFAC-2011PL for Los Angeles County Average for 2018. Emission rates past 2018 remain the same as 2018 as additional reductions have not been forecasted.