B

CalEEMod EMISSIONS ESTIMATES, LST ANALYSIS, AND SCREENING HRA

Yorke
ENGINEERING, LLC
www.YorkeEngr.com

June 22, 2016

Ms. Cheryl DeGano
Principal Environmental Analyst
Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Work: (951) 320-6052
E-mail: Cheryl.DeGano@WebbAssociates.com

Subject: Sycamore Canyon Business Park Warehouse CalEEMod Emissions Estimates, LST Analysis, and Screening HRA

Dear Ms. DeGano:

Yorke Engineering, LLC (Yorke) is pleased to provide the enclosed CalEEMod emissions estimates, Localized Significance Thresholds (LST) analysis, and screening Health Risk Assessment (HRA) for criteria pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs) for the proposed Sycamore Canyon Business Park Warehouse to be located at 6275 Lance Drive in Riverside, CA. These evaluations are in support of Webb Associates assistance to the City of Riverside with preparing an Environmental Impact Report (EIR) for the construction of the proposed project.

ASSUMPTIONS

The following basic assumptions were used in developing the emission estimates for the proposed project using CalEEMod:

- Revised construction and operational emissions estimates were provided by Webb using new and revised information recently received from the Applicant which altered some of the project parameters, in particular, operational truck traffic. Using the previous version of the CalEEMod input file from Yorke, Webb inputted the updates and ran the model to verify the applicability and effectiveness of the changes – including project design features and regulatory measures – to the project. Additional project design features and regulatory measures include Tier 3 grading equipment, water and wastewater conservation, energy (electric power) efficiency, solid waste diversion to recycling, and landscape carbon dioxide (CO_2) sequestration.
- Default construction equipment horsepower ratings and load factors contained in CalEEMod were applied to 40-hours per week actual engine running times except cranes at 20-hours per week.
- Construction site watering for fugitive dust control three times daily per CalEEMod maximum frequency.
- Off-road water trucks specifically included for grading, 200 horsepower at default load factor for slow-speed operation. Per the CalEEMod User's Guide, water trucks used during construction were counted in the on-road vendor trip survey that was conducted

for all the phases of construction (e.g., site preparation, grading, building construction, etc.) during program development. The 200 horsepower slow-speed rating avoids overestimation of water truck emissions.

- Estimated asphalt paving areas for use in CalEEMod were provided by Webb.
- Estimated actual architectural coating surface areas for use in CalEEMod were re-calculated by Yorke per architect's notes due to substantial overestimation by the CalEEMod default algorithm.
- Estimated architectural coating schedule at end of construction extended by one week (24 days to 30 days) to mitigate daily volatile organic compound (VOC) impacts.
- Electric forklifts would be used in warehouses as a project design feature for "operational off-road" engine emissions. However, CalEEMod contains no electric forklift option, so indirect GHGs from battery charging are not accounted for in CalEEMod.
- No substantial consumer product usage in warehouses.

METHODOLOGY / NARRATIVE

Project Emissions Estimation

The construction and operation analysis was performed using CalEEMod™ (California Emissions Estimation Model), the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model (EMFAC2011) includes the Pavley standards and Low Carbon Fuel standards into the mobile source emission factors. The model also identifies project design features, regulatory measures, and mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the South Coast Air Quality Management District (SCAQMD, or District) and other California air districts, including the Bay Area Air Quality Management District (BAAQMD). Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction emissions quantification, which forms the basis for the construction impact analysis.

Pollutants of Concern During Project Construction

A project's construction phase produces many types of emissions, but PM_{10} (including $PM_{2.5}$) in fugitive dust and diesel engine exhaust are the pollutants of greatest concern. Fugitive dust emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}, as well as affecting PM_{10} compliance with ambient air quality standards on a regional basis. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance

concerns such as reduced visibility and soiling of exposed surfaces. The use of diesel-powered construction equipment emits ozone precursors NO_x and ROG, diesel total organic gases (DTOG), and diesel particulate matter (DPM), the latter being composite a toxic air contaminant (TAC) containing a variety of hazardous substances. Large construction projects using multiple large earthmoving equipment are evaluated to determine if operations may exceed the District's daily threshold for NO_x emissions and could temporarily expose area residents to hazardous levels of DPM. Use of architectural coatings and other materials associated with finishing buildings may also emit ROG and TACs. CEQA significance thresholds address the impacts of construction activity emissions on local and regional air quality. Thresholds are also provided for other potential impacts related to project construction, such as odors and TACs.

The SCAQMD's approach to CEQA analyses of fugitive dust impacts is to require implementation of effective and comprehensive dust control measures rather than to require detailed quantification of emissions. PM_{10} emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce fugitive dust emissions from construction. The SCAQMD has determined that compliance with an approved fugitive dust control plan comprising Best Management Practices (BMPs), primarily through frequent water application, constitutes sufficient mitigation to reduce PM_{10} impacts to a level considered less than significant.

MITIGATION MEASURE AQ-1: **BMPs for Construction Related Dust Emissions.**

Pursuant to SCAQMD Rule 403 (e) – Additional Requirements for Large Operations – the project will implement applicable dust control measures specified in Table 2 of the Rule and will implement additional measures specified in Table 3 of the Rule if performance standards cannot be met through use of Table 2 measures. The project will submit a Large Operation Notification (Form 403 N) to the SCAQMD prior to commencing construction activities. Consistent with Rule 403, the following general-practice BMPs will be implemented as part of the project so that all construction-related emissions, including fugitive dust, would result in less than significant impacts:

1) All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered three times per day.
2) All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4) All vehicle speeds on unpaved roads shall be limited to 15 mph.
5) All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6) Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne

toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.

7) All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator if visible emissions are apparent to onsite construction staff.

8) A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

With proposed mitigation measure AQ-1 incorporated (implemented), fugitive dust impacts of the proposed project construction would be less then significant.

Pollutants of Concern During Project Operation

The term "project operations" refers to the full range of activities that can or may generate criteria pollutant, GHG, and TAC emissions when the project is functioning in its intended use. For projects such as office parks, shopping centers, residential subdivisions, and other indirect sources, motor vehicles traveling to and from the project represents the primary source of air pollutant emissions. For industrial projects and some commercial projects, equipment operation and manufacturing processes, i.e., permitted stationary sources, can be of greatest concern from an emissions standpoint. CEQA significance thresholds address the impacts of operational emission sources on local and regional air quality. Thresholds are also provided for other potential impacts related to project operations, such as odors.

Localized Significance Threshold Analysis

The SCAQMD's Localized Significance Threshold (LST) methodology (2008) was used to analyze the neighborhood scale impacts of NO_X, CO, PM_{10}, and $PM_{2.5}$ associated with project-specific mass emissions. Introduced in 2003, the LST methodology was revised in 2008 to include the $PM_{2.5}$ significance threshold methodology and update the LST mass rate lookup tables for the new 1-hour NO_2 standard.

For determining localized air quality impacts from small projects in a defined geographic source-receptor area (SRA), the LST methodology provides mass emission rate lookup tables for 1-acre, 2-acre, and 5-acre parcels by SRA (i.e., SRA 23 for Riverside County). The tabulated LSTs represent the maximum mass emissions from a project that will not cause or contribute to an exceedance of state or federal ambient air quality standards (AAQS) for the above pollutants, and were developed based on ambient concentrations of these pollutants for each SRA in the South Coast Air Basin. (SCAQMD 2008)

Since the highest emission rates occur during the grading phase of construction – due to the use of heavy earthmoving equipment – and grading is planned to occur at a maximum rate of about 5 acres per day (Webb 2016), the 5-acre screening lookup tables were used to evaluate NO_X, CO, PM_{10}, and $PM_{2.5}$ impacts on nearby receptors at the closest, most conservative, distance of 25 meters (82 feet) for both construction and operation. For operation, 3.4 percent of maximum daily mobile source emissions were used to approximate upper-bound on-site truck emissions due to navigating, maneuvering, and idling. The 3.4 percent ratio is based on a maximum (upper-bound) on-site trip distance of 1.33 miles and 2,408.45 trips per day average (1,168,000 miles

per year) versus 34,477,693 total miles per year (i.e., 1,168,000/34,477,693 = 0.034). However, on-site travel distances, hence emissions, are expected to be less.

For the LST analysis, the screening approach assumed dividing the site into 5-acre zones of on-site truck traffic next to nearest receptors. All 3.4 percent of on-site mobile source emissions were conservatively allocated to a single zone, but in reality emissions would be across several zones, which would make impacts less.

Screening Health Risk Assessment

The project site comprises an 80-acre (gross) parcel located at Lance Drive in Riverside, California. The built-upon project area is 71.5 net acres. Site preparation and grading using heavy equipment will occur over a period of 24 days. No schools are in the immediate vicinity of the proposed project. The nearest receptors to the facility are industrial (worker) and residential:

- Worker: Warehouses, 190 composite meters (623 feet) east
- Resident: Single family homes, 450 composite meters (1,476 feet) north and northwest

The 2014 Census estimate population of the City of Riverside is approximately 320,000 (RC 2016). The land area of Riverside is 98.5 square miles, which yields an average population density of about 3,250 persons per square mile (RC 2016).

Any project with the potential to expose sensitive receptors (including residential areas) or the general public to substantial ambient levels of TACs would be deemed to have a potentially significant impact. This applies to receptors locating near existing sources of TACs, as well as TAC sources locating near existing receptors. Particular attention must be placed on either 1) the location of a new facility that has the potential to emit TACs within 1,000 feet (305 meters) of an existing school, or 2) the location of a new school within 1,000 feet of an existing facility that has the potential to emit TACs. There are no schools located within 1,000 feet of the proposed project.

The health risk calculations were performed using the Hotspots Analysis and Reporting Program Version 2 (HARP2) Risk Assessment Standalone Tool (RAST, version 16088). The ground-level concentration (GLC) input file format was calculated using the annual average and hourly maximum emission rates in units of grams per second (g/s) times the annual and hourly X/Q values predicted by AERSCREEN (version 15181). Risks associated with the volume source (i.e., active construction and operational area) were determined at the nearest receptor impact locations specified above. Due to the large built area of the project site (28.88 hectares) with a 2:1 aspect ratio, the site was parsed into eight equal areas of 36,100 square meters (8.92 acres) each and the average (composite) distances from the centroids of the corresponding volume sources to the nearest residential and worker receptors were determined. Local dispersion modeling parameters are consistent with other projects in the South Coast Air Basin (SCAQMD 2016).

For the risk assessment analysis, the screening approach assumed dividing the site into the 8 zones described above. All 3.4 percent of on-site mobile source emissions were conservatively allocated to a single zone, but in reality emissions would be across several zones, which would make impacts less. Risk assessment assumptions included OEHHA/SCAQMD methodologies; residential operational exposure period of 30 years (RMP, warm climate); worker operational exposure period of 25 years (warm climate). Residential multipathway includes inhalation, soil

ingestion, dermal, mother's milk, and homegrown produce. Worker multipathway includes inhalation, soil ingestion, and dermal. Controlled deposition rate is 0.02 meters per second (PM controlled).

RESULTS

The project CalEEMod, LST, and HRA analyses are summarized in the following tables included as attachments:

- Table 1-1: SCAQMD CEQA Thresholds of Significance
- Table 2-1: Land Use Data for CalEEMod Input - Sycamore Canyon Warehouse
- Table 2-2: CalEEMod Construction Schedule – Applicant's Project Plan
- Table 2-3: CalEEMod Construction Equipment - Applicant's List
- Table 3-1: Mitigated Criteria Emissions Summary
- Table 3-2: Mitigated SCAQMD Air Quality Significance Thresholds Evaluation
- Table 3-3: Mitigated SCAQMD Localized Significant Thresholds (LST) Evaluation
- Table 3-4: Mitigated Daily Maximum and Average Construction Emissions
- Table 3-5: Mitigated Greenhouse Gases Emissions Summary
- Table 3-6: Mitigated Operational GHG Emissions
- Table 4-1: Screening Health Risk Assessment – Construction Maxima
- Table 4-2: Screening Health Risk Assessment – Operation Maxima

Discussion

As shown in Table 3-2, mitigated emissions from all construction phases are below mass thresholds for all criteria pollutants. Due to off-site truck traffic induced by the project, mass emissions of NO_X during project operation exceeds the SCAQMD threshold.

Notwithstanding the NO_X mass exceedance during operation, the LST results shown in Table 3-3 show that on-site ambient air quality impacts would be below thresholds for the nearest receptors.

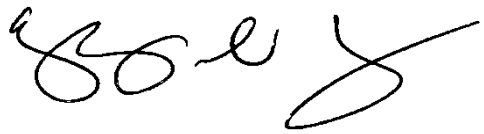
As shown in Table 3-6, operational GHG emissions – including amortized construction GHG emissions – exceed the draft SCAQMD commercial/residential threshold of 3,000 metric tonnes per year (MT/yr).

At the conservative screening level, Tables 4-1 and 4-2 show that cancer and noncancer health risks are below SCAQMD thresholds for both construction and operation of the proposed project.

CONCLUSION

Thank you very much for the opportunity to again be of assistance to Albert A. Webb Associates. Should you have any questions, please contact me at (805) 376-0088 or Greg Wolffe (909) 861-2729.

Sincerely,



Bradford L. Boyes
Senior Engineer
Yorke Engineering, LLC
BBoyes@YorkeEngr.com

cc: Greg Wolffe, Yorke Engineering, LLC

Enclosures/Attachments:

1. Results Tables 1-1 through 4-2 (listed above)
2. Appendix A – CalEEMod Outputs
3. Appendix B – AERSCREEN Outputs
4. Appendix C – HARP2 RAST Outputs
5. Appendix D – Calculation Tables

REFERENCES

Albert A. Webb Associates (Webb). 2016. Project Description – Sycamore Canyon Warehouse.

California Air Resources Board (CARB). 2016. Hotspots Analysis and Reporting Program Version 2 (HARP2) Risk Assessment Standalone Tool (RAST), version 16088. Website (http://www.arb.ca.gov/toxics/harp/rast.htm) accessed June 17, 2016.

California Emissions Estimation Model (CalEEMod™). 2013. Version 2013.2.2. Website (http://www.caleemod.com/) accessed June 17, 2016.

California Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Website (http://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0) accessed June 17, 2016.

Riverside California (RC). 2016. Website (https://en.wikipedia.org/wiki/Riverside,_California) accessed May 23, 2016.

South Coast Air Quality Management District (SCAQMD). 2016. Surface Characteristics of Meteorological Sites Used in AERMET. Website (http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/aermod-table-2) accessed May 23, 2016.

South Coast Air Quality Management District (SCAQMD). 2015. Air Quality Significance Thresholds. Website (http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2) accessed May 23, 2016.

South Coast Air Quality Management District (SCAQMD). 2008. Final Localized Significance Threshold Methodology. Website (http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf) accessed May 23, 2016.

U.S. Environmental Protection Agency (EPA). 2016. AP-42 – Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources. Website (https://www3.epa.gov/ttnchie1/ap42/) accessed May 6, 2016.

U.S. Environmental Protection Agency (EPA). 2015a. AERSCREEN, version 15181. Website (http://www.epa.gov/ttn/scram/dispersion_screening.htm) accessed June 17, 2016.

U.S. Environmental Protection Agency (EPA). 2015b. AERSCREEN User's Guide, EPA-454/B-15-005. Website (http://www.epa.gov/scram001/models/screen/aerscreen_userguide.pdf) accessed June 17, 2016.

U.S. Environmental Protection Agency (EPA). 1992. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, EPA-454/R-92-019. Website (https://www3.epa.gov/scram001/guidance/guide/EPA-454R-92-019_OCR.pdf) accessed June 17, 2016.

ATTACHMENT 1 – RESULTS TABLES 1-1 THROUGH 4-2

Table 1-1: SCAQMD CEQA Thresholds of Significance

Pollutant	Project Construction	Project Operation
	lbs/day	lbs/day
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
24-hour $PM_{2.5}$ Increment	10.4 µg/m^3	2.5 µg/m^3
24-hour PM_{10} Increment	10.4 µg/m^3	2.5 µg/m^3
Annual PM_{10} Increment	1.0 µg/m^3 annual average	
1-hour NO_2 Increment	0.18 ppm (state)	
Annual NO_2 Increment	0.03 ppm (state) & 0.0534 ppm (federal)	
1-hour SO_2 Increment	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
24-hour SO_2 Increment	0.04 ppm (state)	
24-hour Sulfate Increment	25 ug/m^3 (state)	
1-hour CO Increment	20 ppm (state) & 35 ppm (federal)	
8-hour CO Increment	9.0 ppm (state/federal)	
Toxic Air Contaminants (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 million	
	Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million)	
	Chronic & Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Greenhouse Gases	10,000 MT/yr CO_2e for industrial facilities	
	3,000 MT/yr CO_2e for land use projects (draft proposal)	

Source: SCAQMD 2015

Table 2-1: Land Use Data for CalEEMod Input - Sycamore Canyon Warehouse (Riverside, CA)

Project Element	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage (footprint)	Square Feet	Pop.
Buildings 1 & 2 - Warehouse	Industrial	Unrefrigerated Warehouse - No Rail	1433.599	1000 sf	32.911	1,433,599	0
Parking Lots - provided parking spaces (autos)	Parking	Parking Lot	635.000	spaces (400 sf)	5.831	254,000	0
Driveways & extra parking spaces (trucks)	Parking	Other Asphalt Surfaces	667.400	1000 sf	15.321	667,400	0
Landscaping, undeveloped, or no change	Parking	Other Non-Asphalt Surfaces	1144.757	1000 sf	26.280	1,144,757	
Project Area Totals					80.343	**3,499,756**	**0**

Source: Applicant via Webb 2016

Notes:

Climate Zone 10

Estimated paving acreage from the Applicant (includes provided parking spaces category):

660,800 SF Bldg. 1 -15.17 ac

260,600 SF Bldg. 2 - 5.98 ac

921,400 SF Total - 21.15 ac

Estimated exterior or interior walls painted surface areas (2:1 aspect ratios, 40' height):

171,000 SF Bldg. 1

110,000 SF Bldg. 2

281,000 SF Total (interior or exterior)

Table 2-2: CalEEMod Construction Schedule - Applicant's Project Plan

Phase Name	Planned Weeks	Calendar Days	Estimated Start Date	Estimated End Date	Working Days per Week	Total Working Days
Site Preparation	8	56	1/3/2017	2/28/2017	6	48
Grading	4	28	3/1/2017	3/29/2017	6	24
Building Construction	35	245	3/30/2017	11/30/2017	6	210
Paving	4	28	12/1/2017	12/29/2017	6	24
Architectural Coating	5	35	12/30/2017	2/3/2018	6	30
Total Project	**56**	**392**	**1/3/2017**	**2/3/2018**	**6**	**336**

Source: Applicant via Webb 2016

Note:

Actual phases may overlap; however, no overlapping phases allowed in CalEEMod

Table 2-3: CalEEMod Construction Equipment - Applicant's List

Phase Name	Offroad Equipment Type	Offroad Equipment Quantity
Site Preparation	Crushing/Processing Equipment	1
	Rubber Tired Dozer	3
	Tractor/Loader/Backhoe	4
Grading	Crawler Tractors	1
	Off-Highway Trucks	2
	Rubber Tired Dozers	1
	Scrapers	10
	Tractors/Loaders/Backhoes	2
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Paving	Graders	1
	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating	Air Compressors	1

Source: Applicant via Webb 2016

Table 3-1: Mitigated Criteria Emissions Summary

Criteria Pollutants	Construction		Operation	
	lbs/day	tons	lbs/day	tons/yr
ROG (VOC)	66.5	2.38	26.4	4.77
NO_X	86.2	9.95	339.4	62.74
CO	133.5	16.70	310.0	57.77
SO_X	0.3	0.04	1.48	0.27
Fugitive Dust PM_{10}	20.0	2.33	76.6	13.72
Exhaust PM_{10}	3.6	0.36	6.7	1.21
Total PM_{10}	22.4	2.69	83.3	14.94
Fugitive Dust $PM_{2.5}$	5.4	0.67	20.8	3.73
Exhaust $PM_{2.5}$	3.5	0.34	6.1	1.12
Total $PM_{2.5}$	7.6	1.01	27.0	4.85

Source: CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

Operation daily NO_X maxima is principally offsite mobile sources (truck traffic)

Operation mitigation includes electric forklifts in lieu of ICE forklifts

tons are totals for construction; tons/yr are annuals for operation

Table 3-2: Mitigated SCAQMD Air Quality Significance Thresholds Evaluation

Pollutant	Project Construction			Project Operation		
	Maximum	Threshold	Significance	Maximum	Threshold	Significance
	lbs/day	lbs/day		lbs/day	lbs/day	
NO_X	86	100	LTSM	339	55	PS
VOC	66	75	LTS	26	55	LTS
PM_{10}	4	150	LTS	83	150	LTS
$PM_{2.5}$	3	55	LTS	27	55	LTS
SO_X	0.3	150	LTS	1.5	150	LTS
CO	134	550	LTS	310	550	LTS
Odor	Project creates an odor nuisance pursuant to Rule 402					
GHG	10,000 MT/yr CO_2e for industrial facilities					
	3,000 MT/yr CO_2e for land use projects (draft proposal)					

Sources: SCAQMD 2015, CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

Operation daily NO_X maxima is principally offsite mobile sources (truck traffic)

Operation mitigation includes electric forklifts in lieu of ICE forklifts

Construction PM_{10} and $PM_{2.5}$ for engine exhaust only

PS - Potentially Significant

LTSM - Less Than Significant with Mitigation Incorporated

LTS - Less Than Significant

Table 3-3: Mitigated SCAQMD Localized Significant Thresholds (LST) Evaluation

Pollutant	Project Construction			Project Operation		
	Maximum	Threshold	Result	Maximum	Threshold	Result
	lbs/day	lbs/day		lbs/day	lbs/day	
NO_X	86	270	Pass	12	270	Pass
CO	134	1,577	Pass	11	1,577	Pass
PM_{10}	4	13	Pass	3	4	Pass
$PM_{2.5}$	3	8	Pass	1	2	Pass

Sources: SCAQMD 2008, CalEEMod v2013.2.2

Notes:

Source-receptor area zone 23 - Metropolitan Riverside County

Construction LST: grading 5 acres/day, 25 meters to nearest receptors in NW corner of parcel

Onsite distance/maneuvering/idling = 1.33 miles/trip/day or 3,200 miles/day = 3.4% of annual VMT

Operation LST: 5 acres of 15 acres, 3.4% of max daily emissions, 25 meters to nearest receptors in NW corner of parcel

Table 3-4: Mitigated Daily Maximum and Average Construction Emissions

Phase Name	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Site Preparation	4.0	41.0	34.2	0.0	2.3	2.1
Grading	5.5	86.2	86.9	0.2	3.6	3.5
Building Construction	11.4	71.0	133.5	0.3	2.3	2.2
Paving	4.8	25.2	17.2	0.0	1.4	1.3
Architectural Coating	66.5	3.7	15.0	0.0	0.2	0.2
Daily Maxima	**66**	**86**	**134**	**0.3**	**3.6**	**3.5**
Daily Average	**14**	**59**	**99**	**0.2**	**2.1**	**2.0**

Source: CalEEMod v2013.2.2

Table 3-5: Mitigated Greenhouse Gases Emissions Summary

Greenhouse Gases	Construction		Operation		Const. 30-yr	30-Year
	lbs/day	MT	lbs/day	MT/yr	MT/yr	MT/yr
Biogenic CO_2	0	0	0	104	0	104
Non-Biogenic CO_2	28,259	3,053	134,925	25,170	102	25,272
Total CO_2	28,259	3,053	134,925	25,274	102	25,376
CH_4	4.87	0.21	1.96	6.75	0.01	7
N_2O	0.00	0.00	0.01	0.03	0.00	0
CO_2e	28,361	3,057	134,970	25,425	102	25,527

Source: CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

30-year includes amortized construction emissions

Operation includes off-site mobile sources

MT are totals for construction; MT/yr are annuals for operation

Table 3-6: Mitigated Operational GHG Emissions

Category	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr
Area	0.0	0.1	0.1	0.0	0.0	0.1
Energy	0.0	2,736.6	2,736.6	0.1	0.0	2,742
Mobile	0.0	22,229.3	22,229.3	0.3	0.0	22,236
Waste	98.5	0.0	98.5	5.8	0.0	221
Water	5.3	204.4	209.7	0.6	0.0	226
Construction 30-yr	0.0	101.8	101.8	0.0	0.0	102
All Totals	**104**	**25,272**	**25,376**	**7**	**0**	**25,527**
SCAQMD Draft Commercial/Residential Threshold, MT/yr						**3,000**
Significance						**PS**

Sources: CalEEMod v2013.2.2, SCAQMD 2015

Table 4-1: Screening Health Risk Assessment - Construction Maxima

Time and Age Weighted Toxic Air Contaminants Risks	AERSCREEN/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
Residential MICR - Multipathway	8.3E-06	8.3	10	PASS
Residential HIC	9.3E-03	—	1	PASS
Residential HIA	0	—	1	PASS
Residential 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	2.4	—	10.4	PASS
Worker MICR - Multipathway	1.3E-06	1.3	10	PASS
Worker HIC	2.5E-02	—	1	PASS
Worker HIA	0	—	1	PASS
Worker 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	6.5	—	10.4	PASS

Sources: OEHHA 2015, EPA 1992, EPA 2015, EPA 2016, CARB 2016, SCAQMD 2015, SCAQMD 2016

Notes:

MICR - Maximum Individual Cancer Risk

HIC - Chronic Hazard Index

HIA - Acute Hazard Index

PASS - Less Than Significant

Tier 1 Screen:

OEHHA/SCAQMD methodologies

Exposure period = project life (30 years residential RMP; 25 years worker; warm climate)

Residential Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Worker Multipathway (MP): inhalation, soil ingestion, dermal

Deposition rate: 0.02 m/s (PM controlled)

Table 4-2: Screening Health Risk Assessment - Operation Maxima

Time and Age Weighted Toxic Air Contaminants Risks	AERSCREEN/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
Residential MICR - Multipathway	5.3E-06	5.3	10	PASS
Residential HIC	1.4E-03	—	1	PASS
Residential HIA	0	—	1	PASS
Residential 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	0.4	—	2.5	PASS
Worker MICR - Multipathway	4.9E-06	4.9	10	PASS
Worker HIC	3.8E-03	—	1	PASS
Worker HIA	0	—	1	PASS
Worker 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	1.2	—	2.5	PASS

Sources: OEHHA 2015, EPA 1992, EPA 2015, EPA 2016, CARB 2016, SCAQMD 2015, SCAQMD 2016

Notes:

MICR - Maximum Individual Cancer Risk

HIC - Chronic Hazard Index

HIA - Acute Hazard Index

PASS - Less Than Significant

Tier 1 Screen:

OEHHA/SCAQMD methodologies

Exposure period = project life (30 years residential RMP; 25 years worker; warm climate)

Residential Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Worker Multipathway (MP): inhalation, soil ingestion, dermal

Deposition rate: 0.02 m/s (PM controlled)

ATTACHMENT 2 – APPENDIX A: CALEEMOD OUTPUTS

Sycamore Warehouse

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,433.60	1000sqft	32.91	1,433,599.00	0
Other Asphalt Surfaces	667.40	1000sqft	15.32	667,400.00	0
Other Non-Asphalt Surfaces	1,144.76	1000sqft	26.28	1,144,757.00	0
Parking Lot	635.00	Space	5.83	254,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2018
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80.34 gross acres per TPM 36879

Construction Phase - per construction schedule

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Trips and VMT -

Grading - per site plan acreage

Architectural Coating - per architect

Vehicle Trips - 1.68 trips/day/size per traffic study

distance to port = 76.2 mi

Vechicle Emission Factors - fleet mix calculated from defaults and traffic study

Vechicle Emission Factors - per defaults/traffic study

Vechicle Emission Factors - per defaults/traffic study

Consumer Products - no consumer product use in warehouses

Area Coating - per Architect's note

Water And Wastewater - per WSA and landscape architect

Sequestration - per landscape plan

Construction Off-road Equipment Mitigation - Tier 3 grading equipment design feature, water per rule 403

Energy Mitigation - per CalGreen

Water Mitigation - per CalGreen

Waste Mitigation - per City of Riverside 2006 Diversion Rate

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,626,688.00	281,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,880,064.00	281,000.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_Nonresidential_Interior	4880070	281000
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	110.00	30.00
tblConstructionPhase	NumDays	1,550.00	210.00
tblConstructionPhase	NumDays	155.00	24.00
tblConstructionPhase	NumDays	110.00	24.00
tblConstructionPhase	NumDays	60.00	48.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	211.05	80.00
tblGrading	AcresOfGrading	0.00	80.00
tblLandUse	LandUseSquareFeet	1,433,600.00	1,433,599.00
tblLandUse	LandUseSquareFeet	1,144,760.00	1,144,757.00
tblLandUse	LotAcreage	5.71	5.83
tblOffRoadEquipment	HorsePower	400.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	10.00
tblOffRoadEquipment	UsageHours	6.00	6.70
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70

tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	7.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblProjectCharacteristics	OperationalYear	2014	2018
tblSequestration	NumberOfNewTrees	0.00	741.00
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MCY	6.4830e-003	5.6000e-003

tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleTrips	CNW_TL	6.90	76.30
tblVehicleTrips	CNW_TTP	41.00	38.07
tblVehicleTrips	CW_TTP	59.00	61.93
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68
tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	331,520,000.00	21,060,986.00
tblWater	OutdoorWaterUseRate	0.00	11,529,014.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	66.5019	170.3912	136.9986	0.3393	20.0426	7.0979	22.4341	8.5671	6.5300	11.0136	0.0000	29,713.7501	29,713.7501	4.8662	0.0000	29,815.9397
2018	66.3648	3.3188	15.6151	0.0427	3.2862	0.1878	3.4740	0.8715	0.1863	1.0579	0.0000	3,328.4381	3,328.4381	0.1492	0.0000	3,331.5713
Total	**132.8667**	**173.7099**	**152.6136**	**0.3821**	**23.3288**	**7.2857**	**25.9082**	**9.4386**	**6.7164**	**12.0715**	**0.0000**	**33,042.1882**	**33,042.1882**	**5.0154**	**0.0000**	**33,147.5110**

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	66.5019	86.1912	136.9699	0.3393	20.0426	3.5570	22.3748	5.3892	3.4682	7.5689	0.0000	29,713.7501	29,713.7501	4.8662	0.0000	29,815.9397
2018	66.3648	3.3188	15.6151	0.0427	3.2862	0.1878	3.4740	0.8715	0.1863	1.0579	0.0000	3,328.4381	3,328.4381	0.1492	0.0000	3,331.5713
Total	**132.8667**	**89.5099**	**152.5850**	**0.3821**	**23.3288**	**3.7448**	**25.8488**	**6.2607**	**3.6545**	**8.6268**	**0.0000**	**33,042.1882**	**33,042.1882**	**5.0154**	**0.0000**	**33,147.5110**

	ROG	NOx	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**	**48.47**	**0.02**	**0.00**	**0.00**	**48.60**	**0.23**	**33.67**	**45.59**	**28.54**	**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	72.2913	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Energy	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663
Mobile	24.1153	325.3715	323.2704	1.5227	76.6010	6.6198	83.2207	20.8154	6.0912	26.9066		137,752.0947	137,752.0947	1.9359		137,792.7484
Total	**96.4973**	**326.1993**	**324.3643**	**1.5276**	**76.6010**	**6.6838**	**83.2848**	**20.8154**	**6.1552**	**26.9706**		**138,741.7923**	**138,741.7923**	**1.9572**	**0.0181**	**138,788.5129**

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	71.5777	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Energy	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
Mobile	24.1153	325.3715	323.2704	1.5227	76.6010	6.6198	83.2207	20.8154	6.0912	26.9066		137,752.0947	137,752.0947	1.9359		137,792.7484
Total	**95.7568**	**325.9556**	**324.1595**	**1.5262**	**76.6010**	**6.6653**	**83.2663**	**20.8154**	**6.1367**	**26.9521**		**138,449.2965**	**138,449.2965**	**1.9516**	**0.0128**	**138,494.2371**

	ROG	NOx	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	**0.77**	**0.07**	**0.06**	**0.10**	**0.00**	**0.28**	**0.02**	**0.00**	**0.30**	**0.07**	**0.00**	**0.21**	**0.21**	**0.29**	**29.56**	**0.21**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2017	2/27/2017	6	48	
2	Grading	Grading	2/28/2017	3/27/2017	6	24	
3	Building Construction	Building Construction	3/28/2017	11/27/2017	6	210	
4	Paving	Paving	11/28/2017	12/25/2017	6	24	
5	Architectural Coating	Architectural Coating	12/26/2017	1/29/2018	6	30	

Acres of Grading (Site Preparation Phase): 80

Acres of Grading (Grading Phase): 80

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 281,000; Non-Residential Outdoor: 281,000 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crushing/Proc. Equipment	1	6.70	85	0.78
Site Preparation	Rubber Tired Dozers	3	6.70	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.70	97	0.37
Grading	Crawler Tractors	1	6.70	208	0.43
Grading	Excavators	0	6.70	162	0.38
Grading	Graders	0	6.70	174	0.41
Grading	Off-Highway Trucks	2	6.70	200	0.38
Grading	Rubber Tired Dozers	1	6.70	255	0.40
Grading	Scrapers	10	6.70	361	0.48
Grading	Tractors/Loaders/Backhoes	2	6.70	97	0.37
Building Construction	Cranes	1	3.30	226	0.29
Building Construction	Forklifts	3	6.70	89	0.20
Building Construction	Generator Sets	1	6.70	84	0.74

Building Construction	Tractors/Loaders/Backhoes	3	6.70	97	0.37
Building Construction	Welders	1	6.70	46	0.45
Paving	Graders	1	6.70	174	0.41
Paving	Pavers	2	6.70	125	0.42
Paving	Paving Equipment	2	6.70	130	0.36
Paving	Rollers	2	6.70	80	0.38
Architectural Coating	Air Compressors	1	6.70	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
Site Preparation	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,470.00	574.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	294.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					16.8980	0.0000	16.8980	8.5078	0.0000	8.5078			0.0000			0.0000

Off-Road	4.6856	47.4997	36.7076	0.0386		2.6298	2.6298		2.4453	2.4453		3,909.1284	3,909.1284	1.0840		3,931.8930
Total	**4.6856**	**47.4997**	**36.7076**	**0.0386**	**16.8980**	**2.6298**	**19.5278**	**8.5078**	**2.4453**	**10.9531**		**3,909.1284**	**3,909.1284**	**1.0840**		**3,931.8930**

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	0.0687	0.0812	1.0186	2.6800e-003	0.2236	1.3600e-003	0.2249	0.0593	1.2500e-003	0.0605		213.1313	213.1313	8.7800e-003		213.3156
Total	**0.0687**	**0.0812**	**1.0186**	**2.6800e-003**	**0.2236**	**1.3600e-003**	**0.2249**	**0.0593**	**1.2500e-003**	**0.0605**		**213.1313**	**213.1313**	**8.7800e-003**		**213.3156**

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					6.5902	0.0000	6.5902	3.3180	0.0000	3.3180			0.0000			0.0000
Off-Road	3.8960	40.8696	33.3635	0.0386		2.2652	2.2652		2.1249	2.1249	0.0000	3,909.1284	3,909.1284	1.0840		3,931.8930
Total	**3.8960**	**40.8696**	**33.3635**	**0.0386**	**6.5902**	**2.2652**	**8.8554**	**3.3180**	**2.1249**	**5.4430**	**0.0000**	**3,909.1284**	**3,909.1284**	**1.0840**		**3,931.8930**

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	0.0687	0.0812	1.0186	2.6800e-003	0.2236	1.3600e-003	0.2249	0.0593	1.2500e-003	0.0605		213.1313	213.1313	8.7800e-003		213.3156
Total	**0.0687**	**0.0812**	**1.0186**	**2.6800e-003**	**0.2236**	**1.3600e-003**	**0.2249**	**0.0593**	**1.2500e-003**	**0.0605**		**213.1313**	**213.1313**	**8.7800e-003**		**213.3156**

3.3 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					8.5785	0.0000	8.5785	3.1540	0.0000	3.1540			0.0000			0.0000
Off-Road	13.9116	170.2288	103.9821	0.1547		7.0951	7.0951		6.5275	6.5275		15,824.5457	15,824.5457	4.8486		15,926.3665
Total	**13.9116**	**170.2288**	**103.9821**	**0.1547**	**8.5785**	**7.0951**	**15.6736**	**3.1540**	**6.5275**	**9.6815**		**15,824.5457**	**15,824.5457**	**4.8486**		**15,926.3665**

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	0.1373	0.1624	2.0372	5.3600e-003	0.4471	2.7200e-003	0.4498	0.1186	2.5100e-003	0.1211		426.2625	426.2625	0.0176		426.6312
Total	**0.1373**	**0.1624**	**2.0372**	**5.3600e-003**	**0.4471**	**2.7200e-003**	**0.4498**	**0.1186**	**2.5100e-003**	**0.1211**		**426.2625**	**426.2625**	**0.0176**		**426.6312**

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					3.3456	0.0000	3.3456	1.2301	0.0000	1.2301			0.0000			0.0000
Off-Road	5.4014	86.0288	85.1315	0.1547		3.5543	3.5543		3.4657	3.4657	0.0000	15,824.5456	15,824.5456	4.8486		15,926.3665
Total	**5.4014**	**86.0288**	**85.1315**	**0.1547**	**3.3456**	**3.5543**	**6.8999**	**1.2301**	**3.4657**	**4.6958**	**0.0000**	**15,824.5456**	**15,824.5456**	**4.8486**		**15,926.3665**

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	0.1373	0.1624	2.0372	5.3600e-003	0.4471	2.7200e-003	0.4498	0.1186	2.5100e-003	0.1211		426.2625	426.2625	0.0176		426.6312
Total	**0.1373**	**0.1624**	**2.0372**	**5.3600e-003**	**0.4471**	**2.7200e-003**	**0.4498**	**0.1186**	**2.5100e-003**	**0.1211**		**426.2625**	**426.2625**	**0.0176**		**426.6312**

3.4 Building Construction - 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					
Off-Road	2.4902	20.6065	15.0521	0.0216		1.4538	1.4538		1.3662	1.3662		2,125.8955	2,125.8955	0.5181		2,136.7756
Total	**2.4902**	**20.6065**	**15.0521**	**0.0216**		**1.4538**	**1.4538**		**1.3662**	**1.3662**		**2,125.8955**	**2,125.8955**	**0.5181**		**2,136.7756**

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	4.0279	43.6888	47.0785	0.1206	3.6115	0.8379	4.4493	1.0316	0.7706	1.8022		11,922.7072	11,922.7072	0.0760		11,924.3040
Worker	5.0455	5.9676	74.8680	0.1972	16.4311	0.0999	16.5310	4.3576	0.0922	4.4498		15,665.1474	15,665.1474	0.6453		15,678.6980
Total	**9.0733**	**49.6564**	**121.9465**	**0.3177**	**20.0426**	**0.9378**	**20.9803**	**5.3892**	**0.8628**	**6.2520**		**27,587.8546**	**27,587.8546**	**0.7213**		**27,603.0020**

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	2.3570	19.8827	15.0235	0.0216		1.3945	1.3945		1.3170	1.3170	0.0000	2,125.8955	2,125.8955	0.5181		2,136.7755
Total	**2.3570**	**19.8827**	**15.0235**	**0.0216**		**1.3945**	**1.3945**		**1.3170**	**1.3170**	**0.0000**	**2,125.8955**	**2,125.8955**	**0.5181**		**2,136.7755**

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	4.0279	43.6888	47.0785	0.1206	3.6115	0.8379	4.4493	1.0316	0.7706	1.8022		11,922.7072	11,922.7072	0.0760		11,924.3040
Worker	5.0455	5.9676	74.8680	0.1972	16.4311	0.0999	16.5310	4.3576	0.0922	4.4498		15,665.1474	15,665.1474	0.6453		15,678.6980
Total	**9.0733**	**49.6564**	**121.9465**	**0.3177**	**20.0426**	**0.9378**	**20.9803**	**5.3892**	**0.8628**	**6.2520**		**27,587.8546**	**27,587.8546**	**0.7213**		**27,603.0020**

3.5 Paving - 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					
Off-Road	2.3952	25.0729	16.3858	0.0239		1.4070	1.4070		1.2944	1.2944		2,444.3779	2,444.3779	0.7490		2,460.1059

Paving	2.3089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7041**	**25.0729**	**16.3858**	**0.0239**		**1.4070**	**1.4070**		**1.2944**	**1.2944**		**2,444.3779**	**2,444.3779**	**0.7490**		**2,460.1059**

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	0.0618	0.0731	0.9168	2.4100e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1300e-003	0.0545		191.8181	191.8181	7.9000e-003		191.9841
Total	**0.0618**	**0.0731**	**0.9168**	**2.4100e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1300e-003**	**0.0545**		**191.8181**	**191.8181**	**7.9000e-003**		**191.9841**

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	2.3952	25.0729	16.3858	0.0239		1.4070	1.4070		1.2944	1.2944	0.0000	2,444.3779	2,444.3779	0.7490		2,460.1059
Paving	2.3089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7041**	**25.0729**	**16.3858**	**0.0239**		**1.4070**	**1.4070**		**1.2944**	**1.2944**	**0.0000**	**2,444.3779**	**2,444.3779**	**0.7490**		**2,460.1059**

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	0.0618	0.0731	0.9168	2.4100e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1300e-003	0.0545		191.8181	191.8181	7.9000e-003		191.9841
Total	**0.0618**	**0.0731**	**0.9168**	**2.4100e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1300e-003**	**0.0545**		**191.8181**	**191.8181**	**7.9000e-003**		**191.9841**

3.6 Architectural Coating - 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					
Archit. Coating	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3711	2.4400	2.0860	3.3200e-003		0.1936	0.1936		0.1936	0.1936		314.2837	314.2837	0.0332		314.9805
Total	**65.4928**	**2.4400**	**2.0860**	**3.3200e-003**		**0.1936**	**0.1936**		**0.1936**	**0.1936**		**314.2837**	**314.2837**	**0.0332**		**314.9805**

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	1.0091	1.1935	14.9736	0.0394	3.2862	0.0200	3.3062	0.8715	0.0184	0.8900		3,133.0295	3,133.0295	0.1291		3,135.7396
Total	**1.0091**	**1.1935**	**14.9736**	**0.0394**	**3.2862**	**0.0200**	**3.3062**	**0.8715**	**0.0184**	**0.8900**		**3,133.0295**	**3,133.0295**	**0.1291**		**3,135.7396**

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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3711	2.4400	2.0860	3.3200e-003		0.1936	0.1936		0.1936	0.1936	0.0000	314.2837	314.2837	0.0332		314.9805
Total	**65.4928**	**2.4400**	**2.0860**	**3.3200e-003**		**0.1936**	**0.1936**		**0.1936**	**0.1936**	**0.0000**	**314.2837**	**314.2837**	**0.0332**		**314.9805**

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	1.0091	1.1935	14.9736	0.0394	3.2862	0.0200	3.3062	0.8715	0.0184	0.8900		3,133.0295	3,133.0295	0.1291		3,135.7396
Total	**1.0091**	**1.1935**	**14.9736**	**0.0394**	**3.2862**	**0.0200**	**3.3062**	**0.8715**	**0.0184**	**0.8900**		**3,133.0295**	**3,133.0295**	**0.1291**		**3,135.7396**

3.6 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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3335	2.2398	2.0705	3.3200e-003		0.1681	0.1681		0.1681	0.1681		314.2842	314.2842	0.0299		314.9113
Total	**65.4552**	**2.2398**	**2.0705**	**3.3200e-003**		**0.1681**	**0.1681**		**0.1681**	**0.1681**		**314.2842**	**314.2842**	**0.0299**		**314.9113**

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	0.9095	1.0790	13.5445	0.0394	3.2862	0.0197	3.3059	0.8715	0.0182	0.8897		3,014.1539	3,014.1539	0.1193		3,016.6600
Total	**0.9095**	**1.0790**	**13.5445**	**0.0394**	**3.2862**	**0.0197**	**3.3059**	**0.8715**	**0.0182**	**0.8897**		**3,014.1539**	**3,014.1539**	**0.1193**		**3,016.6600**

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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3335	2.2398	2.0705	3.3200e-003		0.1681	0.1681		0.1681	0.1681	0.0000	314.2842	314.2842	0.0299		314.9113
Total	**65.4552**	**2.2398**	**2.0705**	**3.3200e-003**		**0.1681**	**0.1681**		**0.1681**	**0.1681**	**0.0000**	**314.2842**	**314.2842**	**0.0299**		**314.9113**

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	0.9095	1.0790	13.5445	0.0394	3.2862	0.0197	3.3059	0.8715	0.0182	0.8897		3,014.1539	3,014.1539	0.1193		3,016.6600
Total	**0.9095**	**1.0790**	**13.5445**	**0.0394**	**3.2862**	**0.0197**	**3.3059**	**0.8715**	**0.0182**	**0.8897**		**3,014.1539**	**3,014.1539**	**0.1193**		**3,016.6600**

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	24.1153	325.3715	323.2704	1.5227	76.6010	6.6198	83.2207	20.8154	6.0912	26.9066		137,752.0947	137,752.0947	1.9359		137,792.7484
Unmitigated	24.1153	325.3715	323.2704	1.5227	76.6010	6.6198	83.2207	20.8154	6.0912	26.9066		137,752.0947	137,752.0947	1.9359		137,792.7484

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2,408.45	2,408.45	2408.45	34,477,693	34,477,693
Total	2,408.45	2,408.45	2,408.45	34,477,693	34,477,693

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
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
Unrefrigerated Warehouse-No	16.60	8.40	76.30	61.93	0.00	38.07	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.395900	0.059700	0.152900	0.000000	0.000000	0.064800	0.086300	0.229600	0.000800	0.000900	0.005600	0.000800	0.002800

5.0 Energy Detail

4.4 Fleet Mix

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	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
NaturalGas Unmitigated	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Unrefrigerated Warehouse-No	8405.21	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663
Total		**0.0906**	**0.8240**	**0.6922**	**4.9400e-003**		**0.0626**	**0.0626**		**0.0626**	**0.0626**		**988.8483**	**988.8483**	**0.0190**	**0.0181**	**994.8663**

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
Unrefrigerated Warehouse-No Rail	5.919	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0638**	**0.5803**	**0.4875**	**3.4800e-003**		**0.0441**	**0.0441**		**0.0441**	**0.0441**		**696.3525**	**696.3525**	**0.0134**	**0.0128**	**700.5904**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive 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	71.5777	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Unmitigated	72.2913	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983

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	2.9578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	69.2952					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0384	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Total	**72.2913**	**3.7600e-003**	**0.4017**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8493**	**0.8493**	**2.3300e-003**		**0.8983**

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	2.2441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	69.2952					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0384	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Total	**71.5777**	**3.7600e-003**	**0.4017**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8493**	**0.8493**	**2.3300e-003**		**0.8983**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Sycamore Warehouse

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,433.60	1000sqft	32.91	1,433,599.00	0
Other Asphalt Surfaces	667.40	1000sqft	15.32	667,400.00	0
Other Non-Asphalt Surfaces	1,144.76	1000sqft	26.28	1,144,757.00	0
Parking Lot	635.00	Space	5.83	254,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2018
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80.34 gross acres per TPM 36879

Construction Phase - per construction schedule

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Trips and VMT -

Grading - per site plan acreage

Architectural Coating - per architect

Vehicle Trips - 1.68 trips/day/size per traffic study

distance to port = 76.2 mi

Vechicle Emission Factors - fleet mix calculated from defaults and traffic study

Vechicle Emission Factors - per defaults/traffic study

Vechicle Emission Factors - per defaults/traffic study

Consumer Products - no consumer product use in warehouses

Area Coating - per Architect's note

Water And Wastewater - per WSA and landscape architect

Sequestration - per landscape plan

Construction Off-road Equipment Mitigation - Tier 3 grading equipment design feature, water per rule 403

Energy Mitigation - per CalGreen

Water Mitigation - per CalGreen

Waste Mitigation - per City of Riverside 2006 Diversion Rate

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,626,688.00	281,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,880,064.00	281,000.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_Nonresidential_Interior	4880070	281000
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	110.00	30.00
tblConstructionPhase	NumDays	1,550.00	210.00
tblConstructionPhase	NumDays	155.00	24.00
tblConstructionPhase	NumDays	110.00	24.00
tblConstructionPhase	NumDays	60.00	48.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	211.05	80.00
tblGrading	AcresOfGrading	0.00	80.00
tblLandUse	LandUseSquareFeet	1,433,600.00	1,433,599.00
tblLandUse	LandUseSquareFeet	1,144,760.00	1,144,757.00
tblLandUse	LotAcreage	5.71	5.83
tblOffRoadEquipment	HorsePower	400.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	10.00
tblOffRoadEquipment	UsageHours	6.00	6.70
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70

tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	7.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblProjectCharacteristics	OperationalYear	2014	2018
tblSequestration	NumberOfNewTrees	0.00	741.00
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MCY	6.4830e-003	5.6000e-003

tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleTrips	CNW_TL	6.90	76.30
tblVehicleTrips	CNW_TTP	41.00	38.07
tblVehicleTrips	CW_TTP	59.00	61.93
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68
tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	331,520,000.00	21,060,986.00
tblWater	OutdoorWaterUseRate	0.00	11,529,014.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	66.4529	170.4016	133.5436	0.3212	20.0426	7.0979	22.4412	8.5671	6.5300	11.0136	0.0000	28,258.9411	28,258.9411	4.8662	0.0000	28,361.1307
2018	66.3183	3.3871	13.6719	0.0393	3.2862	0.1878	3.4740	0.8715	0.1863	1.0579	0.0000	3,068.2079	3,068.2079	0.1492	0.0000	3,071.3411
Total	**132.7711**	**173.7887**	**147.2155**	**0.3605**	**23.3288**	**7.2857**	**25.9153**	**9.4386**	**6.7164**	**12.0715**	**0.0000**	**31,327.1490**	**31,327.1490**	**5.0154**	**0.0000**	**31,432.4718**

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	66.4529	86.2016	133.5150	0.3212	20.0426	3.5570	22.3819	5.3892	3.4682	7.5754	0.0000	28,258.9411	28,258.9411	4.8662	0.0000	28,361.1307
2018	66.3183	3.3871	13.6719	0.0393	3.2862	0.1878	3.4740	0.8715	0.1863	1.0579	0.0000	3,068.2079	3,068.2079	0.1492	0.0000	3,071.3411
Total	**132.7711**	**89.5887**	**147.1869**	**0.3605**	**23.3288**	**3.7448**	**25.8559**	**6.2607**	**3.6545**	**8.6333**	**0.0000**	**31,327.1490**	**31,327.1490**	**5.0154**	**0.0000**	**31,432.4718**

	ROG	NOx	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**	**48.45**	**0.02**	**0.00**	**0.00**	**48.60**	**0.23**	**33.67**	**45.59**	**28.48**	**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	72.2913	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Energy	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663
Mobile	24.0539	338.8136	309.1131	1.4763	76.6010	6.6274	83.2283	20.8154	6.0982	26.9136		134,227.7655	134,227.7655	1.9405		134,268.5158
Total	**96.4359**	**339.6414**	**310.2070**	**1.4813**	**76.6010**	**6.6915**	**83.2924**	**20.8154**	**6.1622**	**26.9777**		**135,217.4631**	**135,217.4631**	**1.9618**	**0.0181**	**135,264.2803**

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	71.5777	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Energy	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
Mobile	24.0539	338.8136	309.1131	1.4763	76.6010	6.6274	83.2283	20.8154	6.0982	26.9136		134,227.7655	134,227.7655	1.9405		134,268.5158
Total	**95.6954**	**339.3976**	**310.0023**	**1.4798**	**76.6010**	**6.6729**	**83.2739**	**20.8154**	**6.1437**	**26.9591**		**134,924.9673**	**134,924.9673**	**1.9562**	**0.0128**	**134,970.0044**

	ROG	NOx	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	**0.77**	**0.07**	**0.07**	**0.10**	**0.00**	**0.28**	**0.02**	**0.00**	**0.30**	**0.07**	**0.00**	**0.22**	**0.22**	**0.29**	**29.56**	**0.22**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2017	2/27/2017	6	48	
2	Grading	Grading	2/28/2017	3/27/2017	6	24	
3	Building Construction	Building Construction	3/28/2017	11/27/2017	6	210	
4	Paving	Paving	11/28/2017	12/25/2017	6	24	
5	Architectural Coating	Architectural Coating	12/26/2017	1/29/2018	6	30	

Acres of Grading (Site Preparation Phase): 80

Acres of Grading (Grading Phase): 80

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 281,000; Non-Residential Outdoor: 281,000 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crushing/Proc. Equipment	1	6.70	85	0.78
Site Preparation	Rubber Tired Dozers	3	6.70	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.70	97	0.37
Grading	Crawler Tractors	1	6.70	208	0.43
Grading	Excavators	0	6.70	162	0.38
Grading	Graders	0	6.70	174	0.41
Grading	Off-Highway Trucks	2	6.70	200	0.38
Grading	Rubber Tired Dozers	1	6.70	255	0.40
Grading	Scrapers	10	6.70	361	0.48
Grading	Tractors/Loaders/Backhoes	2	6.70	97	0.37
Building Construction	Cranes	1	3.30	226	0.29
Building Construction	Forklifts	3	6.70	89	0.20
Building Construction	Generator Sets	1	6.70	84	0.74

Building Construction	Tractors/Loaders/Backhoes	3	6.70	97	0.37
Building Construction	Welders	1	6.70	46	0.45
Paving	Graders	1	6.70	174	0.41
Paving	Pavers	2	6.70	125	0.42
Paving	Paving Equipment	2	6.70	130	0.36
Paving	Rollers	2	6.70	80	0.38
Architectural Coating	Air Compressors	1	6.70	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
Site Preparation	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,470.00	574.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	294.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					16.8980	0.0000	16.8980	8.5078	0.0000	8.5078			0.0000			0.0000

Off-Road	4.6856	47.4997	36.7076	0.0386		2.6298	2.6298		2.4453	2.4453		3,909.1284	3,909.1284	1.0840		3,931.8930
Total	**4.6856**	**47.4997**	**36.7076**	**0.0386**	**16.8980**	**2.6298**	**19.5278**	**8.5078**	**2.4453**	**10.9531**		**3,909.1284**	**3,909.1284**	**1.0840**		**3,931.8930**

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	0.0653	0.0864	0.8751	2.4500e-003	0.2236	1.3600e-003	0.2249	0.0593	1.2500e-003	0.0605		194.7462	194.7462	8.7800e-003		194.9306
Total	**0.0653**	**0.0864**	**0.8751**	**2.4500e-003**	**0.2236**	**1.3600e-003**	**0.2249**	**0.0593**	**1.2500e-003**	**0.0605**		**194.7462**	**194.7462**	**8.7800e-003**		**194.9306**

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					6.5902	0.0000	6.5902	3.3180	0.0000	3.3180			0.0000			0.0000
Off-Road	3.8960	40.8696	33.3635	0.0386		2.2652	2.2652		2.1249	2.1249	0.0000	3,909.1284	3,909.1284	1.0840		3,931.8930
Total	**3.8960**	**40.8696**	**33.3635**	**0.0386**	**6.5902**	**2.2652**	**8.8554**	**3.3180**	**2.1249**	**5.4430**	**0.0000**	**3,909.1284**	**3,909.1284**	**1.0840**		**3,931.8930**

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	0.0653	0.0864	0.8751	2.4500e-003	0.2236	1.3600e-003	0.2249	0.0593	1.2500e-003	0.0605		194.7462	194.7462	8.7800e-003		194.9306
Total	**0.0653**	**0.0864**	**0.8751**	**2.4500e-003**	**0.2236**	**1.3600e-003**	**0.2249**	**0.0593**	**1.2500e-003**	**0.0605**		**194.7462**	**194.7462**	**8.7800e-003**		**194.9306**

3.3 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					8.5785	0.0000	8.5785	3.1540	0.0000	3.1540			0.0000			0.0000
Off-Road	13.9116	170.2288	103.9821	0.1547		7.0951	7.0951		6.5275	6.5275		15,824.5457	15,824.5457	4.8486		15,926.3665
Total	**13.9116**	**170.2288**	**103.9821**	**0.1547**	**8.5785**	**7.0951**	**15.6736**	**3.1540**	**6.5275**	**9.6815**		**15,824.5457**	**15,824.5457**	**4.8486**		**15,926.3665**

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	0.1306	0.1728	1.7503	4.9000e-003	0.4471	2.7200e-003	0.4498	0.1186	2.5100e-003	0.1211		389.4924	389.4924	0.0176		389.8612
Total	**0.1306**	**0.1728**	**1.7503**	**4.9000e-003**	**0.4471**	**2.7200e-003**	**0.4498**	**0.1186**	**2.5100e-003**	**0.1211**		**389.4924**	**389.4924**	**0.0176**		**389.8612**

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					3.3456	0.0000	3.3456	1.2301	0.0000	1.2301			0.0000			0.0000
Off-Road	5.4014	86.0288	85.1315	0.1547		3.5543	3.5543		3.4657	3.4657	0.0000	15,824.5456	15,824.5456	4.8486		15,926.3665
Total	**5.4014**	**86.0288**	**85.1315**	**0.1547**	**3.3456**	**3.5543**	**6.8999**	**1.2301**	**3.4657**	**4.6958**	**0.0000**	**15,824.5456**	**15,824.5456**	**4.8486**		**15,926.3665**

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	0.1306	0.1728	1.7503	4.9000e-003	0.4471	2.7200e-003	0.4498	0.1186	2.5100e-003	0.1211		389.4924	389.4924	0.0176		389.8612
Total	**0.1306**	**0.1728**	**1.7503**	**4.9000e-003**	**0.4471**	**2.7200e-003**	**0.4498**	**0.1186**	**2.5100e-003**	**0.1211**		**389.4924**	**389.4924**	**0.0176**		**389.8612**

3.4 Building Construction - 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					
Off-Road	2.4902	20.6065	15.0521	0.0216		1.4538	1.4538		1.3662	1.3662		2,125.8955	2,125.8955	0.5181		2,136.7756
Total	**2.4902**	**20.6065**	**15.0521**	**0.0216**		**1.4538**	**1.4538**		**1.3662**	**1.3662**		**2,125.8955**	**2,125.8955**	**0.5181**		**2,136.7756**

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	4.2881	44.7537	54.1700	0.1196	3.6115	0.8450	4.4564	1.0316	0.7771	1.8087		11,819.1984	11,819.1984	0.0787		11,820.8520
Worker	4.8002	6.3513	64.3215	0.1799	16.4311	0.0999	16.5310	4.3576	0.0922	4.4498		14,313.8473	14,313.8473	0.6453		14,327.3979
Total	**9.0882**	**51.1050**	**118.4915**	**0.2995**	**20.0426**	**0.9449**	**20.9874**	**5.3892**	**0.8693**	**6.2585**		**26,133.0456**	**26,133.0456**	**0.7240**		**26,148.2499**

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	2.3570	19.8827	15.0235	0.0216		1.3945	1.3945		1.3170	1.3170	0.0000	2,125.8955	2,125.8955	0.5181		2,136.7755
Total	**2.3570**	**19.8827**	**15.0235**	**0.0216**		**1.3945**	**1.3945**		**1.3170**	**1.3170**	**0.0000**	**2,125.8955**	**2,125.8955**	**0.5181**		**2,136.7755**

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	4.2881	44.7537	54.1700	0.1196	3.6115	0.8450	4.4564	1.0316	0.7771	1.8087		11,819.1984	11,819.1984	0.0787		11,820.8520
Worker	4.8002	6.3513	64.3215	0.1799	16.4311	0.0999	16.5310	4.3576	0.0922	4.4498		14,313.8473	14,313.8473	0.6453		14,327.3979
Total	**9.0882**	**51.1050**	**118.4915**	**0.2995**	**20.0426**	**0.9449**	**20.9874**	**5.3892**	**0.8693**	**6.2585**		**26,133.0456**	**26,133.0456**	**0.7240**		**26,148.2499**

3.5 Paving - 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					
Off-Road	2.3952	25.0729	16.3858	0.0239		1.4070	1.4070		1.2944	1.2944		2,444.3779	2,444.3779	0.7490		2,460.1059

Paving	2.3089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7041**	**25.0729**	**16.3858**	**0.0239**		**1.4070**	**1.4070**		**1.2944**	**1.2944**		**2,444.3779**	**2,444.3779**	**0.7490**		**2,460.1059**

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	0.0588	0.0778	0.7876	2.2000e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1300e-003	0.0545		175.2716	175.2716	7.9000e-003		175.4375
Total	**0.0588**	**0.0778**	**0.7876**	**2.2000e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1300e-003**	**0.0545**		**175.2716**	**175.2716**	**7.9000e-003**		**175.4375**

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	2.3952	25.0729	16.3858	0.0239		1.4070	1.4070		1.2944	1.2944	0.0000	2,444.3779	2,444.3779	0.7490		2,460.1059
Paving	2.3089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**4.7041**	**25.0729**	**16.3858**	**0.0239**		**1.4070**	**1.4070**		**1.2944**	**1.2944**	**0.0000**	**2,444.3779**	**2,444.3779**	**0.7490**		**2,460.1059**

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	0.0588	0.0778	0.7876	2.2000e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1300e-003	0.0545		175.2716	175.2716	7.9000e-003		175.4375
Total	**0.0588**	**0.0778**	**0.7876**	**2.2000e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1300e-003**	**0.0545**		**175.2716**	**175.2716**	**7.9000e-003**		**175.4375**

3.6 Architectural Coating - 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					
Archit. Coating	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3711	2.4400	2.0860	3.3200e-003		0.1936	0.1936		0.1936	0.1936		314.2837	314.2837	0.0332		314.9805
Total	**65.4928**	**2.4400**	**2.0860**	**3.3200e-003**		**0.1936**	**0.1936**		**0.1936**	**0.1936**		**314.2837**	**314.2837**	**0.0332**		**314.9805**

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	0.9600	1.2703	12.8643	0.0360	3.2862	0.0200	3.3062	0.8715	0.0184	0.8900		2,862.7695	2,862.7695	0.1291		2,865.4796
Total	**0.9600**	**1.2703**	**12.8643**	**0.0360**	**3.2862**	**0.0200**	**3.3062**	**0.8715**	**0.0184**	**0.8900**		**2,862.7695**	**2,862.7695**	**0.1291**		**2,865.4796**

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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3711	2.4400	2.0860	3.3200e-003		0.1936	0.1936		0.1936	0.1936	0.0000	314.2837	314.2837	0.0332		314.9805
Total	**65.4928**	**2.4400**	**2.0860**	**3.3200e-003**		**0.1936**	**0.1936**		**0.1936**	**0.1936**	**0.0000**	**314.2837**	**314.2837**	**0.0332**		**314.9805**

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	0.9600	1.2703	12.8643	0.0360	3.2862	0.0200	3.3062	0.8715	0.0184	0.8900		2,862.7695	2,862.7695	0.1291		2,865.4796
Total	**0.9600**	**1.2703**	**12.8643**	**0.0360**	**3.2862**	**0.0200**	**3.3062**	**0.8715**	**0.0184**	**0.8900**		**2,862.7695**	**2,862.7695**	**0.1291**		**2,865.4796**

3.6 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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3335	2.2398	2.0705	3.3200e-003		0.1681	0.1681		0.1681	0.1681		314.2842	314.2842	0.0299		314.9113
Total	**65.4552**	**2.2398**	**2.0705**	**3.3200e-003**		**0.1681**	**0.1681**		**0.1681**	**0.1681**		**314.2842**	**314.2842**	**0.0299**		**314.9113**

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	0.8630	1.1473	11.6014	0.0360	3.2862	0.0197	3.3059	0.8715	0.0182	0.8897		2,753.9237	2,753.9237	0.1193		2,756.4298
Total	**0.8630**	**1.1473**	**11.6014**	**0.0360**	**3.2862**	**0.0197**	**3.3059**	**0.8715**	**0.0182**	**0.8897**		**2,753.9237**	**2,753.9237**	**0.1193**		**2,756.4298**

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	65.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3335	2.2398	2.0705	3.3200e-003		0.1681	0.1681		0.1681	0.1681	0.0000	314.2842	314.2842	0.0299		314.9113
Total	**65.4552**	**2.2398**	**2.0705**	**3.3200e-003**		**0.1681**	**0.1681**		**0.1681**	**0.1681**	**0.0000**	**314.2842**	**314.2842**	**0.0299**		**314.9113**

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	0.8630	1.1473	11.6014	0.0360	3.2862	0.0197	3.3059	0.8715	0.0182	0.8897		2,753.9237	2,753.9237	0.1193		2,756.4298
Total	**0.8630**	**1.1473**	**11.6014**	**0.0360**	**3.2862**	**0.0197**	**3.3059**	**0.8715**	**0.0182**	**0.8897**		**2,753.9237**	**2,753.9237**	**0.1193**		**2,756.4298**

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	24.0539	338.8136	309.1131	1.4763	76.6010	6.6274	83.2283	20.8154	6.0982	26.9136		134,227.7655	134,227.7655	1.9405		134,268.5158
Unmitigated	24.0539	338.8136	309.1131	1.4763	76.6010	6.6274	83.2283	20.8154	6.0982	26.9136		134,227.7655	134,227.7655	1.9405		134,268.5158

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2,408.45	2,408.45	2408.45	34,477,693	34,477,693
Total	2,408.45	2,408.45	2,408.45	34,477,693	34,477,693

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
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
Unrefrigerated Warehouse-No	16.60	8.40	76.30	61.93	0.00	38.07	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.395900	0.059700	0.152900	0.000000	0.000000	0.064800	0.086300	0.229600	0.000800	0.000900	0.005600	0.000800	0.002800

5.0 Energy Detail

4.4 Fleet Mix

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	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
NaturalGas Unmitigated	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Unrefrigerated Warehouse-No	8405.21	0.0906	0.8240	0.6922	4.9400e-003		0.0626	0.0626		0.0626	0.0626		988.8483	988.8483	0.0190	0.0181	994.8663
Total		**0.0906**	**0.8240**	**0.6922**	**4.9400e-003**		**0.0626**	**0.0626**		**0.0626**	**0.0626**		**988.8483**	**988.8483**	**0.0190**	**0.0181**	**994.8663**

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
Unrefrigerated Warehouse-No Rail	5.919	0.0638	0.5803	0.4875	3.4800e-003		0.0441	0.0441		0.0441	0.0441		696.3525	696.3525	0.0134	0.0128	700.5904
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0638**	**0.5803**	**0.4875**	**3.4800e-003**		**0.0441**	**0.0441**		**0.0441**	**0.0441**		**696.3525**	**696.3525**	**0.0134**	**0.0128**	**700.5904**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive 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	71.5777	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Unmitigated	72.2913	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983

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	2.9578					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	69.2952					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0384	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Total	**72.2913**	**3.7600e-003**	**0.4017**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8493**	**0.8493**	**2.3300e-003**		**0.8983**

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	2.2441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	69.2952					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0384	3.7600e-003	0.4017	3.0000e-005		1.4500e-003	1.4500e-003		1.4500e-003	1.4500e-003		0.8493	0.8493	2.3300e-003		0.8983
Total	**71.5777**	**3.7600e-003**	**0.4017**	**3.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.4500e-003**	**1.4500e-003**		**0.8493**	**0.8493**	**2.3300e-003**		**0.8983**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Sycamore Warehouse

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	1,433.60	1000sqft	32.91	1,433,599.00	0
Other Asphalt Surfaces	667.40	1000sqft	15.32	667,400.00	0
Other Non-Asphalt Surfaces	1,144.76	1000sqft	26.28	1,144,757.00	0
Parking Lot	635.00	Space	5.83	254,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2018
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 80.34 gross acres per TPM 36879

Construction Phase - per construction schedule

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Off-road Equipment - per contractor

Trips and VMT -

Grading - per site plan acreage

Architectural Coating - per architect

Vehicle Trips - 1.68 trips/day/size per traffic study

distance to port = 76.2 mi

Vechicle Emission Factors - fleet mix calculated from defaults and traffic study

Vechicle Emission Factors - per defaults/traffic study

Vechicle Emission Factors - per defaults/traffic study

Consumer Products - no consumer product use in warehouses

Area Coating - per Architect's note

Water And Wastewater - per WSA and landscape architect

Sequestration - per landscape plan

Construction Off-road Equipment Mitigation - Tier 3 grading equipment design feature, water per rule 403

Energy Mitigation - per CalGreen

Water Mitigation - per CalGreen

Waste Mitigation - per City of Riverside 2006 Diversion Rate

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,626,688.00	281,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	4,880,064.00	281,000.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_Nonresidential_Interior	4880070	281000
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValue	50	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	110.00	30.00
tblConstructionPhase	NumDays	1,550.00	210.00
tblConstructionPhase	NumDays	155.00	24.00
tblConstructionPhase	NumDays	110.00	24.00
tblConstructionPhase	NumDays	60.00	48.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	211.05	80.00
tblGrading	AcresOfGrading	0.00	80.00
tblLandUse	LandUseSquareFeet	1,433,600.00	1,433,599.00
tblLandUse	LandUseSquareFeet	1,144,760.00	1,144,757.00
tblLandUse	LotAcreage	5.71	5.83
tblOffRoadEquipment	HorsePower	400.00	200.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	10.00
tblOffRoadEquipment	UsageHours	6.00	6.70
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70

tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	7.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	6.70
tblProjectCharacteristics	OperationalYear	2014	2018
tblSequestration	NumberOfNewTrees	0.00	741.00
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	HHD	0.04	0.23
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDA	0.46	0.40
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT1	0.07	0.06
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LDT2	0.18	0.15
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD1	0.05	0.00
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	LHD2	7.4060e-003	0.06
tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MCY	6.4830e-003	5.6000e-003

tblVehicleEF	MCY	6.4830e-003	5.6000e-003
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MDV	0.17	0.00
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MH	3.2510e-003	2.8000e-003
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	MHD	0.01	0.09
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	OBUS	9.3500e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	SBUS	8.6700e-004	8.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleEF	UBUS	1.0570e-003	9.0000e-004
tblVehicleTrips	CNW_TL	6.90	76.30
tblVehicleTrips	CNW_TTP	41.00	38.07
tblVehicleTrips	CW_TTP	59.00	61.93
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68
tblVehicleTrips	WD_TR	2.59	1.68
tblWater	IndoorWaterUseRate	331,520,000.00	21,060,986.00
tblWater	OutdoorWaterUseRate	0.00	11,529,014.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	1.6855	11.1490	16.8351	0.0374	2.5999	0.4172	3.0171	0.8051	0.3875	1.1926	0.0000	3,017.9380	3,017.9380	0.2035	0.0000	3,022.2124
2018	0.8283	0.0430	0.1761	5.0000e-004	0.0404	2.3500e-003	0.0427	0.0107	2.3300e-003	0.0131	0.0000	35.2197	35.2197	1.6900e-003	0.0000	35.2552
Total	**2.5138**	**11.1919**	**17.0112**	**0.0379**	**2.6403**	**0.4195**	**3.0599**	**0.8159**	**0.3898**	**1.2057**	**0.0000**	**3,053.1577**	**3,053.1577**	**0.2052**	**0.0000**	**3,057.4676**

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	1.5504	9.9034	16.5256	0.0374	2.2898	0.3597	2.6495	0.6575	0.3379	0.9954	0.0000	3,017.9374	3,017.9374	0.2035	0.0000	3,022.2118
2018	0.8283	0.0430	0.1761	5.0000e-004	0.0404	2.3500e-003	0.0427	0.0107	2.3300e-003	0.0131	0.0000	35.2197	35.2197	1.6900e-003	0.0000	35.2552
Total	**2.3787**	**9.9464**	**16.7017**	**0.0379**	**2.3301**	**0.3621**	**2.6922**	**0.6682**	**0.3402**	**1.0084**	**0.0000**	**3,053.1571**	**3,053.1571**	**0.2052**	**0.0000**	**3,057.4670**

	ROG	NOx	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	**5.37**	**11.13**	**1.82**	**0.00**	**11.75**	**13.70**	**12.02**	**18.10**	**12.72**	**16.36**	**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	tons/yr										MT/yr					
Area	13.1910	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019
Energy	0.0165	0.1504	0.1263	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	2,901.4487	2,901.4487	0.0630	0.0154	2,907.5440
Mobile	4.3446	62.6380	57.6290	0.2697	13.7228	1.2039	14.9268	3.7348	1.1078	4.8426	0.0000	22,229.3134	22,229.3134	0.3196	0.0000	22,236.0244
Waste						0.0000	0.0000		0.0000	0.0000	273.5466	0.0000	273.5466	16.1661	0.0000	613.0355
Water						0.0000	0.0000		0.0000	0.0000	6.6817	241.9184	248.6001	0.6916	0.0173	268.4857
Total	**17.5521**	**62.7889**	**57.8055**	**0.2706**	**13.7228**	**1.2156**	**14.9384**	**3.7348**	**1.1194**	**4.8542**	**280.2282**	**25,372.7768**	**25,653.0051**	**17.2406**	**0.0327**	**26,025.1914**

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	13.0607	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019
Energy	0.0117	0.1059	0.0890	6.4000e-004		8.0500e-003	8.0500e-003		8.0500e-003	8.0500e-003	0.0000	2,736.6487	2,736.6487	0.0596	0.0140	2,742.2326
Mobile	4.3446	62.6380	57.6290	0.2697	13.7228	1.2039	14.9268	3.7348	1.1078	4.8426	0.0000	22,229.3134	22,229.3134	0.3196	0.0000	22,236.0244
Waste						0.0000	0.0000		0.0000	0.0000	98.4768	0.0000	98.4768	5.8198	0.0000	220.6928
Water						0.0000	0.0000		0.0000	0.0000	5.3453	204.3599	209.7053	0.5535	0.0139	225.6340
Total	**17.4170**	**62.7444**	**57.7681**	**0.2704**	**13.7228**	**1.2122**	**14.9350**	**3.7348**	**1.1160**	**4.8508**	**103.8221**	**25,170.4184**	**25,274.2405**	**6.7527**	**0.0279**	**25,424.6855**

	ROG	NOx	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	**0.77**	**0.07**	**0.06**	**0.10**	**0.00**	**0.28**	**0.02**	**0.00**	**0.30**	**0.07**	**62.95**	**0.80**	**1.48**	**60.83**	**14.74**	**2.31**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	524.6280
Total	**524.6280**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/3/2017	2/27/2017	6	48	
2	Grading	Grading	2/28/2017	3/27/2017	6	24	
3	Building Construction	Building Construction	3/28/2017	11/27/2017	6	210	
4	Paving	Paving	11/28/2017	12/25/2017	6	24	
5	Architectural Coating	Architectural Coating	12/26/2017	1/29/2018	6	30	

Acres of Grading (Site Preparation Phase): 80

Acres of Grading (Grading Phase): 80

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 281,000; Non-Residential Outdoor: 281,000 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crushing/Proc. Equipment	1	6.70	85	0.78
Site Preparation	Rubber Tired Dozers	3	6.70	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.70	97	0.37
Grading	Crawler Tractors	1	6.70	208	0.43
Grading	Excavators	0	6.70	162	0.38
Grading	Graders	0	6.70	174	0.41
Grading	Off-Highway Trucks	2	6.70	200	0.38
Grading	Rubber Tired Dozers	1	6.70	255	0.40
Grading	Scrapers	10	6.70	361	0.48
Grading	Tractors/Loaders/Backhoes	2	6.70	97	0.37
Building Construction	Cranes	1	3.30	226	0.29
Building Construction	Forklifts	3	6.70	89	0.20
Building Construction	Generator Sets	1	6.70	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	6.70	97	0.37
Building Construction	Welders	1	6.70	46	0.45
Paving	Graders	1	6.70	174	0.41
Paving	Pavers	2	6.70	125	0.42
Paving	Paving Equipment	2	6.70	130	0.36
Paving	Rollers	2	6.70	80	0.38
Architectural Coating	Air Compressors	1	6.70	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
Site Preparation	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Building Construction	9	1,470.00	574.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	294.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					0.4056	0.0000	0.4056	0.2042	0.0000	0.2042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1125	1.1400	0.8810	9.3000e-004		0.0631	0.0631		0.0587	0.0587	0.0000	85.1112	85.1112	0.0236	0.0000	85.6069
Total	**0.1125**	**1.1400**	**0.8810**	**9.3000e-004**	**0.4056**	**0.0631**	**0.4687**	**0.2042**	**0.0587**	**0.2629**	**0.0000**	**85.1112**	**85.1112**	**0.0236**	**0.0000**	**85.6069**

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	1.4700e-003	2.1600e-003	0.0218	6.0000e-005	5.2800e-003	3.0000e-005	5.3100e-003	1.4000e-003	3.0000e-005	1.4300e-003	0.0000	4.2980	4.2980	1.9000e-004	0.0000	4.3020
Total	**1.4700e-003**	**2.1600e-003**	**0.0218**	**6.0000e-005**	**5.2800e-003**	**3.0000e-005**	**5.3100e-003**	**1.4000e-003**	**3.0000e-005**	**1.4300e-003**	**0.0000**	**4.2980**	**4.2980**	**1.9000e-004**	**0.0000**	**4.3020**

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					0.1582	0.0000	0.1582	0.0796	0.0000	0.0796	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0935	0.9809	0.8007	9.3000e-004		0.0544	0.0544		0.0510	0.0510	0.0000	85.1111	85.1111	0.0236	0.0000	85.6068
Total	**0.0935**	**0.9809**	**0.8007**	**9.3000e-004**	**0.1582**	**0.0544**	**0.2125**	**0.0796**	**0.0510**	**0.1306**	**0.0000**	**85.1111**	**85.1111**	**0.0236**	**0.0000**	**85.6068**

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	1.4700e-003	2.1600e-003	0.0218	6.0000e-005	5.2800e-003	3.0000e-005	5.3100e-003	1.4000e-003	3.0000e-005	1.4300e-003	0.0000	4.2980	4.2980	1.9000e-004	0.0000	4.3020
Total	**1.4700e-003**	**2.1600e-003**	**0.0218**	**6.0000e-005**	**5.2800e-003**	**3.0000e-005**	**5.3100e-003**	**1.4000e-003**	**3.0000e-005**	**1.4300e-003**	**0.0000**	**4.2980**	**4.2980**	**1.9000e-004**	**0.0000**	**4.3020**

3.3 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					0.1029	0.0000	0.1029	0.0379	0.0000	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1669	2.0428	1.2478	1.8600e-003		0.0851	0.0851		0.0783	0.0783	0.0000	172.2694	172.2694	0.0528	0.0000	173.3779
Total	**0.1669**	**2.0428**	**1.2478**	**1.8600e-003**	**0.1029**	**0.0851**	**0.1881**	**0.0379**	**0.0783**	**0.1162**	**0.0000**	**172.2694**	**172.2694**	**0.0528**	**0.0000**	**173.3779**

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	1.4700e-003	2.1600e-003	0.0218	6.0000e-005	5.2800e-003	3.0000e-005	5.3100e-003	1.4000e-003	3.0000e-005	1.4300e-003	0.0000	4.2980	4.2980	1.9000e-004	0.0000	4.3020
Total	**1.4700e-003**	**2.1600e-003**	**0.0218**	**6.0000e-005**	**5.2800e-003**	**3.0000e-005**	**5.3100e-003**	**1.4000e-003**	**3.0000e-005**	**1.4300e-003**	**0.0000**	**4.2980**	**4.2980**	**1.9000e-004**	**0.0000**	**4.3020**

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					0.0402	0.0000	0.0402	0.0148	0.0000	0.0148	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0648	1.0323	1.0216	1.8600e-003		0.0427	0.0427		0.0416	0.0416	0.0000	172.2692	172.2692	0.0528	0.0000	173.3777
Total	**0.0648**	**1.0323**	**1.0216**	**1.8600e-003**	**0.0402**	**0.0427**	**0.0828**	**0.0148**	**0.0416**	**0.0564**	**0.0000**	**172.2692**	**172.2692**	**0.0528**	**0.0000**	**173.3777**

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	1.4700e-003	2.1600e-003	0.0218	6.0000e-005	5.2800e-003	3.0000e-005	5.3100e-003	1.4000e-003	3.0000e-005	1.4300e-003	0.0000	4.2980	4.2980	1.9000e-004	0.0000	4.3020
Total	**1.4700e-003**	**2.1600e-003**	**0.0218**	**6.0000e-005**	**5.2800e-003**	**3.0000e-005**	**5.3100e-003**	**1.4000e-003**	**3.0000e-005**	**1.4300e-003**	**0.0000**	**4.2980**	**4.2980**	**1.9000e-004**	**0.0000**	**4.3020**

3.4 Building Construction - 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					
Off-Road	0.2615	2.1637	1.5805	2.2700e-003		0.1527	0.1527		0.1435	0.1435	0.0000	202.5009	202.5009	0.0494	0.0000	203.5373
Total	**0.2615**	**2.1637**	**1.5805**	**2.2700e-003**		**0.1527**	**0.1527**		**0.1435**	**0.1435**	**0.0000**	**202.5009**	**202.5009**	**0.0494**	**0.0000**	**203.5373**

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	0.4454	4.7917	5.8400	0.0126	0.3739	0.0883	0.4622	0.1070	0.0812	0.1882	0.0000	1,131.5492	1,131.5492	7.3500e-003	0.0000	1,131.7036
Worker	0.4731	0.6953	6.9973	0.0192	1.6965	0.0105	1.7070	0.4505	9.6800e-003	0.4602	0.0000	1,382.0730	1,382.0730	0.0615	0.0000	1,383.3638
Total	**0.9186**	**5.4870**	**12.8374**	**0.0318**	**2.0704**	**0.0988**	**2.1692**	**0.5575**	**0.0909**	**0.6484**	**0.0000**	**2,513.6222**	**2,513.6222**	**0.0688**	**0.0000**	**2,515.0674**

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	0.2475	2.0877	1.5775	2.2700e-003		0.1464	0.1464		0.1383	0.1383	0.0000	202.5007	202.5007	0.0494	0.0000	203.5370
Total	**0.2475**	**2.0877**	**1.5775**	**2.2700e-003**		**0.1464**	**0.1464**		**0.1383**	**0.1383**	**0.0000**	**202.5007**	**202.5007**	**0.0494**	**0.0000**	**203.5370**

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	0.4454	4.7917	5.8400	0.0126	0.3739	0.0883	0.4622	0.1070	0.0812	0.1882	0.0000	1,131.5492	1,131.5492	7.3500e-003	0.0000	1,131.7036
Worker	0.4731	0.6953	6.9973	0.0192	1.6965	0.0105	1.7070	0.4505	9.6800e-003	0.4602	0.0000	1,382.0730	1,382.0730	0.0615	0.0000	1,383.3638
Total	**0.9186**	**5.4870**	**12.8374**	**0.0318**	**2.0704**	**0.0988**	**2.1692**	**0.5575**	**0.0909**	**0.6484**	**0.0000**	**2,513.6222**	**2,513.6222**	**0.0688**	**0.0000**	**2,515.0674**

3.5 Paving - 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					
Off-Road	0.0287	0.3009	0.1966	2.9000e-004		0.0169	0.0169		0.0155	0.0155	0.0000	26.6100	26.6100	8.1500e-003	0.0000	26.7813
Paving	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0565**	**0.3009**	**0.1966**	**2.9000e-004**		**0.0169**	**0.0169**		**0.0155**	**0.0155**	**0.0000**	**26.6100**	**26.6100**	**8.1500e-003**	**0.0000**	**26.7813**

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	6.6000e-004	9.7000e-004	9.7900e-003	3.0000e-005	2.3700e-003	1.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9341	1.9341	9.0000e-005	0.0000	1.9359

Total	**6.6000e-004**	**9.7000e-004**	**9.7900e-003**	**3.0000e-005**	**2.3700e-003**	**1.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9341**	**1.9341**	**9.0000e-005**	**0.0000**	**1.9359**

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	0.0287	0.3009	0.1966	2.9000e-004		0.0169	0.0169		0.0155	0.0155	0.0000	26.6100	26.6100	8.1500e-003	0.0000	26.7812
Paving	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0565**	**0.3009**	**0.1966**	**2.9000e-004**		**0.0169**	**0.0169**		**0.0155**	**0.0155**	**0.0000**	**26.6100**	**26.6100**	**8.1500e-003**	**0.0000**	**26.7812**

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	6.6000e-004	9.7000e-004	9.7900e-003	3.0000e-005	2.3700e-003	1.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9341	1.9341	9.0000e-005	0.0000	1.9359
Total	**6.6000e-004**	**9.7000e-004**	**9.7900e-003**	**3.0000e-005**	**2.3700e-003**	**1.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9341**	**1.9341**	**9.0000e-005**	**0.0000**	**1.9359**

3.6 Architectural Coating - 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					
Archit. Coating	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	6.1000e-003	5.2200e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	0.7128	0.7128	8.0000e-005	0.0000	0.7144
Total	**0.1637**	**6.1000e-003**	**5.2200e-003**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**0.7128**	**0.7128**	**8.0000e-005**	**0.0000**	**0.7144**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2500e-003	3.3100e-003	0.0333	9.0000e-005	8.0800e-003	5.0000e-005	8.1300e-003	2.1500e-003	5.0000e-005	2.1900e-003	0.0000	6.5813	6.5813	2.9000e-004	0.0000	6.5875
Total	**2.2500e-003**	**3.3100e-003**	**0.0333**	**9.0000e-005**	**8.0800e-003**	**5.0000e-005**	**8.1300e-003**	**2.1500e-003**	**5.0000e-005**	**2.1900e-003**	**0.0000**	**6.5813**	**6.5813**	**2.9000e-004**	**0.0000**	**6.5875**

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	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	6.1000e-003	5.2200e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	0.7128	0.7128	8.0000e-005	0.0000	0.7144
Total	**0.1637**	**6.1000e-003**	**5.2200e-003**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**	**0.7128**	**0.7128**	**8.0000e-005**	**0.0000**	**0.7144**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2500e-003	3.3100e-003	0.0333	9.0000e-005	8.0800e-003	5.0000e-005	8.1300e-003	2.1500e-003	5.0000e-005	2.1900e-003	0.0000	6.5813	6.5813	2.9000e-004	0.0000	6.5875
Total	**2.2500e-003**	**3.3100e-003**	**0.0333**	**9.0000e-005**	**8.0800e-003**	**5.0000e-005**	**8.1300e-003**	**2.1500e-003**	**5.0000e-005**	**2.1900e-003**	**0.0000**	**6.5813**	**6.5813**	**2.9000e-004**	**0.0000**	**6.5875**

3.6 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	0.8140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1700e-003	0.0280	0.0259	4.0000e-005		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	3.5639	3.5639	3.4000e-004	0.0000	3.5710
Total	**0.8182**	**0.0280**	**0.0259**	**4.0000e-005**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**3.5639**	**3.5639**	**3.4000e-004**	**0.0000**	**3.5710**

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	0.0101	0.0150	0.1502	4.6000e-004	0.0404	2.5000e-004	0.0406	0.0107	2.3000e-004	0.0110	0.0000	31.6558	31.6558	1.3500e-003	0.0000	31.6842
Total	**0.0101**	**0.0150**	**0.1502**	**4.6000e-004**	**0.0404**	**2.5000e-004**	**0.0406**	**0.0107**	**2.3000e-004**	**0.0110**	**0.0000**	**31.6558**	**31.6558**	**1.3500e-003**	**0.0000**	**31.6842**

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	0.8140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1700e-003	0.0280	0.0259	4.0000e-005		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	3.5639	3.5639	3.4000e-004	0.0000	3.5710
Total	**0.8182**	**0.0280**	**0.0259**	**4.0000e-005**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**3.5639**	**3.5639**	**3.4000e-004**	**0.0000**	**3.5710**

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	0.0101	0.0150	0.1502	4.6000e-004	0.0404	2.5000e-004	0.0406	0.0107	2.3000e-004	0.0110	0.0000	31.6558	31.6558	1.3500e-003	0.0000	31.6842
Total	**0.0101**	**0.0150**	**0.1502**	**4.6000e-004**	**0.0404**	**2.5000e-004**	**0.0406**	**0.0107**	**2.3000e-004**	**0.0110**	**0.0000**	**31.6558**	**31.6558**	**1.3500e-003**	**0.0000**	**31.6842**

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	4.3446	62.6380	57.6290	0.2697	13.7228	1.2039	14.9268	3.7348	1.1078	4.8426	0.0000	22,229.3134	22,229.3134	0.3196	0.0000	22,236.0244
Unmitigated	4.3446	62.6380	57.6290	0.2697	13.7228	1.2039	14.9268	3.7348	1.1078	4.8426	0.0000	22,229.3134	22,229.3134	0.3196	0.0000	22,236.0244

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	2,408.45	2,408.45	2408.45	34,477,693	34,477,693
Total	2,408.45	2,408.45	2,408.45	34,477,693	34,477,693

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
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
Unrefrigerated Warehouse-No	16.60	8.40	76.30	61.93	0.00	38.07	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.395900	0.059700	0.152900	0.000000	0.000000	0.064800	0.086300	0.229600	0.000800	0.000900	0.005600	0.000800	0.002800

5.0 Energy Detail

4.4 Fleet Mix

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	2,621.3598	2,621.3598	0.0574	0.0119	2,626.2420
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,737.7338	2,737.7338	0.0599	0.0124	2,742.8328
NaturalGas Mitigated	0.0117	0.1059	0.0890	6.4000e-004		8.0500e-003	8.0500e-003		8.0500e-003	8.0500e-003	0.0000	115.2890	115.2890	2.2100e-003	2.1100e-003	115.9906
NaturalGas Unmitigated	0.0165	0.1504	0.1263	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	163.7149	163.7149	3.1400e-003	3.0000e-003	164.7113

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Unrefrigerated Warehouse-No Rail	3.0679e+006	0.0165	0.1504	0.1263	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	163.7149	163.7149	3.1400e-003	3.0000e-003	164.7113
Total		**0.0165**	**0.1504**	**0.1263**	**9.0000e-004**		**0.0114**	**0.0114**		**0.0114**	**0.0114**	**0.0000**	**163.7149**	**163.7149**	**3.1400e-003**	**3.0000e-003**	**164.7113**

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
Unrefrigerated Warehouse-No Rail	2.16043e+006	0.0117	0.1059	0.0890	6.4000e-004		8.0500e-003	8.0500e-003		8.0500e-003	8.0500e-003	0.0000	115.2890	115.2890	2.2100e-003	2.1100e-003	115.9906
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0117**	**0.1059**	**0.0890**	**6.4000e-004**		**8.0500e-003**	**8.0500e-003**		**8.0500e-003**	**8.0500e-003**	**0.0000**	**115.2890**	**115.2890**	**2.2100e-003**	**2.1100e-003**	**115.9906**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	223520	134.4036	2.9400e-003	6.1000e-004	134.6540
Unrefrigerated Warehouse-No Rail	4.32947e+006	2,603.3302	0.0570	0.0118	2,608.1788
Total		**2,737.7338**	**0.0599**	**0.0124**	**2,742.8328**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	223520	134.4036	2.9400e-003	6.1000e-004	134.6540
Unrefrigerated Warehouse-No Rail	4.13593e+006	2,486.9561	0.0544	0.0113	2,491.5880
Total		**2,621.3598**	**0.0573**	**0.0119**	**2,626.2420**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive 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	13.0607	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019
Unmitigated	13.1910	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019

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	0.5398					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.6464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019
Total	**13.1910**	**4.7000e-004**	**0.0502**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0963**	**0.0963**	**2.6000e-004**	**0.0000**	**0.1019**

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	0.4096					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.6464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.8000e-003	4.7000e-004	0.0502	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.0963	0.0963	2.6000e-004	0.0000	0.1019
Total	**13.0607**	**4.7000e-004**	**0.0502**	**0.0000**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0963**	**0.0963**	**2.6000e-004**	**0.0000**	**0.1019**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	209.7053	0.5535	0.0139	225.6340
Unmitigated	248.6001	0.6916	0.0173	268.4857

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
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
Unrefrigerated Warehouse-No Rail	21.061 / 11.529	248.6001	0.6916	0.0173	268.4857
Total		**248.6001**	**0.6916**	**0.0173**	**268.4857**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
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
Unrefrigerated Warehouse-No Rail	16.8488 / 11.529	209.7053	0.5535	0.0139	225.6340
Total		**209.7053**	**0.5535**	**0.0139**	**225.6340**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	98.4768	5.8198	0.0000	220.6928
Unmitigated	273.5466	16.1661	0.0000	613.0355

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	1347.58	273.5466	16.1661	0.0000	613.0355
Total		**273.5466**	**16.1661**	**0.0000**	**613.0355**

Mitigated

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

Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	485.129	98.4768	5.8198	0.0000	220.6928
Total		**98.4768**	**5.8198**	**0.0000**	**220.6928**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	524.6280	0.0000	0.0000	524.6280

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	741	524.6280	0.0000	0.0000	524.6280
Total		**524.6280**	**0.0000**	**0.0000**	**524.6280**

Sycamore Warehouse

Riverside-South Coast County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.01	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.61	0.49	0.18	0.00	0.50	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.17	0.14	0.09	0.00	0.14	0.13	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Crawler Tractors	Diesel	Tier 3	1	1	No Change	0.00
Crushing/Proc. Equipment	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	0	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00

Off-Highway Trucks	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 3	1	4	No Change	0.00
Scrapers	Diesel	Tier 3	10	10	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 3	2	9	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	5.10000E-003	3.41000E-002	3.11000E-002	5.00000E-005	2.59000E-003	2.59000E-003	0.00000E+000	4.27671E+000	4.27671E+000	4.10000E-004	0.00000E+000	4.28540E+000
Cranes	2.80700E-002	3.33200E-001	1.19380E-001	2.40000E-004	1.48500E-002	1.36700E-002	0.00000E+000	2.26811E+001	2.26811E+001	6.95000E-003	0.00000E+000	2.28270E+001
Crawler Tractors	6.81000E-003	9.13100E-002	2.76100E-002	8.00000E-005	3.49000E-003	3.21000E-003	0.00000E+000	7.18856E+000	7.18856E+000	2.20000E-003	0.00000E+000	7.23481E+000
Crushing/Proc. Equipment	1.52100E-002	9.97500E-002	8.91000E-002	1.40000E-004	7.76000E-003	7.76000E-003	0.00000E+000	1.21173E+001	1.21173E+001	1.24000E-003	0.00000E+000	1.21433E+001
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	5.56500E-002	4.81830E-001	3.29530E-001	4.00000E-004	3.97500E-002	3.65700E-002	0.00000E+000	3.73959E+001	3.73959E+001	1.14600E-002	0.00000E+000	3.76366E+001
Generator Sets	5.01300E-002	3.92570E-001	3.31830E-001	5.80000E-004	2.64200E-002	2.64200E-002	0.00000E+000	4.97029E+001	4.97029E+001	4.02000E-003	0.00000E+000	4.97874E+001
Graders	9.57000E-003	9.69000E-002	4.86200E-002	6.00000E-005	5.44000E-003	5.01000E-003	0.00000E+000	5.81314E+000	5.81314E+000	1.78000E-003	0.00000E+000	5.85055E+000
Off-Highway Trucks	1.12400E-002	1.17680E-001	4.72200E-002	1.30000E-004	5.08000E-003	4.68000E-003	0.00000E+000	1.20936E+001	1.20936E+001	3.71000E-003	0.00000E+000	1.21714E+001
Pavers	7.24000E-003	8.10200E-002	5.70000E-002	9.00000E-005	3.99000E-003	3.67000E-003	0.00000E+000	8.42456E+000	8.42456E+000	2.58000E-003	0.00000E+000	8.47877E+000
Paving Equipment	5.68000E-003	6.46400E-002	5.09900E-002	8.00000E-005	3.23000E-003	2.97000E-003	0.00000E+000	7.48251E+000	7.48251E+000	2.29000E-003	0.00000E+000	7.53066E+000
Rollers	6.25000E-003	5.83200E-002	4.00200E-002	5.00000E-005	4.23000E-003	3.89000E-003	0.00000E+000	4.88981E+000	4.88981E+000	1.50000E-003	0.00000E+000	4.92127E+000
Rubber Tired Dozers	8.37400E-002	9.28100E-001	6.99320E-001	6.30000E-004	4.31100E-002	3.96600E-002	0.00000E+000	5.80772E+001	5.80772E+001	1.77900E-002	0.00000E+000	5.84509E+001
Scrapers	1.30560E-001	1.63999E+000	1.02493E+000	1.50000E-003	6.58100E-002	6.05500E-002	0.00000E+000	1.38887E+002	1.38887E+002	4.25500E-002	0.00000E+000	1.39781E+002
Tractors/Loaders/Backhoes	1.15410E-001	1.10892E+000	8.72110E-001	1.13000E-003	8.34000E-002	7.67300E-002	0.00000E+000	1.05186E+002	1.05186E+002	3.22300E-002	0.00000E+000	1.05863E+002

Welders	4.40500E-002	1.53080E-001	1.68200E-001	2.20000E-004	1.12400E-002	1.12400E-002	0.00000E+000	1.65517E+001	1.65517E+001	3.58000E-003	0.00000E+000	1.66269E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	5.10000E-003	3.41000E-002	3.11000E-002	5.00000E-005	2.59000E-003	2.59000E-003	0.00000E+000	4.27670E+000	4.27670E+000	4.10000E-004	0.00000E+000	4.28539E+000
Cranes	2.80700E-002	3.33200E-001	1.19380E-001	2.40000E-004	1.48500E-002	1.36700E-002	0.00000E+000	2.26811E+001	2.26811E+001	6.95000E-003	0.00000E+000	2.28270E+001
Crawler Tractors	1.90000E-003	3.67800E-002	4.12200E-002	8.00000E-005	1.40000E-003	1.40000E-003	0.00000E+000	7.18855E+000	7.18855E+000	2.20000E-003	0.00000E+000	7.23480E+000
Crushing/Proc. Equipment	1.52100E-002	9.97500E-002	8.91000E-002	1.40000E-004	7.76000E-003	7.76000E-003	0.00000E+000	1.21173E+001	1.21173E+001	1.24000E-003	0.00000E+000	1.21433E+001
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	5.56500E-002	4.81830E-001	3.29530E-001	4.00000E-004	3.97500E-002	3.65700E-002	0.00000E+000	3.73959E+001	3.73959E+001	1.14600E-002	0.00000E+000	3.76365E+001
Generator Sets	5.01300E-002	3.92570E-001	3.31830E-001	5.80000E-004	2.64200E-002	2.64200E-002	0.00000E+000	4.97029E+001	4.97029E+001	4.02000E-003	0.00000E+000	4.97874E+001
Graders	9.57000E-003	9.69000E-002	4.86200E-002	6.00000E-005	5.44000E-003	5.01000E-003	0.00000E+000	5.81314E+000	5.81314E+000	1.78000E-003	0.00000E+000	5.85054E+000
Off-Highway Trucks	1.12400E-002	1.17680E-001	4.72200E-002	1.30000E-004	5.08000E-003	4.68000E-003	0.00000E+000	1.20935E+001	1.20935E+001	3.71000E-003	0.00000E+000	1.21714E+001
Pavers	7.24000E-003	8.10200E-002	5.70000E-002	9.00000E-005	3.99000E-003	3.67000E-003	0.00000E+000	8.42455E+000	8.42455E+000	2.58000E-003	0.00000E+000	8.47876E+000
Paving Equipment	5.68000E-003	6.46400E-002	5.09900E-002	8.00000E-005	3.23000E-003	2.97000E-003	0.00000E+000	7.48251E+000	7.48251E+000	2.29000E-003	0.00000E+000	7.53065E+000
Rollers	6.25000E-003	5.83200E-002	4.00200E-002	5.00000E-005	4.23000E-003	3.89000E-003	0.00000E+000	4.88981E+000	4.88981E+000	1.50000E-003	0.00000E+000	4.92127E+000
Rubber Tired Dozers	6.66000E-002	7.69480E-001	6.06750E-001	6.30000E-004	3.51200E-002	3.25300E-002	0.00000E+000	5.80771E+001	5.80771E+001	1.77900E-002	0.00000E+000	5.84508E+001
Scrapers	3.68600E-002	7.12570E-001	7.98570E-001	1.50000E-003	2.70300E-002	2.70300E-002	0.00000E+000	1.38887E+002	1.38887E+002	4.25500E-002	0.00000E+000	1.39781E+002
Tractors/Loaders/Backhoes	9.61100E-002	1.00397E+000	8.67960E-001	1.13000E-003	7.47900E-002	6.95900E-002	0.00000E+000	1.05186E+002	1.05186E+002	3.22300E-002	0.00000E+000	1.05863E+002
Welders	4.40500E-002	1.53080E-001	1.68200E-001	2.20000E-004	1.12400E-002	1.12400E-002	0.00000E+000	1.65516E+001	1.65516E+001	3.58000E-003	0.00000E+000	1.66269E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.33825E-006	2.33825E-006	0.00000E+000	0.00000E+000	2.33350E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.32269E-006	1.32269E-006	0.00000E+000	0.00000E+000	1.31423E-006
Crawler Tractors	7.20999E-001	5.97196E-001	-4.92937E-001	0.00000E+000	5.98854E-001	5.63863E-001	0.00000E+000	1.39110E-006	1.39110E-006	0.00000E+000	0.00000E+000	1.38221E-006

Crushing/Proc. Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.65053E-006	1.65053E-006	0.00000E+000	0.00000E+000	1.64700E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.06964E-006	1.06964E-006	0.00000E+000	0.00000E+000	1.06280E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20717E-006	1.20717E-006	0.00000E+000	0.00000E+000	1.20512E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.70924E-006
Off-Highway Trucks	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.65377E-006	1.65377E-006	0.00000E+000	0.00000E+000	8.21601E-007
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18701E-006	1.18701E-006	0.00000E+000	0.00000E+000	1.17942E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.32790E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	2.04681E-001	1.70908E-001	1.32371E-001	0.00000E+000	1.85340E-001	1.79778E-001	0.00000E+000	1.20529E-006	1.20529E-006	0.00000E+000	0.00000E+000	1.19759E-006
Scrapers	7.17678E-001	5.65503E-001	2.20854E-001	0.00000E+000	5.89272E-001	5.53592E-001	0.00000E+000	1.22401E-006	1.22401E-006	0.00000E+000	0.00000E+000	1.21619E-006
Tractors/Loaders/Backhoes	1.67230E-001	9.46416E-002	4.75857E-003	0.00000E+000	1.03237E-001	9.30536E-002	0.00000E+000	1.14083E-006	1.14083E-006	0.00000E+000	0.00000E+000	1.22800E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20834E-006	1.20834E-006	0.00000E+000	0.00000E+000	1.20287E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	61.00	PM2.5 Reduction	61.00	Frequency (per day)	3.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5

Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.05	0.01	0.05	0.01	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	2.07	0.56	2.07	0.56	0.00	0.00
Grading	Fugitive Dust	0.10	0.04	0.04	0.01	0.61	0.61
Grading	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.41	0.20	0.16	0.08	0.61	0.61
Site Preparation	Roads	0.01	0.00	0.01	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	24.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	4.25	4.26	4.20	4.25
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	29.56	29.58	29.58	28.89	29.57	29.57	0.00	29.58	29.58	29.62	29.67	29.58
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	15.53	15.65	19.97	19.71	15.96
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.11	0.33		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				

No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
Yes	No Hearth	
Yes	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	0.00
No	Use Low VOC Paint (Residential Exterior)	0.00
Yes	Use Low VOC Paint (Non-residential Interior)	50.00
Yes	Use Low VOC Paint (Non-residential Exterior)	100.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	

No	Install High Efficiency Lighting	0.00	
No	On-site Renewable	0.00	0.00

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	20.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	100.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	64.00

ATTACHMENT 3 – APPENDIX B: AERSCREEN OUTPUTS

AERSCREEN 15181 / AERMOD 15181 06/02/16
21:00:24

TITLE: Sycamore_3

********** VOLUME PARAMETERS **********

SOURCE EMISSION RATE: 1.0000 g/s 7.937 lb/hr
VOLUME HEIGHT: 3.00 meters 9.84 feet
INITIAL LATERAL DIMENSION: 44.20 meters 145.01 feet
INITIAL VERTICAL DIMENSION: 1.40 meters 4.59 feet
RURAL OR URBAN: URBAN
POPULATION: 320000

INITIAL PROBE DISTANCE = 2000. meters 6562. feet

********** BUILDING DOWNWASH PARAMETERS **********

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

********** PROBE ANALYSIS **********
25 meter receptor spacing: 96. meters - 2000. meters

SECTOR	Zo ROUGHNESS LENGTH	1-HR CONC (ug/m3)	DIST (m)	TEMPORAL PERIOD
1*	0.314	382.2	96.0	ANN

* = worst case flow sector

********** MAKEMET METEOROLOGY PARAMETERS **********

MIN/MAX TEMPERATURE: 278.0 / 309.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: USER ENTERED

ALBEDO: 0.19
BOWEN RATIO: 1.00
ROUGHNESS LENGTH: 0.314 (meters)

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR
-- -- -- --- --
10 04 04 4 01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-10.31	0.116	-9.000	0.020	-999.	90.	14.2	0.314	1.00	0.19	2.00

HT	REF TA	HT
10.0	309.0	2.0

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR MO DY JDY HR
-- -- -- --- --
10 04 04 4 01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-10.31	0.116	-9.000	0.020	-999.	90.	14.2	0.314	1.00	0.19	2.00

HT	REF TA	HT
10.0	309.0	2.0

********** AERSCREEN AUTOMATED DISTANCES **********
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
96.03	382.2	1050.00	21.15
100.00	366.5	1075.00	20.49
125.00	290.0	1100.00	19.86
150.00	238.3	1125.00	19.26
175.00	201.0	1150.00	18.69
200.00	172.8	1175.00	18.15

225.00	150.9	1200.00	17.64
250.00	133.4	1225.00	17.15
275.00	119.1	1250.00	16.68
300.00	107.2	1275.00	16.24
325.00	97.27	1300.00	15.81
350.00	88.78	1325.00	15.40
375.00	81.49	1350.00	15.01
400.00	75.16	1375.00	14.64
425.00	69.62	1400.00	14.28
450.00	64.74	1425.00	13.94
475.00	60.42	1450.00	13.61
500.00	56.57	1475.00	13.29
525.00	53.12	1500.00	12.99
550.00	50.01	1525.00	12.70
575.00	47.19	1550.00	12.42
600.00	44.64	1575.00	12.14
625.00	42.31	1600.00	11.88
650.00	40.19	1625.00	11.63
675.00	38.23	1650.00	11.39
700.00	36.44	1675.00	11.15
725.00	34.78	1700.00	10.93
750.00	33.25	1725.00	10.71
775.00	31.83	1750.00	10.50
800.00	30.51	1775.00	10.29
825.00	29.28	1800.00	10.10
850.00	28.13	1825.00	9.906
875.00	27.06	1850.00	9.721
900.00	26.05	1875.00	9.541
925.00	25.11	1900.00	9.367
950.00	24.22	1925.00	9.199
975.00	23.38	1950.00	9.035
1000.00	22.60	1975.00	8.877
1025.00	21.85	2000.00	8.723

********** AERSCREEN MAXIMUM IMPACT SUMMARY **********

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	382.2	382.2	343.9	229.3	38.22

DISTANCE FROM SOURCE 96.03 meters

IMPACT AT THE AMBIENT BOUNDARY	382.2	382.2	343.9	229.3	38.22

DISTANCE FROM SOURCE 96.03 meters

Start date and time 06/02/16 20:57:40
AERSCREEN 15181

Sycamore_3

Sycamore_3

---------- DATA ENTRY VALIDATION ----------

** VOLUMEDATA **	METRIC	ENGLISH
Emission Rate:	1.0000 g/s	7.937 lb/hr
Volume Height:	3.00 meters	9.84 feet
Lateral Dimension:	44.20 meters	145.01 feet
Vertical Dimension:	1.40 meters	4.59 feet
Model Mode:	URBAN	
Population:	320000	
Dist to Ambient Air:	96.0 meters	315. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations
Source Base Elevation: 470.0 meters 1542.0 feet

Probe distance: 2000. meters 6562. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 278.0 / 309.0 K 40.7 / 96.5 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Albedo: 0.19

Bowen Ratio: 1.00
Roughness Length: 0.314 (meters)

DEBUG OPTION OFF

AERSCREEN output file:
Sycamore_3.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run
****

SURFACE CHARACTERISTICS & MAKEMET
Obtaining surface characteristics...

Using user defined surface characteristics
Annual Albedo Bo zo
0.19 1.00 0.314

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

PROBE started 06/02/16 21:00:23

Running probe for Annual sector 1

AERMOD Finishes Successfully for PROBE stage 1 Annual sector 1

******** WARNING MESSAGES ********
*** NONE ***

PROBE ended 06/02/16 21:00:24

REFINE started 06/02/16 21:00:24

AERMOD Finishes Successfully for REFINE stage 3 Annual sector 1

******** WARNING MESSAGES ********
*** NONE ***

REFINE ended 06/02/16 21:00:24

****
AERSCREEN Finished Successfully
With no errors or warnings
Check log file for details
****

Ending date and time 06/02/16 21:00:25

ATTACHMENT 4 – APPENDIX C: HARP2 RAST OUTPUTS

HARP2 - HRACalc (dated 16088) 6/21/2016 4:43:30 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home

3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

****
HOMEGROWN CROP PATHWAY SETTINGS

Household type: HouseholdsthatGarden
Fraction leafy: 0.137
Fraction exposed: 0.137
Fraction protected: 0.137
Fraction root: 0.137

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Calculating cancer risk
Cancer risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_const_1yr_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_const_1yr_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_const_1yr_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 16088) 6/21/2016 4:54:30 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 1

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 1
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES

GLC adjustment factor: 4.2
Exposure frequency: 250

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Calculating cancer risk
Cancer risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_const_1yr_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_const_1yr_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_const_1yr_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 16088) 6/21/2016 4:57:12 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home

3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

****
HOMEGROWN CROP PATHWAY SETTINGS

Household type: HouseholdsthatGarden
Fraction leafy: 0.137
Fraction exposed: 0.137
Fraction protected: 0.137
Fraction root: 0.137

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating cancer risk
Cancer risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_ops_30yr_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_ops_30yr_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_res_ops_30yr_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 16088) 6/21/2016 4:59:23 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Adjustment Factors
NOTE: The worker adjustment factors below are only used for cancer assessments. However, the GLC adjustment factor is also applied to 8-hr noncancer chronic assessments.
Worker adjustments factors enabled: YES

GLC adjustment factor: 4.2
Exposure frequency: 250

Fraction at time at home
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

****
TIER 2 SETTINGS
Tier2 not used.

****

Calculating cancer risk
Cancer risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_ops_25yr_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_ops_25yr_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\BradfordBoyes(BBoyes\Desktop\RAST Output\Syc_work_ops_25yr_NCAcuteRisk.csv
HRA ran successfully

ATTACHMENT 5 – APPENDIX D: CALCULATION TABLES

CEQA Land Use Project - Air Quality / Greenhouse Gas Report

Project Name:	Air Quality & GHG Impact Analysis: Sycamore Canyon Warehouse
Client Name:	Albert A. Webb Associates
Mailing Address:	3788 McCray Street, Riverside, CA 92506
Contact(s):	Cheryl DeGano
Telephone(s):	(951) 320-6052
E-mail(s):	cheryl.degano@webbassociates.com
Facility Owner/Operator:	
Mailing Address:	
Facility Name:	Sycamore Canyon Warehouse
Source Description:	New Commercial Development
Facility Permit ID:	n/a
Facility Address:	6275 Lance Drive, Riverside, CA
Latitude, North:	33°56'18.95"N
Longitude, West:	117°18'26.98"W
Elevation, feet ASL:	1,550
Author:	Brad Boyes
Peer Reviewer:	James Adams
Date:	June 2, 2016

Table 1-1: SCAQMD CEQA Thresholds of Significance

Pollutant	Project Construction	Project Operation
	lbs/day	lbs/day
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
24-hour $PM_{2.5}$ Increment	10.4 µg/m^3	2.5 µg/m^3
24-hour PM_{10} Increment	10.4 µg/m^3	2.5 µg/m^3
Annual PM_{10} Increment	1.0 µg/m^3 annual average	
1-hour NO_2 Increment	0.18 ppm (state)	
Annual NO_2 Increment	0.03 ppm (state) & 0.0534 ppm (federal)	
1-hour SO_2 Increment	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
24-hour SO_2 Increment	0.04 ppm (state)	
24-hour Sulfate Increment	25 ug/m^3 (state)	
1-hour CO Increment	20 ppm (state) & 35 ppm (federal)	
8-hour CO Increment	9.0 ppm (state/federal)	
Toxic Air Contaminants (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 million	
	Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million)	
	Chronic & Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Greenhouse Gases	10,000 MT/yr CO_2e for industrial facilities	
	3,000 MT/yr CO_2e for land use projects (draft proposal)	

Source: SCAQMD 2015

Table 2-1: Land Use Data for CalEEMod Input - Sycamore Canyon Warehouse (Riverside, CA)

Project Element	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage (footprint)	Square Feet	Pop.
Buildings 1 & 2 - Warehouse	Industrial	Unrefrigerated Warehouse - No Rail	1433.599	1000 sf	32.911	1,433,599	0
Parking Lots - provided parking spaces (autos)	Parking	Parking Lot	635.000	spaces (400 sf)	5.831	254,000	0
Driveways & extra parking spaces (trucks)	Parking	Other Asphalt Surfaces	667.400	1000 sf	15.321	667,400	0
Landscaping, undeveloped, or no change	Parking	Other Non-Asphalt Surfaces	1144.757	1000 sf	26.280	1,144,757	
Project Area Totals					80.343	**3,499,756**	**0**

Source: Applicant via Webb 2016

Notes:

Climate Zone 10

Estimated paving acreage from the Applicant (includes provided parking spaces category):

660,800 SF Bldg. 1 -15.17 ac

260,600 SF Bldg. 2 - 5.98 ac

921,400 SF Total - 21.15 ac

Estimated exterior or interior walls painted surface areas (2:1 aspect ratios, 40' height):

171,000 SF Bldg. 1

110,000 SF Bldg. 2

281,000 SF Total (interior or exterior)

Table 2-2: CalEEMod Construction Schedule - Applicant's Project Plan

Phase Name	Planned Weeks	Calendar Days	Estimated Start Date	Estimated End Date	Working Days per Week	Total Working Days
Site Preparation	8	56	1/3/2017	2/28/2017	6	48
Grading	4	28	3/1/2017	3/29/2017	6	24
Building Construction	35	245	3/30/2017	11/30/2017	6	210
Paving	4	28	12/1/2017	12/29/2017	6	24
Architectural Coating	5	35	12/30/2017	2/3/2018	6	30
Total Project	**56**	**392**	**1/3/2017**	**2/3/2018**	**6**	**336**

Source: Applicant via Webb 2016

Note:

Actual phases may overlap; however, no overlapping phases allowed in CalEEMod

Table 2-3: CalEEMod Construction Equipment - Applicant's List

Phase Name	Offroad Equipment Type	Offroad Equipment Quantity
Site Preparation	Crushing/Processing Equipment	1
	Rubber Tired Dozer	3
	Tractor/Loader/Backhoe	4
Grading	Crawler Tractors	1
	Off-Highway Trucks	2
	Rubber Tired Dozers	1
	Scrapers	10
	Tractors/Loaders/Backhoes	2
Building Construction	Cranes	1
	Forklifts	3
	Generator Sets	1
	Tractors/Loaders/Backhoes	3
	Welders	1
Paving	Graders	1
	Pavers	2
	Paving Equipment	2
	Rollers	2
Architectural Coating	Air Compressors	1

Source: Applicant via Webb 2016

Table 3-1: Mitigated Criteria Emissions Summary

Criteria Pollutants	Construction		Operation	
	lbs/day	tons	lbs/day	tons/yr
ROG (VOC)	66.5	2.38	26.4	4.77
NO_X	86.2	9.95	339.4	62.74
CO	133.5	16.70	310.0	57.77
SO_X	0.3	0.04	1.48	0.27
Fugitive Dust PM_{10}	20.0	2.33	76.6	13.72
Exhaust PM_{10}	3.6	0.36	6.7	1.21
Total PM_{10}	22.4	2.69	83.3	14.94
Fugitive Dust $PM_{2.5}$	5.4	0.67	20.8	3.73
Exhaust $PM_{2.5}$	3.5	0.34	6.1	1.12
Total $PM_{2.5}$	7.6	1.01	27.0	4.85

Source: CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

Operation daily NO_X maxima is principally offsite mobile sources (truck traffic)

Operation mitigation includes electric forklifts in lieu of ICE forklifts

tons are totals for construction; tons/yr are annuals for operation

Table 3-2: Mitigated SCAQMD Air Quality Significance Thresholds Evaluation

Pollutant	Project Construction			Project Operation		
	Maximum lbs/day	Threshold lbs/day	Significance	Maximum lbs/day	Threshold lbs/day	Significance
NO_X	86	100	LTSM	339	55	PS
VOC	66	75	LTS	26	55	LTS
PM_{10}	4	150	LTS	83	150	LTS
$PM_{2.5}$	3	55	LTS	27	55	LTS
SO_X	0.3	150	LTS	1.5	150	LTS
CO	134	550	LTS	310	550	LTS
Odor	Project creates an odor nuisance pursuant to Rule 402					
GHG	10,000 MT/yr CO_2e for industrial facilities					
	3,000 MT/yr CO_2e for land use projects (draft proposal)					

Sources: SCAQMD 2015, CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

Operation daily NO_X maxima is principally offsite mobile sources (truck traffic)

Operation mitigation includes electric forklifts in lieu of ICE forklifts

Construction PM_{10} and $PM_{2.5}$ for engine exhaust only

PS - Potentially Significant

LTSM - Less Than Significant with Mitigation Incorporated

LTS - Less Than Significant

Table 3-3: Mitigated SCAQMD Localized Significant Thresholds (LST) Evaluation

Pollutant	Project Construction			Project Operation		
	Maximum lbs/day	Threshold lbs/day	Result	Maximum lbs/day	Threshold lbs/day	Result
NO_X	86	270	Pass	12	270	Pass
CO	134	1,577	Pass	11	1,577	Pass
PM_{10}	4	13	Pass	3	4	Pass
$PM_{2.5}$	3	8	Pass	1	2	Pass

Sources: SCAQMD 2008, CalEEMod v2013.2.2

Notes:

Source-receptor area zone 23 - Metropolitan Riverside County

Construction LST: grading 5 acres/day, 25 meters to nearest receptors in NW corner of parcel

Onsite distance/maneuvering/idling = 1.33 miles/trip/day or 3,200 miles/day = 3.4% of annual VMT

Operation LST: 5 acres of 15 acres, 3.4% of max daily emissions, 25 meters to nearest receptors in NW corner of parcel

Table 3-4: Mitigated Daily Maximum and Average Construction Emissions

Phase Name	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Site Preparation	4.0	41.0	34.2	0.0	2.3	2.1
Grading	5.5	86.2	86.9	0.2	3.6	3.5
Building Construction	11.4	71.0	133.5	0.3	2.3	2.2
Paving	4.8	25.2	17.2	0.0	1.4	1.3
Architectural Coating	66.5	3.7	15.0	0.0	0.2	0.2
Daily Maxima	**66**	**86**	**134**	**0.3**	**3.6**	**3.5**
Daily Average	**14**	**59**	**99**	**0.2**	**2.1**	**2.0**

Source: CalEEMod v2013.2.2

Table 3-5: Mitigated Greenhouse Gases Emissions Summary

Greenhouse Gases	Construction		Operation		Const. 30-yr	30-Year
	lbs/day	MT	lbs/day	MT/yr	MT/yr	MT/yr
Biogenic CO_2	0	0	0	104	0	104
Non-Biogenic CO_2	28,259	3,053	134,925	25,170	102	25,272
Total CO_2	28,259	3,053	134,925	25,274	102	25,376
CH_4	4.87	0.21	1.96	6.75	0.01	7
N_2O	0.00	0.00	0.01	0.03	0.00	0
CO_2e	28,361	3,057	134,970	25,425	102	25,527

Source: CalEEMod v2013.2.2

Notes:

lbs/day are winter maxima for planned land use

30-year includes amortized construction emissions

Operation includes off-site mobile sources

MT are totals for construction; MT/yr are annuals for operation

Table 3-6: Mitigated Operational GHG Emissions

Category	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr
Area	0.0	0.1	0.1	0.0	0.0	0.1
Energy	0.0	2,736.6	2,736.6	0.1	0.0	2,742
Mobile	0.0	22,229.3	22,229.3	0.3	0.0	22,236
Waste	98.5	0.0	98.5	5.8	0.0	221
Water	5.3	204.4	209.7	0.6	0.0	226
Construction 30-yr	0.0	101.8	101.8	0.0	0.0	102
All Totals	**104**	**25,272**	**25,376**	**7**	**0**	**25,527**
SCAQMD Draft Commercial/Residential Threshold, MT/yr						**3,000**
Significance						**PS**

Sources: CalEEMod v2013.2.2, SCAQMD 2015

Table A1: Unmitigated Construction GHG Emissions

Year	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	MT	MT	MT	MT	MT	MT
2017	0.0	3017.9	3017.9	0.2	0.0	3022.2
2018	0.0	35.2	35.2	0.0	0.0	35.3
2-Year Totals	**0**	**3,053**	**3,053**	**0**	**0**	**3,057**

Source: CalEEMod v2013.2.2

Table A2: Mitigated Construction GHG Emissions

Year	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	MT	MT	MT	MT	MT	MT
2017	0.0	3017.9	3017.9	0.2	0.0	3022.2
2018	0.0	35.2	35.2	0.0	0.0	35.3
2-Year Totals	**0**	**3,053**	**3,053**	**0**	**0**	**3,057**

Source: CalEEMod v2013.2.2

Table A3: Unmitigated Operational GHG Emissions

Category	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr
Area	0.0	0.1	0.1	0.0	0.0	0.1
Energy	0.0	2,901.4	2,901.4	0.1	0.0	2,908
Mobile	0.0	22,229.3	22,229.3	0.3	0.0	22,236
Waste	273.5	0.0	273.5	16.2	0.0	613
Water	6.7	241.9	248.6	0.7	0.0	268
Construction 30-yr	0.0	101.8	101.8	0.0	0.0	102
All Totals	**280**	**25,475**	**25,755**	**17**	**0**	**26,127**
SCAQMD Draft Commercial/Residential Threshold, MT/yr						**3,000**
Significance						**PS**

Sources: CalEEMod v2013.2.2, SCAQMD 2015

Table A4: On-Site Trip Counts

Parameter	Value	Units
Warehouse Area	1433.599	ksf
Trip Rate	1.68	trips/day/ksf
Avg. Daily Trip Rate	2,408.45	trips/day
Maximum On-site Travel Distance	7,022	feet
	1.33	miles
	3,200	miles/day
	1,168,000	miles/yr
Annual VMT	34,477,693	miles/yr
On-site Fraction	3.4%	percent

Source: Applicant via Webb 2016

CalEEMod Estimated Daily Construction Emissions for Proposed Project - Daily Maxima

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Unmitigated Construction																
2017	66.45	170.40	133.54	0.32	20.04	7.10	22.44	8.57	6.53	11.01	0.00	28,258.94	28,258.94	4.87	0.00	28,361.13
2018	66.32	3.39	13.67	0.04	3.29	0.19	3.47	0.87	0.19	1.06	0.00	3,068.21	3,068.21	0.15	0.00	3,071.34
Peaks	**66.45**	**170.40**	**133.54**	**0.32**	**20.04**	**7.10**	**22.44**	**8.57**	**6.53**	**11.01**	**0.00**	**28,259**	**28,259**	**4.87**	**0.00**	**28,361**
Mitigated Construction																
2017	66.45	86.20	133.52	0.32	20.04	3.56	22.38	5.39	3.47	7.58	0.00	28,258.94	28,258.94	4.87	0.00	28,361.13
2018	66.32	3.39	13.67	0.04	3.29	0.19	3.47	0.87	0.19	1.06	0.00	3,068.21	3,068.21	0.15	0.00	3,071.34
Peaks	**66.45**	**86.20**	**133.52**	**0.32**	**20.04**	**3.56**	**22.38**	**5.39**	**3.47**	**7.58**	**0.00**	**28,259**	**28,259**	**4.87**	**0.00**	**28,361**
Mitigation Reductions																
Peaks		**84.20**	**0.02**			**3.54**	**0.06**	**3.18**	**3.06**	**3.43**						
Percent		**49%**	**0%**			**50%**	**0%**	**37%**	**47%**	**31%**						

Source: CalEEMod v2013.2.2

CalEEMod Estimated Daily Operational Emissions for Proposed Project - Daily Maxima

Category	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Unmitigated Operation																
Area	3.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.90
Energy	0.09	0.82	0.69	0.00	0.00	0.06	0.06	0.00	0.06	0.06	0.00	988.85	988.85	0.02	0.02	994.87
Mobile	24.05	338.81	309.11	1.48	76.60	6.63	83.23	20.82	6.10	26.91	0.00	134,227.77	134,227.77	1.94	0.00	134,268.52
Totals	**27.14**	**339.64**	**310.21**	**1.48**	**76.60**	**6.69**	**83.29**	**20.82**	**6.16**	**26.98**	**0.00**	**135,217**	**135,217**	**1.96**	**0.02**	**135,264**
Mitigated Operation																
Area	2.28	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.90
Energy	0.06	0.58	0.49	0.00	0.00	0.04	0.04	0.00	0.04	0.04	0.00	696.35	696.35	0.01	0.01	700.59
Mobile	24.0539	338.81	309.11	1.48	76.60	6.63	83.23	20.82	6.10	26.91	0.00	134,227.77	134,227.77	1.94	0.00	134,268.52
Totals	**26.40**	**339.40**	**310.00**	**1.48**	**76.60**	**6.67**	**83.27**	**20.82**	**6.14**	**26.96**	**0.00**	**134,925**	**134,925**	**1.96**	**0.01**	**134,970**
Mitigation Reductions																
Totals	**0.74**	**0.24**	**0.21**			**0.02**	**0.02**		**0.02**	**0.02**		**292.49**	**292.49**		**0.01**	**294.28**
Percent	**3%**	**0%**	**0%**			**0%**	**0%**		**0%**	**0%**		**0%**	**0%**		**50%**	**0%**

Source: CalEEMod v2013.2.2

CalEEMod Estimated Daily Construction Emissions for Proposed Project - Daily Maxima by Phase (mitigated)

Phase	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Prep On	3.90	40.87	33.36	0.04	6.59	2.27	8.86	3.318	2.12	5.44	0.00	3,909	3,909	1.08	0.00	3,932
Prep Off	0.07	0.09	0.88	0.00	0.22	0.00	0.22	0.06	0.00	0.06	0.00	195	195	0.01	0.00	195
Prep Tot	**3.96**	**40.96**	**34.24**	**0.04**	**6.81**	**2.27**	**9.08**	**3.38**	**2.13**	**5.50**	**0.00**	**4,104**	**4,104**	**1.09**	**0.00**	**4,127**
Grade On	5.40	86.03	85.13	0.15	3.35	3.55	6.90	1.2301	3.47	4.70	0.00	15,825	15,825	4.85	0.00	15,926
Grade Off	0.13	0.17	1.75	0.00	0.45	0.00	0.45	0.12	0.00	0.12	0.00	389	389	0.02	0.00	390
Grade Tot	**5.53**	**86.20**	**86.88**	**0.16**	**3.79**	**3.56**	**7.35**	**1.35**	**3.47**	**4.82**	**0.00**	**16,214**	**16,214**	**4.87**	**0.00**	**16,316**
Const On	2.36	19.88	15.02	0.02	0.00	1.39	1.39	0.00	1.32	1.32	0.00	2,126	2,126	0.52	0.00	2,137
Const Off	9.09	51.11	118.49	0.30	20.04	0.94	20.99	5.39	0.87	6.26	0.00	26,133	26,133	0.72	0.00	26,148
Const Tot	**11.45**	**70.99**	**133.52**	**0.32**	**20.04**	**2.34**	**22.38**	**5.39**	**2.19**	**7.58**	**0.00**	**28,259**	**28,259**	**1.24**	**0.00**	**28,285**
Pave On	4.70	25.07	16.39	0.02	0.00	1.41	1.41	0.00	1.29	1.29	0.00	2,444	2,444	0.75	0.00	2,460
Pave Off	0.06	0.08	0.79	0.00	0.20	0.00	0.20	0.05	0.00	0.05	0.00	175	175	0.01	0.00	175
Pave Tot	**4.76**	**25.15**	**17.17**	**0.03**	**0.20**	**1.41**	**1.61**	**0.05**	**1.30**	**1.35**	**0.00**	**2,620**	**2,620**	**0.76**	**0.00**	**2,636**
Paint On	65.49	2.44	2.09	0.00	0.00	0.19	0.19	0.00	0.19	0.19	0.00	314	314	0.03	0.00	315
Paint Off	0.96	1.27	12.86	0.04	3.29	0.02	3.31	0.87	0.02	0.89	0.00	2,863	2,863	0.13	0.00	2,865
Paint Tot	**66.45**	**3.71**	**14.95**	**0.04**	**3.29**	**0.21**	**3.50**	**0.87**	**0.21**	**1.08**	**0.00**	**3,177**	**3,177**	**0.16**	**0.00**	**3,180**
Maxima	**66.5**	**86.2**	**133.5**	**0.3**	**20.0**	**3.6**	**22.4**	**5.4**	**3.5**	**7.6**	**0.0**	**28,259**	**28,259**	**4.9**	**0.0**	**28,285**

Source: CalEEMod v2013.2.2

CalEEMod Estimated Daily Construction Emissions for Proposed Project - Daily Average (mitigated)

Phase	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Total tons	2.38	9.95	16.70	0.04	2.33	0.36	2.69	0.67	0.34	1.01	0.00	3,053	3,053	0.21	0.00	3,057
Total days	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336
Avg lbs/day	**14.2**	**59.2**	**99.4**	**0.2**	**13.9**	**2.1**	**16.0**	**4.0**	**2.0**	**6.0**	**0.0**	**18,174**	**18,174**	**1.3**	**0.0**	**18,199**

CalEEMod Estimated Annual Construction Emissions for Proposed Project - Annual Totals

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	MT	MT	MT	MT	MT	MT
Unmitigated Construction																
2017	1.69	11.15	16.84	0.04	2.60	0.42	3.02	0.81	0.39	1.19	0.00	3017.94	3017.94	0.20	0.00	3022.21
2018	0.83	0.04	0.18	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00	35.22	35.22	0.00	0.00	35.26
Totals	**2.51**	**11.19**	**17.01**	**0.04**	**2.64**	**0.42**	**3.06**	**0.82**	**0.39**	**1.21**	**0.00**	**3053**	**3053**	**0.21**	**0.00**	**3057**
Mitigated Construction																
2017	1.55	9.90	16.53	0.04	2.29	0.36	2.65	0.66	0.34	1.00	0.00	3017.94	3017.94	0.20	0.00	3022.21
2018	0.83	0.04	0.18	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00	35.22	35.22	0.00	0.00	35.26
Totals	**2.38**	**9.95**	**16.70**	**0.04**	**2.33**	**0.36**	**2.69**	**0.67**	**0.34**	**1.01**	**0.00**	**3053**	**3053**	**0.21**	**0.00**	**3057**
Mitigation Reductions																
Totals	**0.13**	**1.24**	**0.31**		**0.31**	**0.06**	**0.37**	**0.15**	**0.05**	**0.20**						
Percent	**5%**	**11%**	**2%**		**12%**	**14%**	**12%**	**18%**	**13%**	**17%**						

Source: CalEEMod v2013.2.2

CalEEMod Estimated Annual Operational Emissions for Proposed Project - Annual Averages

Category	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr	MT/yr
Unmitigated Operation																
Area	0.54	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.10
Energy	0.02	0.15	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	2,901.45	2,901.45	0.06	0.02	2,907.54
Mobile	4.34	62.64	57.63	0.27	13.72	1.20	14.93	3.73	1.11	4.84	0.00	22,229.31	22,229.31	0.32	0.00	22,236.02
Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	273.55	0.00	273.55	16.17	0.00	613.04
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	241.92	248.60	0.69	0.02	268.49
Totals	**4.91**	**62.79**	**57.81**	**0.27**	**13.72**	**1.22**	**14.94**	**3.73**	**1.12**	**4.85**	**280.23**	**25,373**	**25,653**	**17.24**	**0.03**	**26,025**
Mitigated Operation																
Area	0.41	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.10
Energy	0.01	0.11	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	2,736.65	2,736.65	0.06	0.01	2,742.23
Mobile	4.34	62.64	57.63	0.27	13.72	1.20	14.93	3.73	1.11	4.84	0.00	22,229.31	22,229.31	0.32	0.00	22,236.02
Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.48	0.00	98.48	5.82	0.00	220.69
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	204.36	209.71	0.55	0.01	225.63
Totals	**4.77**	**62.74**	**57.77**	**0.27**	**13.72**	**1.21**	**14.94**	**3.73**	**1.12**	**4.85**	**103.82**	**25,170**	**25,274**	**6.75**	**0.03**	**25,425**
Mitigation Reductions																
Totals	**0.14**	**0.05**	**0.04**			**0.01**					**176.41**	**202.36**	**378.77**	**10.49**		**600.50**
Percent	**2.9%**	**0.1%**	**0.1%**			**0.8%**					**63.0%**	**0.8%**	**1.5%**	**60.8%**		**2.3%**

Source: CalEEMod v2013.2.2

Screening Health Risk Assessment (SHRA) for CalEEMod Output

Project Name:	Air Quality & GHG Impact Analysis: Sycamore Canyon Warehouse
Client Name:	Albert A. Webb Associates
Mailing Address:	3788 McCray Street, Riverside, CA 92506
Contact(s):	Cheryl DeGano
Telephone(s):	(951) 320-6052
E-mail(s):	cheryl.degano@webbassociates.com
Facility Owner/Operator:	
Mailing Address:	
Facility Name:	Sycamore Canyon Warehouse
Source Description:	New Commercial Development
Facility Permit ID:	n/a
Facility Address:	6275 Lance Drive, Riverside, CA
Latitude, North:	33°56'18.95"N
Longitude, West:	117°18'26.98"W
Elevation, feet ASL:	1,550
Author:	Brad Boyes
Peer Reviewer:	James Adams
Date:	June 2, 2016

Table 4-1: Screening Health Risk Assessment - Construction Maxima

Time and Age Weighted Toxic Air Contaminants Risks	AERSCREEN/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
Residential MICR - Multipathway	8.3E-06	8.3	10	PASS
Residential HIC	9.3E-03	—	1	PASS
Residential HIA	0	—	1	PASS
Residential 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	2.4	—	10.4	PASS
Worker MICR - Multipathway	1.3E-06	1.3	10	PASS
Worker HIC	2.5E-02	—	1	PASS
Worker HIA	0	—	1	PASS
Worker 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	6.5	—	10.4	PASS

Sources: OEHHA 2015, EPA 1992, EPA 2015, EPA 2016, CARB 2016, SCAQMD 2015, SCAQMD 2016

Notes:

MICR - Maximum Individual Cancer Risk

HIC - Chronic Hazard Index

HIA - Acute Hazard Index

PASS - Less Than Significant

Tier 1 Screen:

OEHHA/SCAQMD methodologies

Exposure period = project life (30 years residential RMP; 25 years worker; warm climate)

Residential Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Worker Multipathway (MP): inhalation, soil ingestion, dermal

Deposition rate: 0.02 m/s (PM controlled)

Table 4-2: Screening Health Risk Assessment - Operation Maxima

Time and Age Weighted Toxic Air Contaminants Risks	AERSCREEN/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
Residential MICR - Multipathway	5.3E-06	5.3	10	PASS
Residential HIC	1.4E-03	—	1	PASS
Residential HIA	0	—	1	PASS
Residential 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	0.4	—	2.5	PASS
Worker MICR - Multipathway	4.9E-06	4.9	10	PASS
Worker HIC	3.8E-03	—	1	PASS
Worker HIA	0	—	1	PASS
Worker 24-Hour $PM_{2.5}$ ($\mu g/m^3$)	1.2	—	2.5	PASS

Sources: OEHHA 2015, EPA 1992, EPA 2015, EPA 2016, CARB 2016, SCAQMD 2015, SCAQMD 2016

Notes:

MICR - Maximum Individual Cancer Risk

HIC - Chronic Hazard Index

HIA - Acute Hazard Index

PASS - Less Than Significant

Tier 1 Screen:

OEHHA/SCAQMD methodologies

Exposure period = project life (30 years residential RMP; 25 years worker; warm climate)

Residential Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Worker Multipathway (MP): inhalation, soil ingestion, dermal

Deposition rate: 0.02 m/s (PM controlled)

AERSCREEN Input Data Tool - Volume Source

AERSCREEN Input Data Parameters	Values	Units
Initial Information		
Title of modeling run	Sycamore_3	alpha
Input units, English or metric (E/M)	M	alpha
Source type (Point, Volume, Area, Circle, Flare, Shielded, Horizontal)	V	alpha
Source Information		
Emission rate	1	grams/sec
Site total land area (lot or parcel size)	*8.92*	acres
Volume side length	*190.0*	*meters*
Distance from center to edge	*95.0*	*meters*
Volume height, H	3	meters
Initial lateral dimension of the volume, y (from EPA Table 4-6)	44.20	meters
Initial vertical dimension of the volume, z (from EPA Table 4-6)	1.40	meters
Rural/Urban (R/U)	U	alpha
Population of urban area	320,000	integer
Minimum distance to ambient air		meters
Option for modeling NO_2 chemistry (1, 2, 3)	1	option #
1) No chemistry or pollutant is not NO_2 (worst case unitary)		
2) Use ozone limiting method		
3) Use plume volume molar ratio method		
In-stack NO_2 to NO_X ratio for options 2 or 3		ratio
Ozone concentration (ambient) for options 2 or 3		ppmv
Terrain Height Information		
Include terrain heights (Y/N)	N	alpha
Maximum distance to probe	2,000	meters
Include up to 10 discrete receptors (Y/N)	N	alpha
Filename of discrete receptors (*.txt)		.txt
Use flagpole receptors (Y/N)	N	alpha
Flagpole receptor height		meters
Source base elevation above mean sea level (land parcel)	470	meters
Meteorology Information for MAKEMET		
Minimum temperature	278	°K
Maximum temperature	309	°K
Minimum wind speed	0.5	meters/sec
Anemometer height	10	meters
Source of surface characteristics (1-user spec, 2-AERMET, 3-ext file)	1	option #
Surface Albedo	*0.19*	*ratio*
Bowen Ratio	*1*	*ratio*
Surface Roughness Length	*0.314*	*meters*
Dominant surface profile (land use: 1, 2, 3, 4, 5, 6, 7, 8)		option #
Dominant climate profile (1-average, 2-wet, 3-dry)		option #
Output File		
Use non-default name (*.out)	Sycamore_3	.out

Sources: EPA 1992, EPA 2015, SCAQMD 2016

Notes:

1) Water; 2) Deciduous Forest; 3) Coniferous Forest; 4) Swamp; 5) Cultivated Land; 6) Grassland; 7) Urban; 8) Desert Shrubland

User Specs:

http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/aermod-table-2

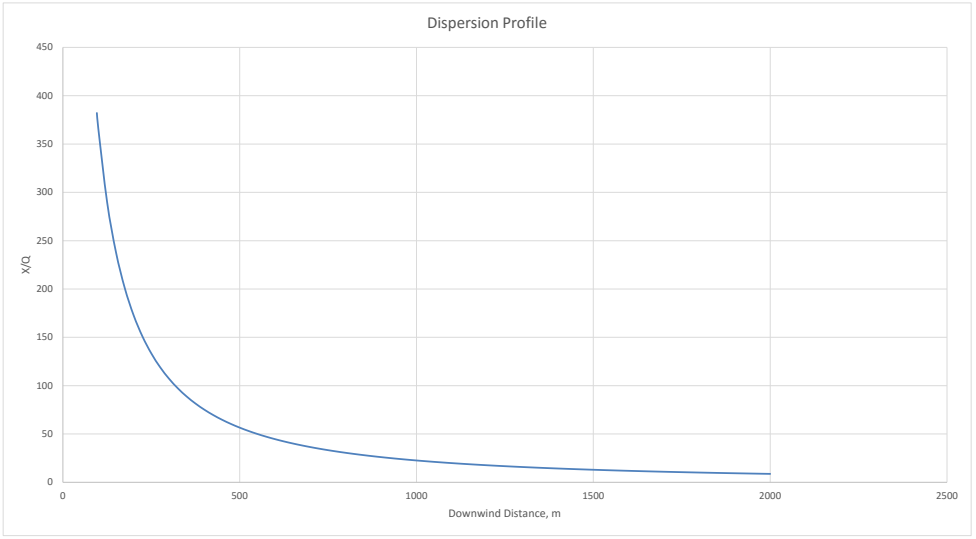
AERSCREEN Maximum Concentration Distance for Unit Emission Rate (1 g/sec), X/Q, Formatting Tool for Distance to Probe = 2,000 m

Import AERSCREEN output file "NAME_max_conc_distance.txt" from ASCII delimited into Excel then copy & paste values into format below

Concentration	Distance	Elevation	Season/Month	Zo sector	Date	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	HT	REF TA	HT
382.16	96.03	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
366.52	100	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
290.04	125	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
238.3	150	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
200.98	175	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
172.84	200	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
150.91	225	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
133.39	250	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
119.09	275	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
107.24	300	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
97.267	325	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
88.783	350	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
81.487	375	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
75.156	400	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
69.62	425	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
64.744	450	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
60.422	475	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
56.568	500	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
53.115	525	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
50.006	550	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
47.194	575	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
44.641	600	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
42.314	625	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
40.187	650	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
38.235	675	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
36.439	700	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
34.782	725	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
33.249	750	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
31.828	775	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
30.507	800	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
29.277	825	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
28.129	850	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
27.055	875	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
26.049	900	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
25.106	925	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
24.219	950	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
23.384	975	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
22.597	1000	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
21.854	1025	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
21.152	1050	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
20.487	1075	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
19.857	1100	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
19.259	1125	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
18.691	1150	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
18.151	1175	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
17.637	1200	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
17.148	1225	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
16.681	1250	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
16.235	1275	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
15.809	1300	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
15.402	1325	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
15.012	1350	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
14.639	1375	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
14.282	1400	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
13.939	1425	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
13.609	1450	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
13.293	1475	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
12.989	1500	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
12.697	1525	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
12.415	1550	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
12.144	1575	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
11.883	1600	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
11.632	1625	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
11.389	1650	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
11.155	1675	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
10.928	1700	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
10.71	1725	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
10.499	1750	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
10.295	1775	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
10.097	1800	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.9057	1825	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.7205	1850	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.5412	1875	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.3674	1900	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.1988	1925	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
9.0354	1950	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
8.8769	1975	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2
8.7229	2000	0	Annual	0-360	10040401	-10.31	0.116	-9	0.02	-999	90	14.2	0.314	1	0.19	2	10	309	2

AERSCREEN Maximum Concentration Distance for Unit Emission Rate (1 g/sec), X/Q, Formatting Tool for Distance to Probe = 2,000 m

Dispersion Profile Format	
Downwind Distance, m	X/Q, (µg/m^3)/(g/sec)
X	Y
96.03	382.16
100	366.52
125	290.04
150	238.3
175	200.98
200	172.84
225	150.91
250	133.39
275	119.09
300	107.24
325	97.267
350	88.783
375	81.487
400	75.156
425	69.62
450	64.744
475	60.422
500	56.568
525	53.115
550	50.006
575	47.194
600	44.641
625	42.314
650	40.187
675	38.235
700	36.439
725	34.782
750	33.249
775	31.828
800	30.507
825	29.277
850	28.129
875	27.055
900	26.049
925	25.106
950	24.219
975	23.384
1000	22.597
1025	21.854
1050	21.152
1075	20.487
1100	19.857
1125	19.259
1150	18.691
1175	18.151
1200	17.637
1225	17.148
1250	16.681
1275	16.235
1300	15.809
1325	15.402
1350	15.012
1375	14.639
1400	14.282
1425	13.939
1450	13.609
1475	13.293
1500	12.989
1525	12.697
1550	12.415
1575	12.144
1600	11.883
1625	11.632
1650	11.389
1675	11.155
1700	10.928
1725	10.71
1750	10.499
1775	10.295
1800	10.097
1825	9.9057
1850	9.7205
1875	9.5412
1900	9.3674
1925	9.1988
1950	9.0354
1975	8.8769
2000	8.7229



Residential & Worker Average Receptor Distance Calculation

	X1,m	X2,m	
	95	285	**Worker**
Y1,m	95	95	
	95	285	**Worker**
Y2,m	285	285	
	95	285	**Worker**
Y3,m	475	475	
	95	285	**Worker**
Y4,m	665	665	

Residents	X1,Y1	X2,Y1
	134	300
	X1,Y2	X2,Y2
	300	403
	X1,Y3	X2,Y3
	484	554
	X1,Y4	X2,Y4
	672	723

Resident Composite	**450**	**meters**

Worker Composite	**190**	**meters**

Width	380	m
Length	760	m
	288,800	sq m
	3,108,617	sq ft
Calculated Site Area	**71.4**	**acres**

Surface Characteristics of Meteorological Sites Used in AERMET

Station	Surface Albedo	Bowen Ratio	Surface Roughness, m
Anaheim	0.17	1.0	0.453
Azusa	0.19	1.0	0.361
Banning Airport	0.22	1.5	0.149
Burbank	0.19	1.0	0.532
Central LA	0.18	1.0	0.561
Compton	0.18	1.0	0.547
Costa Mesa	0.18	1.0	0.347
Crestline	0.17	1.0	0.406
Fontana	0.19	1.0	0.240
Indio	0.19	1.5	0.218
La Habra	0.18	1.0	0.467
Lake Elsinore	0.20	1.0	0.232
LAX	0.16	1.0	0.232
Long Beach	0.18	1.0	0.504
Lynwood	0.18	1.0	0.428
Mission Viejo	0.18	1.0	0.300
Palm Springs	0.22	1.5	0.444
Perris	0.20	1.0	0.193
Pico Rivera	0.18	1.0	0.338
Pomona	0.18	1.0	0.470
Redlands	0.20	1.0	0.331
Reseda	0.18	1.0	0.504
Riverside	0.19	1.0	0.314
San Bernardino	0.18	1.0	0.315
Santa Clarita	0.21	1.0	0.254
Upland	0.18	1.0	0.334
West LA	0.18	1.0	0.402

Source: SCAQMD 2016

Average for SoCal*	**0.18**	**1.0**	**0.378**
Average Desert Areas	**0.21**	**1.5**	**0.270**

* non-desert areas

HARP2 Tier 1 Screening Health Risk Assessment Ground Level Concentrations Tool

Toxics Air Contaminants	CAS No.	Emission Rates		AERSCREEN Results for Receptors				Calculated GLCs for HARP2			
		An. Avg.	Hr. Max.	Resident X/Q		Worker X/Q		Resident X ug/m^3		Worker X ug/m^3	
		g/sec	g/sec	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly
Construction											
Diesel Particulate Matter (DPM)	9901	**7.18E-03**	**6.55E-02**	6.47	**64.7**	17.28	**172.8**	4.65E-02	4.24E+00	1.24E-01	1.13E+01
Diesel Total Organic Gas (DTOG)	9902	**1.48E-02**	**1.12E-01**	6.47	64.7	17.28	172.8	9.58E-02	7.27E+00	2.56E-01	1.94E+01
Particulate Matter 2.5 Microns or Less	88101	**2.72E-03**	**6.27E-02**	6.47	64.7	17.28	172.8	1.76E-02	4.06E+00	4.70E-02	1.08E+01
		—	—	—	—	—	—	*PM 2.5 24h:*	*2.44E+00*	*PM 2.5 24h:*	*6.51E+00*
Operation											
Diesel Particulate Matter (DPM)	9901	**1.09E-03**	**3.27E-03**	6.47	64.7	17.28	172.8	7.05E-03	2.12E-01	1.88E-02	5.65E-01
Diesel Total Organic Gas (DTOG)	9902	**4.72E-03**	**1.42E-02**	6.47	64.7	17.28	172.8	3.06E-02	9.17E-01	8.16E-02	2.45E+00
Particulate Matter 2.5 Microns or Less	88101	**3.72E-03**	**1.12E-02**	6.47	64.7	17.28	172.8	2.41E-02	7.22E-01	6.43E-02	1.93E+00
		—	—	—	—	—	—	*PM 2.5 24h:*	*4.33E-01*	*PM 2.5 24h:*	*1.16E+00*

Sources: CalEEMod v2013.2.2, OEHHA 2015, EPA 1992, EPA 2015, EPA 2016

Screening Health Risk Assessment Emission Rate Aggregation Tool for CalEEMod Output - Construction

Onsite Construction Phase DPM	CAS No.	Exhaust $PM_{2.5}$	Phase Duration		Annual Average		Hourly Maximum	
		lbs/day	days/yr	hrs/day	lbs/hr	g/sec	lbs/hr	g/sec
Demolition	9901	**0.00**	**0**	**6.67**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site Preparation	9901	**2.12**	**48**	**6.67**	1.16E-02	1.47E-03	3.19E-01	4.02E-02
Grading	9901	**3.47**	**24**	**6.67**	9.50E-03	1.20E-03	5.20E-01	6.55E-02
Building Construction	9901	**1.32**	**210**	**6.67**	3.16E-02	3.98E-03	1.97E-01	2.49E-02
Paving	9901	**1.29**	**24**	**6.67**	3.55E-03	4.47E-04	1.94E-01	2.45E-02
Architectural Coating	9901	**0.19**	**30**	**6.67**	6.63E-04	8.36E-05	2.90E-02	3.66E-03
Time-weighted Average Rates	**9901**	**1.48**	**336**	**—**	**5.69E-02**	**7.18E-03**	**5.20E-01**	**6.55E-02**

Onsite Construction Phase DTOG	CAS No.	Exhaust ROG	Phase Duration		Annual Average		Hourly Maximum	
		lbs/day	days/yr	hrs/day	lbs/hr	g/sec	lbs/hr	g/sec
Demolition	9902	**0.00**	**0**	**6.67**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site Preparation	9902	**3.90**	**48**	**6.67**	2.35E-02	2.96E-03	6.42E-01	8.09E-02
Grading	9902	**5.40**	**24**	**6.67**	1.63E-02	2.05E-03	8.90E-01	1.12E-01
Building Construction	9902	**2.36**	**210**	**6.67**	6.21E-02	7.83E-03	3.88E-01	4.90E-02
Paving	9902	**4.70**	**24**	**6.67**	1.42E-02	1.79E-03	7.75E-01	9.77E-02
Architectural Coating	9902	**0.37**	**30**	**6.67**	1.40E-03	1.76E-04	6.11E-02	7.71E-03
Time-weighted Average Rates	**9902**	**2.78**	**336**	**—**	**1.17E-01**	**1.48E-02**	**8.90E-01**	**1.12E-01**

Sources: CalEEMod v2013.2.2, OEHHA 2015, EPA 2016

HARP2 Tier 1 Screening Health Risk Assessment Ground Level Concentrations Tool

Notes:

DPM = diesel exhaust $PM_{2.5}$

DTOG = diesel exhaust ROG / 0.91 (AP-42 Table 3.4-1)

Onsite Construction Phase $PM_{2.5}$	CAS No.	Fugitive $PM_{2.5}$	Phase Duration		Annual Average		Hourly Maximum	
		lbs/day	days/yr	hrs/day	lbs/hr	g/sec	lbs/hr	g/sec
Demolition	88101	0.00	0	6.67	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Site Preparation	88101	3.32	48	6.67	1.82E-02	2.29E-03	4.97E-01	6.27E-02
Grading	88101	1.23	24	6.67	3.37E-03	4.25E-04	1.84E-01	2.33E-02
Building Construction	88101	0.00	210	6.67	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Paving	88101	0.00	24	6.67	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Architectural Coating	88101	0.00	30	6.67	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Time-weighted Average Rates	**88101**	**0.56**	**336**	**—**	**2.16E-02**	**2.72E-03**	**4.97E-01**	**6.27E-02**

Sources: CalEEMod v2013.2.2, OEHHA 2015

Screening Health Risk Assessment Emission Rate Aggregation Tool for CalEEMod Output - Operation

Onsite Operation DPM/DTOG & $PM_{2.5}$	CAS No.	Exhaust	Operating Schedule		Annual Average		Hourly Maximum	
		lbs/day	days/yr	hrs/day	lbs/hr	g/sec	lbs/hr	g/sec
Mobile Source Exhaust (DPM as $PM_{2.5}$)	9901	6.10	—	—	—	—	—	—
Mobile Source Exhaust (ROG as DTOG)	9902	24.05	—	—	—	—	—	—
Particulate Matter 2.5 Microns or Less	88101	20.82	—	—	—	—	—	—
On-site Fraction (percent)	3.4%	—	—	—	—	—	—	—
Diesel Particulate Matter (DPM)	9901	0.21	365	8	8.64E-03	**1.09E-03**	2.59E-02	**3.27E-03**
Diesel Total Organic Gas (DTOG)	9902	0.82	365	8	3.74E-02	**4.72E-03**	1.12E-01	**1.42E-02**
Particulate Matter 2.5 Microns or Less	88101	0.71	365	8	2.95E-02	**3.72E-03**	8.85E-02	**1.12E-02**

Sources: CalEEMod v2013.2.2, OEHHA 2015, EPA 2016

Notes:

DPM = diesel exhaust $PM_{2.5}$

DTOG = diesel exhaust ROG / 0.91 (AP-42 Table 3.4-1)

HARP2 CSV Import Format Tool: projectname_GLCList.csv (copy & paste as values indexed rows & save to .csv file with no headers)

Index	Group1	Group2	POLID/CAS	Pollutant Name	Ave Conc	Max Hr Conc for Acute	Pasture	Fish	Water
User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Resident Construction	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	4.647E-02	4.242E+00	0	0	0
Resident Operation	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	7.054E-03	2.116E-01	0	0	0

HARP2 CSV Import Format Tool: projectname_GLCList.csv (copy & paste as values indexed rows & save to .csv file with no headers)

Index	Group1	Group2	POLID/CAS	Pollutant Name	Ave Conc	Max Hr Conc for Acute	Pasture	Fish	Water
User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Worker Construction	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	1.241E-01	1.133E+01	0	0	0
Worker Operation	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	1.883E-02	5.649E-01	0	0	0

HARP2 CSV Output Format Tool - Cancer Risk Sums

Residential Const.
***HARP - HRACalc v16088 6/21/2016 4:43:30 PM - Cancer Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
1			9901	DieselExhPM	4.65E-02	8.2653E-06	1YrCancerRMP	*	8.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**INHALATION**		**0.00E+00**	**0.00E+00**	**0.00E+00**
						8.27E-06	**8.27E-06**		**8.27E-06**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	–	–	–	–	–

Worker Const.
***HARP - HRACalc v16088 6/21/2016 4:54:30 PM - Cancer Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
1			9901	DieselExhPM	1.24E-01	1.3461E-06	1YrCancerDerived	*	1.35E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION		0.00E+00	0.00E+00	0.00E+00
						1.35E-06	**1.35E-06**		**1.35E-06**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	–	–	–	–	–

Residential Ops.
***HARP - HRACalc v16088 6/21/2016 4:57:12 PM - Cancer Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
1			9901	DieselExhPM	7.05E-03	5.2501E-06	30YrCancerRMP	*	5.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION		0.00E+00	0.00E+00	0.00E+00
						5.25E-06	**5.25E-06**		**5.25E-06**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	–	–	–	–	–

Worker Ops.
***HARP - HRACalc v16088 6/21/2016 4:59:23 PM - Cancer Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
1			9901	DieselExhPM	1.88E-02	4.8947E-06	25YrCancerDerived	*	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION		0.00E+00	0.00E+00	0.00E+00
						4.89E-06	**4.89E-06**		**4.89E-06**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	–	–	–	–	–

HARP2 CSV Output Format Tool - Chronic Risk Maxima

Residential Const.
***HARP - HRACalc v16088 6/21/2016 4:43:30 PM - Chronic Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSE	DERMAL DOSE	MMILK DOSE	WATER DOSE	FISH DOSE	CROP DOSE	BEEF DOSE	DAIRY DOSE	PIG DOSE	CHICKEN DOSE	EGG DOSE	1ST DRIVER	2ND DRIVER	3RD DRIVER	PASTURE CONC	FISH CONC	WATER CONC
1			9901	DieselExhPM	0.04647449	NonCancerChronicDerived	0	0	0	0	0	0	0.0092949	0	0	0	0	0	0	0	*	0.046474	0	0	0	0	0	0	0	0	0	0	0	INHALATION			0	0	0
						0.0093	**0**	**0**	**0**	**0**	**0**	**0**	**0.0092949**	**0**	**0**	**0**	**0**	**0**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–				–	–	–

Worker Const.
***HARP - HRACalc v16088 6/21/2016 4:54:30 PM - Chronic Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSE	DERMAL DOSE	MMILK DOSE	WATER DOSE	FISH DOSE	CROP DOSE	BEEF DOSE	DAIRY DOSE	PIG DOSE	CHICKEN DOSE	EGG DOSE	1ST DRIVER	2ND DRIVER	3RD DRIVER	PASTURE CONC	FISH CONC	WATER CONC
1			9901	DieselExhPM	0.12406781	NonCancerChronicDerived	0	0	0	0	0	0	0.024814	0	0	0	0	0	0	0	*	0.12407	0	0	0	0	0	0	0	0	0	0	0	INHALATION			0	0	0
						0.0248	**0**	**0**	**0**	**0**	**0**	**0**	**0.024814**	**0**	**0**	**0**	**0**	**0**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–				–	–	–

Residential Ops.
***HARP - HRACalc v16088 6/21/2016 4:57:12 PM - Chronic Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSE	DERMAL DOSE	MMILK DOSE	WATER DOSE	FISH DOSE	CROP DOSE	BEEF DOSE	DAIRY DOSE	PIG DOSE	CHICKEN DOSE	EGG DOSE	1ST DRIVER	2ND DRIVER	3RD DRIVER	PASTURE CONC	FISH CONC	WATER CONC
1			9901	DieselExhPM	0.007053785	NonCancerChronicDerived	0	0	0	0	0	0	0.0014108	0	0	0	0	0	0	0	*	0.0070538	0	0	0	0	0	0	0	0	0	0	0	INHALATION			0	0	0
						0.0014	**0**	**0**	**0**	**0**	**0**	**0**	**0.0014108**	**0**	**0**	**0**	**0**	**0**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–				–	–	–

Worker Ops.
***HARP - HRACalc v16088 6/21/2016 4:59:23 PM - Chronic Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH CONC	SOIL DOSE	DERMAL DOSE	MMILK DOSE	WATER DOSE	FISH DOSE	CROP DOSE	BEEF DOSE	DAIRY DOSE	PIG DOSE	CHICKEN DOSE	EGG DOSE	1ST DRIVER	2ND DRIVER	3RD DRIVER	PASTURE CONC	FISH CONC	WATER CONC
1			9901	DieselExhPM	0.018830721	NonCancerChronicDerived	0	0	0	0	0	0	0.0037661	0	0	0	0	0	0	0	*	0.018831	0	0	0	0	0	0	0	0	0	0	0	INHALATION			0	0	0
						0.0038	**0**	**0**	**0**	**0**	**0**	**0**	**0.0037661**	**0**	**0**	**0**	**0**	**0**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–				–	–	–

HARP2 CSV Output Format Tool - Acute Risk Maxima

Residential Const.
***HARP - HRACalc v16088 6/21/2016 4:43:30 PM - Acute Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	4.242462497	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0.0000	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	–	–

Worker Const.
***HARP - HRACalc v16088 6/21/2016 4:54:30 PM - Acute Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	11.32563972	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0.0000	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	–	–

Residential Ops.
***HARP - HRACalc v16088 6/21/2016 4:57:12 PM - Acute Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	0.21161355	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0.0000	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	–	–

Worker Ops.
***HARP - HRACalc v16088 6/21/2016 4:59:23 PM - Acute Risk**

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	0.56492163	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0.0000	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	–	–

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
67641	[D] Acetone [Deleted/Obsolete Emittent ID]	[D] Acetone
1073	[D] Cyanide compounds [Deleted/Obsolete Emittent ID]	[D] Cyanide cmp
13909096	1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea {Methyl CCNU}	1(2ClEt)MeCCNU
13010474	1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea {CCNU}	1(2ClEt)CCNU
811972	1,1,1,2-Tetrafluoroethane {HFC-134a}	TetraFluorEthan
79345	1,1,2,2-Tetrachloroethane	TetraClEthane
79005	1,1,2-Trichloroethane	1,1,2TriClEthan
75343	1,1-Dichloroethane	1,1-DiClEthane
75376	1,1-Difluoroethane {Freon 152a}	DiFluoroEthane
57147	1,1-Dimethylhydrazine	1,1-DiMeHydrzn
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	1-8OctaCDF
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1-8OctaCDD
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1-4,6-8HpCDF
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1-4,6-8HpCDD
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1-4,7-9HpCDF
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran	1-4,7,8HxCDF
39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1-4,7,8HxCDD
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran	1-3,6-8HxCDF
57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1-3,6-8HxCDD
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran	1-3,7-9HxCDF
19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1-3,7-9HxCDD
57117416	1,2,3,7,8-Pentachlorodibenzofuran	1-3,7,8PeCDF
40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1-3,7,8PeCDD
96184	1,2,3-Trichloropropane	1,2,3TriClPropn
120821	1,2,4-Trichlorobenzene	1,2,4TriClBenz
95636	1,2,4-Trimethylbenzene	1,2,4TriMeBenze
96128	1,2-Dibromo-3-chloropropane	DBCP

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
95501	1,2-Dichlorobenzene	1,2-DiClBenzene
540590	1,2-Dichloroethylene	1,2-DiClEthylen
78875	1,2-Dichloropropane	1,2-DiClPropane
1615801	1,2-Diethylhydrazine	1,2-DiEthHydraz
540738	1,2-Dimethylhydrazine	1,2-DiMeHydrazi
122667	1,2-Diphenylhydrazine {Hydrazobenzene}	1,2-DiPhenyHydr
106887	1,2-Epoxybutane	1,2-EpoxyButane
106990	1,3-Butadiene	1,3-Butadiene
541731	1,3-Dichlorobenzene	1,3-DiClBenzene
542756	1,3-Dichloropropene	1,3-DiClPropene
1120714	1,3-Propane sultone	1,3-PropSultone
55981	1,4-Butanediol dimethanesulfonate	ButanDiol MeSul
764410	1,4-Dichloro-2-butene	1,4-DiCl2Butene
123911	1,4-Dioxane	1,4-Dioxane
42397648	1,6-Dinitropyrene	1,6-DiNPyrene
42397659	1,8-Dinitropyrene	1,8-DiNPyrene
555840	1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone	1(5NiFur)Idinon
82280	1-Amino-2-methylanthraquinone	1-AminMeAnthrqn
134327	1-Naphthylamine	1-NaphthylAmine
5522430	1-Nitropyrene	1-Nitropyrene
3570750	2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	2(2FormHyd)Thia
540841	2,2,4-Trimethylpentane	2,2,4TriMePentn
39635319	2,3,3',4,4',5,5'-Heptachlorobiphenyl {PCB 189}	PCB 189
38380084	2,3,3',4,4',5-Hexachlorobiphenyl {PCB 156}	PCB 156
69782907	2,3,3',4,4',5'-Hexachlorobiphenyl {PCB 157}	PCB 157
32598144	2,3,3',4,4'-Pentachlorobiphenyl {PCB 105}	PCB 105
52663726	2,3',4,4',5,5'-Hexachlorobiphenyl {PCB 167}	PCB 167

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
31508006	2,3',4,4',5-Pentachlorobiphenyl	PCB 118
74472370	2,3,4,4',5-Pentachlorobiphenyl {PCB 114}	PCB 114
65510443	2,3',4,4',5'-Pentachlorobiphenyl {PCB 123}	PCB 123
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran	2-4,6-8HxCDF
58902	2,3,4,6-Tetrachlorophenol	2,3,4,6TetrClPh
57117314	2,3,4,7,8-Pentachlorodibenzofuran	2-4,7,8PeCDF
51207319	2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2,3,7,8-TCDD
96139	2,3-Dibromo-1-propanol	2,3DiBr1Propnol
78886	2,3-Dichloropropene	2,3-DiClPropene
95954	2,4,5-Trichlorophenol	2,4,5TriClPhenl
88062	2,4,6-Trichlorophenol	2,4,6TriClPhenl
615054	2,4-Diaminoanisole	2,4-DiAminAniso
39156417	2,4-Diaminoanisole sulfate	2,4-DiAmAnisSul
95807	2,4-Diaminotoluene	2,4-DiAminTolue
120832	2,4-Dichlorophenol	2,4-DiClPhenol
105679	2,4-Dimethylphenol {2,4-Xylenol}	2,4-DiMePhenol
51285	2,4-Dinitrophenol	2,4-DiNPhenol
121142	2,4-Dinitrotoluene	2,4-DiNitToluen
606202	2,6-Dinitrotoluene	2,6-DiNitToluen
87627	2,6-Xylidene	2,6-Xylidene
53963	2-Acetylaminofluorene	2-AcetylAmFluor
68006837	2-Amino-3-methyl-9H-pyrido(2,3-b) indole {MeA-alpha-C}	MeA-alpha-C
712685	2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	2-Amin(NiFur)Th
117793	2-Aminoanthraquinone	2-Aminoanthrqn
532274	2-Chloroacetophenone	2-ClAcetPhenone
95578	2-Chlorophenol	2-Chlorophenol

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
91576	2-Methyl naphthalene	2MeNaphthalene
129157	2-Methyl-1-nitroanthraquinone (uncertain purity)	2-MeNitAnthrqn
75558	2-Methylaziridine {1,2-Propyleneimine}	2-MeAziridine
75865	2-Methyllactonitrile {Acetone cyanohydrin}	2MeLacotnitrile
109068	2-Methylpyridine	2MethylPyridine
91598	2-Naphthylamine	2-NaphthylAmine
607578	2-Nitrofluorene	2-Nitrofluorene
88755	2-Nitrophenol	2-NitroPhenol
79469	2-Nitropropane	2-Nitropropane
90437	2-Phenylphenol	2-Phenylphenol
60153493	3-(N-Nitrosomethylamino)propionitrile	3(N-NitMeAm)Prp
32774166	3,3',4,4',5,5'-Hexachlorobiphenyl {PCB 169}	PCB 169
57465288	3,3',4,4',5-Pentachlorobiphenyl {PCB 126}	PCB 126
32598133	3,3',4,4'-Tetrachlorobiphenyl {PCB 77}	PCB 77
28434868	3,3'-Dichloro-4,4'-diaminodiphenyl ether	3,3'DiClDAmPhEt
91941	3,3'-Dichlorobenzidine	3,3'DiClBenzidn
119904	3,3'-Dimethoxybenzidine	3,3'DMethoxBnz
20325400	3,3'-Dimethoxybenzidine dihydrochloride	3,3'DiMeBenziHC
119937	3,3'-Dimethylbenzidine {o-Tolidine}	3,3'DiMeBenzidn
70362504	3,4,4',5-Tetrachlorobiphenyl {PCB 81}	PCB 81
6109973	3-Amino-9-ethylcarbazole hydrochloride	3-Amino9ECarbz
563473	3-Chloro-2-methylpropene	3-Cl-2MePropene
56495	3-Methylcholanthrene	3-MeCholanthren
64091914	4-(N-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone {NNK}	4(N-NiMeAm)Buta
101804	4,4'-Diaminodiphenyl ether	4,4DiAminPhEthr
80057	4,4'-Isopropylidenediphenol	4,4'IsoprDiPhen
101611	4,4'-Methylene bis (N,N-dimethyl) benzenamine	4,4'MeBisBenzAm

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
838880	4,4'-Methylene bis(2-methylaniline)	4,4'MeBis2MeAni
101779	4,4'-Methylenedianiline (and its dichloride)	4,4'-MeDianilin
139651	4,4'-Thiodianiline	4,4'Thiodianili
534521	4,6-Dinitro-o-cresol (and salts)	4,6-DiNiCresol
101144	4-4-Methylene bis(2-chloroaniline) {MOCA}	MOCA: 4,4'MeBis
92671	4-Aminobiphenyl	4-Aminobiphenyl
95830	4-Chloro-o-phenylenediamine	4-ClPhenDiamine
60117	4-Dimethylaminoazobenzene	4-DiMeAmAzoBnz
92933	4-Nitrobiphenyl	4-Nitrobiphenyl
100027	4-Nitrophenol	4-Nitrophenol
57835924	4-Nitropyrene	4-Nitropyrene
106876	4-Vinyl-1-cyclohexene diepoxide	4VinylCyclHxEpx
100403	4-Vinylcyclohexene	4VinylCyclohexe
139913	5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone	5-MorphMeNiFur
484208	5-Methoxypsoralen	5-MethoxPsoral
3697243	5-Methylchrysene	5-MeChrysene
602879	5-Nitroacenaphthene	5-NitroaceNapht
99592	5-Nitro-o-anisidine	5-Nitr-o-Anisid
7496028	6-Nitrochrysene	6-Nitrochrysene
57976	7,12-Dimethylbenz[a]anthracene	7,12-DB[a]anthr
194592	7H-Dibenzo[c,g]carbazole	7H-D[c,g]carb
26148685	A-alpha-C {2-Amino-9H-pyrido[2,3-b]indole}	A-alpha-C
83329	Acenaphthene	Acenaphthene
208968	Acenaphthylene	Acenaphthylene
75070	Acetaldehyde	Acetaldehyde
60355	Acetamide	Acetamide
34256821	Acetochlor	Acetochlor

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
546883	Acetohydroxamic acid	AcetohydrxAcid
75058	Acetonitrile	Acetonitrile
98862	Acetophenone	Acetophenone
62476599	Acifluorfen	Acifluorfen
107028	Acrolein	Acrolein
79061	Acrylamide	Acrylamide
79107	Acrylic acid	Acrylic acid
107131	Acrylonitrile	Acrylonitrile
50760	Actinomycin D	Actinomycin D
23214928	Adriamycin	Adriamycin
3688537	AF-2	AF-2
1000	Aflatoxins	Aflatoxins
15972608	Alachlor	Alachlor
309002	Aldrin	Aldrin
302794	all-trans-Retinoic acid	all-transRetinA
107186	Allyl alcohol	Allyl Alcohol
107051	Allyl chloride	AllylChlor
1205	alpha-chlorinated Toluenes	a-Cl-Toluenes
319846	alpha-Hexachlorocyclohexane	alphaHexClCycHx
28981977	Alprazolam	Alprazolam
7429905	Aluminum	Aluminum
1344281	Aluminum oxide (fibrous)	Alumin Oxide
39831555	Amikacin sulfate	AmikacinSulfate
125848	Aminoglutethimide	Aminoglutethimi
54626	Aminopterin	Aminopterin
61825	Amitrole	Amitrole
7664417	Ammonia	NH3

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
6484522	Ammonium nitrate	Ammon Nitrate
7783202	Ammonium sulfate	Ammon Sulfate
1005	Analgesic mixtures containing phenacetin	Analgesics/phen
1010	Androgenic (anabolic) steroids	Androgenic ster
62533	Aniline	Aniline
120127	Anthracene	Anthracene
7440360	Antimony	Antimony
1309644	Antimony trioxide	Antim TriOxide
140578	Aramite	Aramite
7440382	Arsenic	Arsenic
1016	Arsenic compounds (inorganic)	As cmpd(inorg)
1017	Arsenic compounds (other than inorganic)	As cmpd(org)
7784421	Arsine	Arsine
1332214	Asbestos	Asbestos
50782	Aspirin	Aspirin
492808	Auramine	Auramine
115026	Azaserine	Azaserine
446866	Azathioprine	Azathioprine
103333	Azobenzene	Azobenzene
7440393	Barium	Barium
10294403	Barium chromate	Barium Chromate
56553	Benz[a]anthracene	B[a]anthracene
98873	Benzal chloride	Benzal chloride
55210	Benzamide	Benzamide
71432	Benzene	Benzene
92875	Benzidine (and its salts)	Benzidine
1020	Benzidine-based dyes	Benzi dyes

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
50328	Benzo[a]pyrene	B[a]P
205992	Benzo[b]fluoranthene	B[b]fluoranthen
192972	Benzo[e]pyrene	B[e]pyrene
191242	Benzo[g,h,i]perylene	B[g,h,i]perylen
205823	Benzo[j]fluoranthene	B[j]fluoranthen
207089	Benzo[k]fluoranthene	B[k]fluoranthen
271896	Benzofuran	Benzofuran
98077	Benzoic trichloride	Benzoic TriCl
98884	Benzoyl chloride	Benzoyl Chlorid
94360	Benzoyl peroxide	Benzoyl Peroxid
5411223	Benzphetamine hydrochloride	Benzphetam HCl
100447	Benzyl chloride	Benzyl Chloride
1694093	Benzyl violet 4B	BenzylViolet4B
7440417	Beryllium	Beryllium
3068880	beta-Butyrolactone	beta-Butyrolact
319857	beta-Hexachlorocyclohexane	betaHexClCycHx
57578	beta-Propiolactone	beta-Propiolact
1025	Betel quid with tobacco	Betel quid
92524	Biphenyl	Biphenyl
108601	Bis(2-chloro-1-methylethyl) ether	Bis(2ClMeE)Ethr
111444	Bis(2-chloroethyl) ether {DCEE}	Bis(2ClEth)Ethr
103231	Bis(2-ethylhexyl) adipate	Bis(2EHx)Adipat
542881	Bis(chloromethyl) ether	Bis(ClMe)Ether
154938	Bischloroethyl nitrosourea	BisClEthNitUrea
1030	Bitumens, extracts of steam-refined and air-refined bitumens	Bitumens
1035	Bleomycins	Bleomycins
7726956	Bromine	Bromine

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
7789302	Bromine pentafluoride	BrominPentFlrid
75274	Bromodichloromethane	BromoDiClMethan
75252	Bromoform	Bromoform
1689845	Bromoxynil	Bromoxynil
141322	Butyl acrylate	Butyl Acrylate
85687	Butyl benzyl phthalate	ButylBenzPhthal
25013165	Butylated hydroxyanisole {BHA}	BHA
123728	Butyraldehyde	Butyraldehyde
4680788	C. I. Acid Green 3	CI Acid Grn 3
569642	C. I. Basic Green 4	CI BasicGrn 4
989388	C. I. Basic Red 1	CI BasicRed 1
569619	C. I. Basic Red 9 monohydrochloride	CI BasicRed 9
2832408	C. I. Disperse Yellow 3	CI DispYellw3
7440439	Cadmium	Cadmium
13765190	Calcium chromate	CalciumChromate
156627	Calcium cyanamide	CalciumCyanamid
105602	Caprolactam	Caprolactam
2425061	Captafol	Captafol
133062	Captan	Captan
63252	Carbaryl	Carbaryl
1050	Carbon black extracts	CarbonBlackExtr
124389	Carbon dioxide	CO2
75150	Carbon disulfide	CS2
630080	Carbon monoxide	Carbon Monoxide
42101	Carbon Monoxide [Criteria Pollutant]	CO
56235	Carbon tetrachloride	CCl4
75730	Carbon tetrafluoride	Carbon Tetraflu

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
463581	Carbonyl sulfide	CarbonylSulfide
41575944	Carboplatin	Carboplatin
1055	Carrageenan (degraded)	Carrageenan
120809	Catechol	Catechol
1056	Ceramic fibers (man-made)	CeramicFibers
474259	Chenodiol	Chenodiol
133904	Chloramben	Chloramben
305033	Chlorambucil	Chlorambucil
56757	Chloramphenicol	Chloramphcl
1620219	Chlorcyclizine hydrochloride	Chlorcycliz HCl
57749	Chlordane	Chlordane
143500	Chlordecone {Kepone}	Chlordecone
6164983	Chlordimeform	Chlordimeform
115286	Chlorendic acid	Chlorendic Acid
76131	Chlorinated Fluorocarbon {CFC-113} {1,1,2-Trichloro-1,2,2-trifluoroethane}	CFC-113
108171262	Chlorinated paraffins (average chain length, C12; approx. 60% Cl by weight)	ChlorParaffins
7782505	Chlorine	Chlorine
10049044	Chlorine dioxide	ChlorineDioxide
79118	Chloroacetic acid	Chloroacet Acid
108907	Chlorobenzene	Chlorobenzn
1058	Chlorobenzenes	Chlorobenzns
510156	Chlorobenzilate	Chlorobenzilate
124481	Chlorodibromomethane	ChloroDiBrMetha
75456	Chlorodifluoromethane {Freon 22}	ClDiFluorMethan
67663	Chloroform	Chloroform
107302	Chloromethyl methyl ether (technical grade)	ClMeMethEther
1060	Chlorophenols	Chlorophenols

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1065	Chlorophenoxy herbicides	Cl-phenoxy herb
76062	Chloropicrin	Chloropicrin
126998	Chloroprene	Chloroprene
1897456	Chlorothalonil	Chlorothalonil
7440473	Chromium	Chromium
1333820	Chromium trioxide	ChromiumTriOxid
18540299	Chromium, hexavalent (& compounds)	Cr(VI)
218019	Chrysene	Chrysene
87296	Cinnamyl anthranilate	CinnamylAnthran
15663271	Cisplatin	Cisplatin
6358538	Citrus Red No. 2	Citrus Red 2
50419	Clomiphene citrate	ClomipheneCitra
8007452	Coal tars	Coal tars
7440484	Cobalt	Cobalt
1066	Coke oven emissions	CokeOvnEmis
1068	Conjugated estrogens	ConjugEstrogens
7440508	Copper	Copper
1070	Creosotes	Creosotes
1319773	Cresols (mixtures of) {Cresylic acid}	Cresols
4170303	Crotonaldehyde	Crotonaldehyde
98828	Cumene	Cumene
80159	Cumene hydroperoxide	Cumene HydPerOx
135206	Cupferron	Cupferron
21725462	Cyanazine	Cyanazine
57125	Cyanide compounds (inorganic)	Cyanide cmpds
14901087	Cycasin	Cycasin
110827	Cyclohexane	Cyclohexane

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
108930	Cyclohexanol	Cyclohexanol
66819	Cycloheximide	Cycloheximide
50180	Cyclophosphamide	Cyclophosphamid
13121705	Cyhexatin	Cyhexatin
147944	Cytarabine	Cytarabine
3468631	D and C Orange No. 17	D&C Orange 17
81889	D and C Red No. 19	D&C Red 19
2092560	D and C Red No. 8	D&C Red 8
5160021	D and C Red No. 9	D&C Red 9
4342034	Dacarbazine	Dacarbazine
1596845	Daminozide	Daminozide
17230885	Danazol	Danazol
20830813	Daunomycin	Daunomycin
23541506	Daunorubicin hydrochloride	Daunorubic HCl
50293	DDT {1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane}	DDT
1163195	Decabromodiphenyl oxide	DecaBrDiPhenOx
117817	Di(2-ethylhexyl) phthalate	Di2-EthHxPhthal
1075	Dialkylnitrosamines	DialkNitrosamin
2303164	Diallate	Diallate
1078	Diaminotoluenes (mixed isomers)	Diaminotoluenes
334883	Diazomethane	Diazomethane
226368	Dibenz[a,h]acridine	D[a,h]acridine
53703	Dibenz[a,h]anthracene	D[a,h]anthracen
224420	Dibenz[a,j]acridine	D[a,j]acridine
192654	Dibenzo[a,e]pyrene	D[a,e]pyrene
189640	Dibenzo[a,h]pyrene	D[a,h]pyrene
189559	Dibenzo[a,i]pyrene	D[a,i]pyrene

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
191300	Dibenzo[a,l]pyrene	D[a,l]pyrene
132649	Dibenzofuran	Dibenzofuran
1080	Dibenzofurans (chlorinated) {PCDFs} [Treated as 2378TCDD for HRA]	DiBenFurans(Cl)
84742	Dibutyl phthalate	DiButyl Phthal
25321226	Dichlorobenzenes (mixed isomers)	DiClBenzenes
75718	Dichlorodifluoromethane {Freon 12}	DiClDiFlmethane
72548	Dichlorodiphenyldichloroethane {DDD}	DDD
72559	Dichlorodiphenyldichloroethylene {DDE}	DiClDiPhEthylen
75434	Dichlorofluoromethane {Freon 21}	DiClFluorMethan
94757	Dichlorophenoxyacetic acid, salts and esters {2,4-D}	2,4-D
62737	Dichlorovos {DDVP}	Dichlorovos
115322	Dicofol	Dicofol
60571	Dieldrin	Dieldrin
84173	Dienestrol	Dienestrol
1464535	Diepoxybutane	DiEpoxyButane
9901	Diesel engine exhaust, particulate matter (Diesel PM)	DieselExhPM
9902	Diesel engine exhaust, total organic gas	DieselExhTOG
111422	Diethanolamine	Diethanolamine
84662	Diethyl phthalate	DiethylPhthalat
64675	Diethyl sulfate	DiethylSulfate
111466	Diethylene glycol	DEGlycol
111966	Diethylene glycol dimethyl ether	DEGDME
112345	Diethylene glycol monobutyl ether	DEGBE
111900	Diethylene glycol monoethyl ether	DEGEE
111773	Diethylene glycol monomethyl ether	DEGME
56531	Diethylstilbestrol	DES
101906	Diglycidyl resorcinol ether {DGRE}	DGRE

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
94586	Dihydrosafrole	Dihydrosafrole
79447	Dimethyl carbamoyl chloride	DiMeCarbamyCl
68122	Dimethyl formamide	DMF
131113	Dimethyl phthalate	DimethylPhthala
77781	Dimethyl sulfate	DiMeSulfate
513371	Dimethylvinylchloride {DMVC}	DiMeVinylCl
25154545	Dinitrobenzenes (mixtures of)	DinitroBenz(mix
25321146	Dinitrotoluenes (mixed isomers)	DiNitroToluenes
39300453	Dinocap	Dinocap
88857	Dinoseb	Dinoseb
1086	Dioxins, total, w/o individ. isomers reported {PCDDs} [Treat as 2378TCDD for HRA	Dioxins-w/o
1085	Dioxins, total, with individ. isomers also reported {PCDDs}	Dioxins-w/
630933	Diphenylhydantoin	DiPhenylHydant
25265718	Dipropylene glycol	DPG
34590948	Dipropylene glycol monomethyl ether	DPGME
1937377	Direct Black 38	DirBlack38
2602462	Direct Blue 6	DirBlue6
16071866	Direct Brown 95 (technical grade)	DirBrown95
2475458	Disperse Blue 1	DisperseBlue1
564250	Doxycycline	Doxycycline
1090	Environmental Tobacco Smoke	ETS
106898	Epichlorohydrin	Epichlorohydrin
1091	Epoxy resins	Epoxy resins
379793	Ergotamine tartrate	ErgotamineTartr
12510428	Erionite	Erionite
50282	Estradiol 17 beta	Estradiol 17bet
1095	Estrogens, non-steroidal	Estrogns,non-st

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1100	Estrogens, steroidal	Estrogens,ster
53167	Estrone	Estrone
57636	Ethinyl estradiol	EthinylEstrdiol
140885	Ethyl acrylate	Ethyl Acrylate
100414	Ethyl benzene	Ethyl Benzene
75003	Ethyl chloride {Chlorethane}	Ethyl Chloride
541413	Ethyl chloroformate	Ethyl ClFormate
62500	Ethyl methanesulfonate	EthMeSulfonate
74851	Ethylene	Ethylene
106934	Ethylene dibromide {EDB}	EDB
107062	Ethylene dichloride {EDC}	EDC
107211	Ethylene glycol	Ethylene Glycol
629141	Ethylene glycol diethyl ether	EGDEE
110714	Ethylene glycol dimethyl ether	EGDME
111762	Ethylene glycol monobutyl ether	EGBE
110805	Ethylene glycol monoethyl ether	EGEE
111159	Ethylene glycol monoethyl ether acetate	EGEEA
109864	Ethylene glycol monomethyl ether	EGME
110496	Ethylene glycol monomethyl ether acetate	EGMEA
2807309	Ethylene glycol monopropyl ether	EGPE
75218	Ethylene oxide	EtO
96457	Ethylene thiourea	EthylenThiourea
151564	Ethyleneimine {Aziridine}	Ethyleneimine
33419420	Etoposide	Etoposide
54350480	Etretinate	Etretinate
2164172	Fluometuron	Fluometuron
206440	Fluoranthene	Fluoranthene

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
86737	Fluorene	Fluorene
1101	Fluorides and compounds	Fluorides&cmpds
1103	Fluorocarbons (brominated)	Fluorocarb(Br)
1104	Fluorocarbons (chlorinated)	Fluorocarb(Cl)
51218	Fluorouracil	Fluorouracil
76437	Fluoxymesterone	Fluoxymesterone
13311847	Flutamide	Flutamide
133073	Folpet	Folpet
50000	Formaldehyde	Formaldehyde
110009	Furan	Furan
67458	Furazolidone	Furazolidone
60568050	Furmecyclox	Furmecyclox
9910	Gasoline engine exhaust, particulate matter	GasolExhPM
9911	Gasoline engine exhaust, total organic gas	GasolExhTOG
1110	Gasoline vapors	Gasol vapors
1111	Glasswool (man-made fibers)	Glasswool
67730114	Glu-P-1 {2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-1
67730103	Glu-P-2 {2-Aminodipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-2
111308	Glutaraldehyde	Glutaraldhyd
765344	Glycidaldehyde	Glycidaldehyde
556525	Glycidol	Glycidol
1115	Glycol ethers (and their acetates)	Glycol Ethers
126078	Griseofulvin	Griseofulvin
16568028	Gyromitrin	Gyromitrin
23092173	Halazepam	Halazepam
2784943	HC Blue 1	HC Blue 1
76448	Heptachlor	Heptachlor

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1024573	Heptachlor epoxide	HeptachloEpoxid
118741	Hexachlorobenzene	HexaClBenzene
87683	Hexachlorobutadiene	HexaClButadiene
608731	Hexachlorocyclohexanes (mixed or technical grade)	HexClCycHexanes
77474	Hexachlorocyclopentadiene	HexClCycPentadi
67721	Hexachloroethane	HexaClEthane
1335871	Hexachloronaphthalene	HexaClNaphthale
822060	Hexamethylene-1,6-diisocyanate	HexaMeDiisocyan
680319	Hexamethylphosphoramide	HexaMePhosAmide
110543	Hexane	Hexane
302012	Hydrazine	Hydrazine
10034932	Hydrazine sulfate	HydrazineSulfat
7647010	Hydrochloric acid	HCl
74908	Hydrocyanic acid	HCN
10035106	Hydrogen bromide	HydrogBromide
7664393	Hydrogen fluoride	HF
7783075	Hydrogen selenide	HydrogSelenide
7783064	Hydrogen sulfide	H2S
123319	Hydroquinone	Hydroquinone
3778732	Ifosfamide	Ifosfamide
193395	Indeno[1,2,3-cd]pyrene	In[1,2,3-cd]pyr
24267569	Iodine-131	Iodine-131
76180966	IQ {2-Amino-3-methylimidazo[4,5-f]quinoline}	IQ
9004664	Iron dextran complex	Iron Dextran Cm
13463406	Iron pentacarbonyl	IronPentaCrbnyl
78842	Isobutyraldehyde	Isobutyraldehyd
1125	Isocyanates	Isocyanates

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
78591	Isophorone	Isophorone
78795	Isoprene, except from vegetative emission sources	Isoprene
67630	Isopropyl alcohol	Isopropyl Alcoh
120581	Isosafrole	Isosafrole
4759482	Isotretinoin	Isotretinoin
77501634	Lactofen	Lactofen
303344	Lasiocarpine	Lasiocarpine
7439921	Lead	Lead
301042	Lead acetate	Lead Acetate
7758976	Lead chromate	Lead Chromate
1128	Lead compounds (inorganic)	Lead cmp(inorg)
1129	Lead compounds (other than inorganic)	Lead cmpd(org)
7446277	Lead phosphate	Lead Phosphate
1335326	Lead subacetate	Lead Subacetate
58899	Lindane {gamma-Hexachlorocyclohexane}	Lindane
554132	Lithium carbonate	LithiumCarbonat
919164	Lithium citrate	LithiumCitrate
846491	Lorazepam	Lorazepam
1131	Lubricant base oils and derived products	LubricntBaseOil
108316	Maleic anhydride	Maleic Anhydrid
8018017	Mancozeb	Mancozeb
12427382	Maneb	Maneb
7439965	Manganese	Manganese
108394	m-Cresol	m-Cresol
99650	m-Dinitrobenzene	m-DinitroBenzen
71589	Medroxyprogesterone acetate	Medroxypro acet
595335	Megestrol acetate	Megestrol Aceta

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
148823	Melphalan	Melphalan
9002680	Menotropins	Menotropins
6112761	Mercaptopurine	Mercaptopurine
7487947	Mercuric chloride	Mercuric Cl
7439976	Mercury	Mercury
531760	Merphalan	Merphalan
72333	Mestranol	Mestranol
3963959	Methacycline hydrochloride	Methacyclin HCl
74828	Methane	CH4
67561	Methanol	Methanol
60560	Methimazole	Methimazole
59052	Methotrexate	Methotrexate
15475566	Methotrexate sodium	MethotrexateSod
72435	Methoxychlor	Methoxychlor
96333	Methyl acrylate	Methyl Acrylate
74839	Methyl bromide {Bromomethane}	Methyl Bromide
74873	Methyl chloride {Chloromethane}	Methyl Chloride
71556	Methyl chloroform {1,1,1-Trichloroethane}	1,1,1-TCA
78933	Methyl ethyl ketone {2-Butanone}	MEK
60344	Methyl hydrazine	Methyl Hydrazin
74884	Methyl iodide {Iodomethane}	Methyl Iodide
108101	Methyl isobutyl ketone {Hexone}	MIBK
624839	Methyl isocyanate	Methyl Isocyana
593748	Methyl mercury	Methyl Mercury
80626	Methyl methacrylate	Methyl Methacry
66273	Methyl methanesulfonate	MeMethSulfonate
1634044	Methyl tert-butyl ether	Me t-ButylEther

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
590965	Methylazoxymethanol	MeAzoMethnl
592621	Methylazoxymethanol acetate	MeAzoMethnlAcet
74953	Methylene bromide	MethyleneBromid
75092	Methylene chloride {Dichloromethane}	Methylene Chlor
101688	Methylene diphenyl diisocyanate {MDI}	MeDiphenDiisocy
58184	Methyltestosterone	Methyltestoster
56042	Methylthiouracil	MeThioUracil
9006422	Metiram	Metiram
443481	Metronidazole	Metronidazole
90948	Michler's ketone	Michler'sKetone
59467968	Midazolam hydrochloride	Midazolam HCl
1136	Mineral fibers (fine: man-made)	MinrlFibr(fine)
1135	Mineral fibers (other than man-made)	MinrlFibr(othr)
1140	Mineral oils (untreated and mildly treated oils)	Mineral oils
2385855	Mirex	Mirex
62015398	Misoprostol	Misoprostol
50077	Mitomycin C	Mitomycin C
70476823	Mitoxantrone hydrochloride	MitoxantroneHCl
1313275	Molybdenum trioxide	Molybd TriOxide
315220	Monocrotaline	Monocrotaline
505602	Mustard gas	Mustard gas
108383	m-Xylene	m-Xylene
613354	N,N'-Diacetylbenzidine	NN'DiAceBenzdin
121697	N,N-Dimethylaniline	N,N-DiMeAniline
531828	N-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide	NNiFurylThiazAc
86220420	Nafarelin acetate	Nafarelin Aceta
3771195	Nafenopin	Nafenopin

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
91203	Naphthalene	Naphthalene
71363	n-Butyl alcohol	n-Butyl Alcohol
117840	n-Dioctyl phthalate	n-DiOctylPhthal
1405103	Neomycin sulfate	NeomycinSulfate
56391572	Netilmicin sulfate	NetilmicinSulfa
7440020	Nickel	Nickel
373024	Nickel acetate	Ni Acetate
3333673	Nickel carbonate	Ni Carbonate
13463393	Nickel carbonyl	Ni Carbonyl
12054487	Nickel hydroxide	Ni Hydroxide
1313991	Nickel oxide	Ni Oxide
1146	Nickel refinery dust from the pyrometallurgical process	Ni RefineryDust
12035722	Nickel subsulfide	Ni Subsulfide
1271289	Nickelocene	Nickelocene
54115	Nicotine	Nicotine
61574	Niridazole	Niridazole
7697372	Nitric acid	Nitric Acid
139139	Nitrilotriacetic acid	NitrilTriAc Aci
1148	Nitrilotriacetic acid (salts)	NitrTriA(salts)
18662538	Nitrilotriacetic acid, trisodium salt monohydrate	NitrTriAc,tri-s
98953	Nitrobenzene	Nitrobenzene
1836755	Nitrofen (technical grade)	Nitrofen(tech)
67209	Nitrofurantoin	Nitrofurantoin
59870	Nitrofurazone	Nitrofurazone
10102440	NITROGEN DIOXIDE	NITROGEN DIOXID
51752	Nitrogen mustard	NitrogenMustard
55867	Nitrogen mustard hydrochloride	NitrMustardHCl

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
302705	Nitrogen mustard N-oxide	NitrMustardN-Ox
55630	Nitroglycerin	Nitroglycerin
10024972	Nitrous oxide	Nitrogen oxide
70257	N-Methyl-N'-nitro-N-nitrosoguanidine	N-Me-NitrGuanid
924425	N-Methyloacrylamide	N-MethyloAcryla
494031	N-N-Bis(2-chloroethyl)-2-naphthylamine {Chlornaphazine}	NNBisChlNaph
1116547	N-Nitrosodiethanolamine	N-NitrosEthnlAm
55185	N-Nitrosodiethylamine	N-NitrosDEA
62759	N-Nitrosodimethylamine	N-NitrosDMA
924163	N-Nitrosodi-n-butylamine	N-NitrosDBuAmin
621647	N-Nitrosodi-n-propylamine	N-NitrosDPrAmin
86306	N-Nitrosodiphenylamine	N-NitrosDiPhAmi
10595956	N-Nitrosomethylethylamine	N-NitrosMEAmine
4549400	N-Nitrosomethylvinylamine	N-NitrosMeVAmin
59892	N-Nitrosomorpholine	N-NitrosMorphol
759739	N-Nitroso-N-ethylurea	N-NitrosNEtUrea
684935	N-Nitroso-N-methylurea	N-NitrosNMeUrea
615532	N-Nitroso-N-methylurethane	N-NitrosMUretha
16543558	N-Nitrosonornicotine	N-NitrosNornico
100754	N-Nitrosopiperidine	N-NitrosPiperid
930552	N-Nitrosopyrrolidine	N-NitrosPyrroli
13256229	N-Nitrososarcosine	N-NitrosSarcosi
68224	Norethisterone	Norethisterone
6533002	Norgestrel	Norgestrel
97563	o-Aminoazotoluene	o-Aminoazotolue
90040	o-Anisidine	o-Anisidine
134292	o-Anisidine hydrochloride	o-Anisidine HCl

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
303479	Ochratoxin A	Ochratoxin A
95487	o-Cresol	o-Cresol
2234131	Octachloronaphthalene	OctaClNaphthal
528290	o-Dinitrobenzene	o-DinitroBenzen
2646175	Oil Orange SS	Oil Orange SS
8014957	Oleum	Oleum
20816120	Osmium tetroxide	OsmiumTetraOxid
95534	o-Toluidine	o-Toluidine
636215	o-Toluidine hydrochloride	o-Toluid HCl
42603	Oxides of Nitrogen	NOX
42401	Oxides of sulfur	SOX
95476	o-Xylene	o-Xylene
434071	Oxymetholone	Oxymetholone
79572	Oxytetracycline	Oxytetracycline
10028156	OZONE	OZONE
1151	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	PAHs-w/o
1150	PAHs, total, with individ. components also reported	PAHs-w/
5216251	p-alpha,alpha,alpha-Tetrachlorotoluene	p-alphaTetClTol
60093	p-Aminoazobenzene	p-Aminoazobenz
794934	Panfuran S	Panfuran S
104949	p-Anisidine	p-Anisidine
115673	Paramethadione	Paramethadione
56382	Parathion	Parathion
11101	Particulate Matter	PM
85101	Particulate Matter 10 Microns or Less	PM10
88101	Particulate Matter 2.5 Microns or Less	PM25
1336363	PCBs {Polychlorinated biphenyls}	PCBs

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
106478	p-Chloroaniline	p-Chloroaniline
95692	p-Chloro-o-toluidine	pCl-Toluidine
1059	p-Chloro-o-toluidine (strong acid salts)	pCl-Tolui/salts
120718	p-Cresidine	p-Cresidine
106445	p-Cresol	p-Cresol
106467	p-Dichlorobenzene	p-DiClBenzene
100254	p-Dinitrobenzene	p-DinitroBenzen
52675	Penicillamine	Penicillamine
82688	Pentachloronitrobenzene {Quintobenzene}	PentaClNitrBenz
87865	Pentachlorophenol	PCP
57330	Pentobarbital sodium	PentobarbSodium
79210	Peracetic acid	Peracetic Acid
127184	Perchloroethylene {Tetrachloroethene}	Perc
2795393	Perfluorooctanoic acid {PFOA} (and its salts, esters, and sulfonates)	PFOA
198550	Perylene	Perylene
63989	Phenacemide	Phenacemide
62442	Phenacetin	Phenacetin
85018	Phenanthrene	Phenanthrene
94780	Phenazopyridine hydrochloride	PhenazoPyri HCl
3546109	Phenesterin	Phenesterin
50066	Phenobarbital	Phenobarbital
108952	Phenol	Phenol
59961	Phenoxybenzamine	PhenoxyBenzamin
63923	Phenoxybenzimide hydrochloride	PhenoxBenzamHCl
122601	Phenyl glycidyl ether	PhenylGlycEther
57410	Phenytoin	Phenytoin
75445	Phosgene	Phosgene

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
7803512	Phosphine	Phosphine
7664382	Phosphoric acid	Phosphoric Acid
7723140	Phosphorus	Phosphorus
10025873	Phosphorus oxychloride	Phos OxyChlorid
10026138	Phosphorus pentachloride	Phos PentaChlor
1314563	Phosphorus pentoxide	Phos Pentoxide
7719122	Phosphorus trichloride	Phos TriChlorid
85449	Phthalic anhydride	Phthalic Anhydr
88891	Picric acid	Picric Acid
54911	Pipobroman	Pipobroman
18378897	Plicamycin	Plicamycin
156105	p-Nitrosodiphenylamine	p-NitrosDiPhAmn
1155	Polybrominated biphenyls	PBBs
2222	Polybrominated diphenyl ethers {PBDEs}	PBDEs
53973981	Polygeenan	Polygeenan
3564098	Ponceau 3R	Ponceau 3R
3761533	Ponceau MX	Ponceau MX
7758012	Potassium bromate	Potass Bromate
106503	p-Phenylenediamine	p-Phenylenediam
366701	Procarbazine hydrochloride	ProcarbazinHCl
57830	Progesterone	Progesterone
1160	Progestins	Progestins
123386	Propionaldehyde	Propionaldehyde
114261	Propoxur	Propoxur
115071	Propylene	Propylene
107982	Propylene glycol monomethyl ether	PGME
108656	Propylene glycol monomethyl ether acetate	PGMEA

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
75569	Propylene oxide	Propylene Oxide
51525	Propylthiouracil	Propylthiouraci
106490	p-Toluidine	p-Toluidine
106423	p-Xylene	p-Xylene
129000	Pyrene	Pyrene
110861	Pyridine	Pyridine
91225	Quinoline	Quinoline
106514	Quinone	Quinone
1165	Radionuclides	Radionuclides
1166	Radon and its decay products	Radon
16113	Reactive Organic Gas	ROG
50555	Reserpine	Reserpine
1167	Retinol/retinyl esters	Retinol/yl estr
36791045	Ribavirin	Ribavirin
1168	Rockwool (man-made fibers)	Rockwool
81072	Saccharin	Saccharin
94597	Safrole	Safrole
78922	sec-Butyl alcohol	sec-Butyl Alcoh
7782492	Selenium	Selenium
7446346	Selenium sulfide	Se Sulfide
1180	Shale oils	Shale oils
1175	Silica, crystalline (respirable)	Silica, Crystln
7440224	Silver	Silver
1181	Slagwool (man-made fibers)	Slagwool
10588019	Sodium dichromate	SodiumDichromat
1310732	Sodium hydroxide	Sodium Hydroxid
132274	Sodium o-phenylphenate	Sodium o-PhPhen

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
128449	Sodium saccharin	SodiumSaccharin
1185	Soots	Soots
10048132	Sterigmatocystin	Sterigmatocysti
3810740	Streptomycin sulfate	StreptomySulfat
18883664	Streptozotocin	Streptozotocin
7789062	Strontium chromate	StrontiumChrom
100425	Styrene	Styrene
96093	Styrene oxide	Styrene Oxide
95067	Sulfallate	Sulfallate
9960	SULFATES	SULFATES
7446095	SULFUR DIOXIDE	SULFUR DIOXIDE
2551624	Sulfur hexafluoride	SF6
7446719	Sulfur trioxide	Sulfur trioxide
7664939	Sulfuric acid	Sulfuric Acid
9961	SULFURIC ACID+OLEUM	SULFURIC+OLEUM
1190	Talc containing asbestiform fibers	Talc w/asbest
54965241	Tamoxifen citrate	TamoxifenCitrat
540885	t-Butyl acetate	t-Butyl acetate
846504	Temazepam	Temazepam
100210	Terephthalic acid	Terephthalic Ac
75650	tert-Butyl alcohol	t-Butyl Alcohol
58220	Testosterone and its esters	Testosteron&Est
315377	Testosterone enanthate	TestosteronEnan
25167833	Tetrachlorophenols	Tetrachloroph
961115	Tetrachlorvinphos	Tetrachlorvinph
64755	Tetracycline hydrochloride	TetracyclineHCl
509148	Tetranitromethane	TetraNitroMetha

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
50351	Thalidomide	Thalidomide
7440280	Thallium	Thallium
62555	Thioacetamide	Thioacetamide
154427	Thioguanine	Thioguanine
62566	Thiourea	Thiourea
1314201	Thorium dioxide	ThoriumDioxide
7550450	Titanium tetrachloride	Titanm TetraCl
1200	Tobacco products, smokeless	Tobac/smokeless
49842071	Tobramycin sulfate	TobramycinSulfa
108883	Toluene	Toluene
26471625	Toluene diisocyanates	TolueneDiisocyn
584849	Toluene-2,4-diisocyanate	T-2,4-diisocyan
91087	Toluene-2,6-diisocyanate	T-2,6-diisocyan
38998753	Total Heptachlorodibenzofuran	TotalHeptaCDF
37871004	Total Heptachlorodibenzo-p-dioxin	TotalHeptaCDD
55684941	Total Hexachlorodibenzofuran	TotalHexaCDF
34465468	Total Hexachlorodibenzo-p-dioxin	TotalHexaCDD
43101	Total Organic Gases	TOG
30402154	Total Pentachlorodibenzofuran	TotalPentaCDF
36088229	Total Pentachlorodibenzo-p-dioxin	TotalPentaCDD
55722275	Total Tetrachlorodibenzofuran	TotalTetraCDF
41903575	Total Tetrachlorodibenzo-p-dioxin	TotalTetraCDD
8001352	Toxaphene	Toxaphene
55738540	trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl-1,3,4-oxadiazol	trans-2DiMAmMIm
299752	Treosulfan	Treosulfan
28911015	Triazolam	Triazolam
126738	Tributyl phosphate	TriButylPhospha

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
52686	Trichlorfon	Trichlorfon
79016	Trichloroethylene	TCE
75694	Trichlorofluoromethane {Freon 11}	TriClFluorMetha
78400	Triethyl phosphine	TriEthylPhosphn
121448	Triethylamine	Triethylamine
112492	Triethylene glycol dimethyl ether	TEGDME
75467	Trifluoromethane {Freon 23}	TriFluoroMethan
1582098	Trifluralin	Trifluralin
13647353	Trilostane	Trilostane
127480	Trimethadione	Trimethadione
512561	Trimethyl phosphate	TriMethylPhosph
25551137	Trimethylbenzenes	TriMeBenzns
78308	Triorthocresyl phosphate	TriOrthCresPhos
115866	Triphenyl phosphate	TriPhPhosphate
101020	Triphenyl phosphite	TriPhPhosphite
52244	Tris(1-aziridinyl) phosphine sulfide	TrisAzirPhosphS
126727	Tris(2,3-dibromopropyl)phosphate	Tris(DiBrPr)Pho
68768	Tris(aziridinyl)-p-benzoquinone	TrisAzirQuinone
62450060	Trp-P-1 {3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole}	Trp-P-1
62450071	Trp-P-2 {3-Amino-1-methyl-5H-pyrido[4,3-b]indole}	Trp-P-2
72571	Trypan blue	Trypan blue
66751	Uracil mustard	Uracil Mustard
51796	Urethane	Urethane
26995915	Urofollitropin	Urofollitropin
99661	Valproate	Valproate
7440622	Vanadium (fume or dust)	Vanadium
1314621	Vanadium pentoxide	Vanad pentoxd

HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
143679	Vinblastine sulfate	VinblastineSulf
2068782	Vincristine sulfate	VincristineSulf
108054	Vinyl acetate	Vinyl Acetate
593602	Vinyl bromide	Vinyl Bromide
75014	Vinyl chloride	Vinyl Chloride
75025	Vinyl fluoride	VinylFluoride
75354	Vinylidene chloride	Vinylid Chlorid
43104	Volatile Organic Compounds (VOC)	VOC
81812	Warfarin	Warfarin
1206	Wood preservatives (containing arsenic and chromate)	Wood Preserv
1330207	Xylenes (mixed)	Xylenes
7440666	Zinc	Zinc
1314132	Zinc oxide	Zinc Oxide
12122677	Zineb	Zineb

Source: CARB 2015a