

**Maximum Peak Daily Construction and Operation Equipment and Fugitive Dust Emissions
2023**

Emission Source	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Changes to Operations Phases between Zone 1 and Zone 4						
Fugitive Dust—Material Handling	–	–	–	–	0.20	0.11
Fugitive Dust—Unpaved Roads	–	–	–	–	11.52	3.04
Vehicle, Equipment, and Truck Emissions	7.32	42.88	88.70	0.38	2.90	2.68
San Onofre Breccia Area						
Fugitive Dust—Material Handling	–	–	–	–	1.72	0.60
Fugitive Dust—Unpaved Roads	–	–	–	–	35.91	9.48
Vehicle, Equipment, and Truck Emissions	1.49	3.74	17.47	0.09	0.18	0.17
Imported Soil Truck Trips for Liner Installation						
Fugitive Dust—Material Handling	–	–	–	–	0.20	0.11
Fugitive Dust—Unpaved Roads	–	–	–	–	4.98	1.31
Vehicle, Equipment, and Truck Emissions	0.03	0.35	4.51	0.02	0.02	0.02
TOTAL	8.85	46.97	110.67	0.50	57.64	17.52
Significance Threshold	75	550	100	150	150	55
<i>Above Threshold?</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>No</i>

2043

Emission Source	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Changes to Operations Phases between Zone 1 and Zone 4						
Fugitive Dust—Material Handling	–	–	–	–	0.20	0.11
Fugitive Dust—Unpaved Roads	–	–	–	–	54.69	5.47
Vehicle, Equipment, and Truck Emissions	0.18	5.63	27.15	0.19	0.13	0.13
San Onofre Breccia Area						
Fugitive Dust—Material Handling	–	–	–	–	0.00	0.00
Fugitive Dust—Unpaved Roads	–	–	–	–	0.00	0.00
Vehicle, Equipment, and Truck Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Imported Soil Truck Trips for Liner Installation						
Fugitive Dust—Material Handling	–	–	–	–	0.20	0.11
Fugitive Dust—Unpaved Roads	–	–	–	–	23.64	2.36
Vehicle, Equipment, and Truck Emissions	0.03	0.34	3.76	0.02	0.02	0.02
TOTAL	0.21	5.97	30.91	0.21	78.89	8.20
Significance Threshold	75	550	100	150	150	55
<i>Above Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

2058

Emission Source	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Changes to Operations Phases between Zone 1 and Zone 4						
Fugitive Dust—Material Handling	–	–	–	–	0.20	0.11
Fugitive Dust—Unpaved Roads	–	–	–	–	54.69	5.47
Vehicle, Equipment, and Truck Emissions	0.18	5.60	27.22	0.19	0.13	0.13
San Onofre Breccia Area						
Fugitive Dust—Material Handling	–	–	–	–	0.00	0.00
Fugitive Dust—Unpaved Roads	–	–	–	–	0.00	0.00
Vehicle, Equipment, and Truck Emissions	0.00	0.00	0.00	0.00	0.00	0.00
Imported Soil Truck Trips for Liner Installation						
Fugitive Dust—Material Handling	–	–	–	–	0.00	0.00
Fugitive Dust—Unpaved Roads	–	–	–	–	0.00	0.00
Vehicle, Equipment, and Truck Emissions	0.08	0.88	11.26	0.06	0.06	0.06
TOTAL	0.26	6.48	38.48	0.25	55.09	5.76
Significance Threshold	75	550	100	150	150	55
<i>Above Threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

TABLE A-2a																														
Vehicular & Heavy Construction Equipment Emissions																														
Equipment	Fuel	Engine Tier Level	HP	Load Factor ²	Max. No. of Equipment per Day	Hours per Vehicle per Day	Vehicle Hours per Year (@ 260 days per Year)	Emission Factors ³ (lb/hr or lb/mi)							Maximum Daily Emission Rates (lbs/day)					Maximum Annual Emission Rates (tons/yr)					Maximum Annual Emission Rates (metric tons/year)					
								CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄ (GWP=25)	CO ₂ e
657E Scraper	Diesel	T3	577	48	30	8	2,080	0.1834	0.0468	0.4400	0.0008	0.0192	0.0177	89.9757	0.0302	21.13	5.39	50.68	0.10	2.22	2.04	2.75	0.70	6.59	0.01	0.29	0.27	1,222.41	0.41	1,232.67
834K Wheel Dozer	Diesel	T4F	562	40	2	8	2,080	0.3840	0.0361	0.1036	0.0019	0.0038	0.0035	200.3907	0.0302	2.46	0.23	0.66	0.01	0.02	0.032	0.03	0.09	0.00	0.00	0.00	151.25	0.02	151.82	
345CL Excavator	Diesel	T3	345	38	1	8	2,080	0.0336	0.0088	0.0803	0.0002	0.0040	0.0036	16.3536	0.0114	0.10	0.03	0.24	0.00	0.01	0.01	0.01	0.00	0.03	0.00	0.00	0.00	5.86	0.00	5.97
440 Backhoe Loader	Diesel	T4F	118	36	4	8	2,080	0.2583	0.0067	0.0003	0.0000	0.0000	0.0000	46.5689	0.0104	2.98	0.08	0.00	0.00	0.00	0.00	0.39	0.01	0.00	0.00	0.00	63.27	0.01	63.62	
140M3 Motor Grader	Diesel	T4F	183	41	1	8	2,080	0.0761	0.0062	0.0204	0.0004	0.0007	0.0007	40.0148	0.0163	0.25	0.02	0.07	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	15.48	0.01	15.64
Ejector Truck	Diesel	T3	250	50	3	8	2,080	0.0253	0.0071	0.0602	0.0001	0.0031	0.0028	12.0860	0.0133	0.30	0.09	0.72	0.00	0.04	0.03	0.04	0.01	0.09	0.00	0.00	0.00	17.10	0.02	17.57
8,000 Gallon Water Truck	Diesel	T3	250	50	1	8	2,080	0.0253	0.0071	0.0602	0.0001	0.0031	0.0028	12.0860	0.0133	0.10	0.03	0.24	0.00	0.01	0.01	0.01	0.00	0.03	0.00	0.00	0.00	5.70	0.01	5.86
1-Ton Pickup Truck with Service Bed	Diesel	T3	250	50	8	8	2,080	0.0332	0.0095	0.0736	0.0001	0.0039	0.0036	14.4697	0.0133	1.06	0.31	2.35	0.00	0.12	0.11	0.14	0.04	0.31	0.00	0.02	0.01	54.61	0.05	55.86
Total ⁵																28.39	6.16	54.98	0.12	2.43	2.23	3.69	0.80	7.15	0.01	0.32	0.29	258.67	0.07	260.48

Bisating Equipment	Fuel	Engine Tier Level	HP	Load Factor ²	Max. No. of Equipment per Day	Hours per Vehicle per Day	Vehicle Hours per Year (@ 260 days per Year)	Emission Factors ³ (lb/hr or lb/mi)							Maximum Daily Emission Rates (lbs/day)							Maximum Annual Emission Rates (tons/yr)						Maximum Annual Emission Rates (metric tons/year)		
								CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄ (GWP=25)	CO ₂ e
Drill/Boring Rig	Diesel	T3	300	50	2	8	2,080	0.0019	0.0004	0.0001	0.0000	0.0002	0.0002	0.9870	N/A	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0	0.93
Dozers	Diesel	T3	562	40	2	8	2,080	0.0546	0.0167	0.1287	0.0002	0.0068	0.0062	25.3145	N/A	0.35	0.11	0.82	0.00	0.04	0.04	0.05	0.01	0.11	0.00	0.01	0.01	19.11	0	19.11
Excavators	Diesel	T3	345	38	2	8	2,080	0.0336	0.0088	0.0048	0.0002	0.0040	0.0036	16.3536	N/A	0.20	0.05	0.03	0.00	0.02	0.02	0.03	0.01	0.00	0.00	0.00	0.00	11.73	0	11.73
Loaders	Diesel	T3	118	36	2	8	2,080	0.2583	0.0067	0.0236	0.0004	0.0009	0.0008	46.5689	N/A	1.49	0.04	0.14	0.00	0.01	0.00	0.19	0.01	0.02	0.00	0.00	0.00	31.63	0	31.63
150-HP Generators	Diesel	T3	150	74	2	8	2,080	0.0354	0.0027	0.0281	0.0001	0.0017	0.0016	5.8446	N/A	0.42	0.03	0.33	0.00	0.02	0.02	0.05	0.00	0.04	0.00	0.00	0.00	8.16	0	8.16
Rock Crusher	Diesel	T3			1	8	2,080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
Total ⁴																2.48	0.23	1.32	0.01	0.09	0.09	0.32	0.03	0.17	0.00	0.01	0.01	71.56	0	71.56
Net Total																30.86	6.40	56.30	0.12	2.52	2.32	4.01	0.83	7.32	0.02	0.33	0.30	330.23	0.07	332.04

¹Maximum miles per vehicle per day determined by the required number of 20-mile round trips required for the seven trucks to make a total of at least 54 trips in a day.

²CalEEMod version 2016.3.2 Default Load Factors

³Emissions factors are conservatively assumed to be the 2023 scenario year presented in OFFROAD2017 Emission Inventory in CARB's web database

⁴The total presented in boldface font is the sum of the unrounded data displayed in this table in its rounded form.

⁵Emission factor calculated per SCAQMD methodology outlined in the CEQA Air Quality Handbook (1993), page A9-101.

⁶PM_{2.5} calculated as a fraction of PM₁₀ emissions based on guidelines found at http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

⁷Assumes compliance with SCAQMD Rules 403 and 1186

TABLE A-2b
Vehicular & Heavy Equipment
Average Daily and Annual Emissions

Equipment	Fuel	Engine Tier Level	HP	Load Factor ¹	Max. No. of Equipment per Day	Max. Hours per Vehicle per Day (6:00am to 6:00pm)	Vehicle Hours per Year (@ 307 days per Year)	Emission Factors ³ (lb/hr or lb/mi)								Maximum Emission Rates (lbs/day)						Maximum Annual Emission Rates (tons/yr)						Maximum Annual Emission Rates (metric tons/year)		
								CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄ (GWP=25)	CO ₂ e
D10T Trash Dozer	Diesel	T3	580	40	2	12	3,684	0.1831	0.0132	0.0502	0.0009	0.0018	0.0016	100.0440	0.0302	1.76	0.13	0.48	0.01	0.02	0.02	0.27	0.02	0.07	0.00	0.00	0.00	133.74	0.04	134.75
657E Scraper	Diesel	T3	577	48	2	12	3,684	0.1834	0.0468	0.4400	0.0008	0.0192	0.0177	89.9757	0.0302	2.11	0.54	5.07	0.01	0.22	0.20	0.32	0.08	0.78	0.00	0.03	0.03	144.34	0.05	145.55
D7E Tractor	Diesel	T4F	252	44	1	12	3,684	0.0593	0.0045	0.0159	0.0003	0.0006	0.0005	31.3891	0.0302	0.31	0.02	0.08	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	23.08	0.02	23.63
DSK2 XL Crawler Tractor	Diesel	T4I	104	43	1	12	3,684	0.0677	0.0000	0.0001	0.0000	0.0000	0.0000	0.1393	0.0302	0.35	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.10	0.02	0.64	
836K Compactor	Diesel	T4F	562	43	1	12	3,684	0.1831	0.0132	0.0502	0.0009	0.0018	0.0016	100.0440	0.0302	0.94	0.07	0.26	0.00	0.01	0.01	0.15	0.01	0.04	0.00	0.00	0.00	71.89	0.02	72.43
966H Wheel Loader	Diesel	T3	286	36	1	12	3,684	0.0020	0.0004	0.0050	0.0000	0.0002	0.0002	1.0840	0.0104	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.01	0.81
IT38H Tool Carrier	Diesel	T3	197	42	1	12	3,684	0.0080	0.0018	0.0185	0.0000	0.0009	0.0008	3.8546	0.0104	0.04	0.01	0.09	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	2.71	0.01	2.89
440 Backhoe Loader	Diesel	T4F	118	37	1	12	3,684	0.2583	0.0067	0.0236	0.0004	0.0009	0.0008	46.5689	0.0104	1.15	0.03	0.10	0.00	0.00	0.00	0.18	0.00	0.02	0.00	0.00	0.00	28.79	0.01	28.95
140M3 Motor Grader	Diesel	T4F	183	41	1	12	3,684	0.0761	0.0062	0.0204	0.0004	0.0007	0.0007	40.0148	0.0302	0.37	0.03	0.10	0.00	0.00	0.00	0.06	0.00	0.02	0.00	0.00	0.00	27.42	0.02	27.93
Water Truck	Diesel	T4F	250	38	2	12	3,684	0.0627	0.0047	0.0172	0.0003	0.0006	0.0006	34.0242	0.0000	0.57	0.04	0.16	0.00	0.01	0.01	0.09	0.01	0.02	0.00	0.00	0.00	43.21	0.00	43.21
Total ⁴								4.53	0.69	5.63	0.02	0.24	0.22	1.17	0.13	0.98	0.00	0.04	0.04	301.26	0.13	304.58								

¹Emissions rates calculated per CARB methodology.

²Load factors are presented in CalEEMod Version 2016.3.2 model.

³Emissions factors are conservatively assumed to be the 2023 scenario year presented in OFFROAD2017 Emission Inventory in CARB's web database

⁴The total presented in boldface font is the sum of the unrounded data displayed in this table in its rounded form.

⁵PM_{2.5} calculated as a fraction of PM₁₀ emission based on guidelines found at http://www.aqmd.gov/ccqa/handbook/PM2_5/PM2_5.html

EQUIPMENT LIST

Landfill Use Equipment						
Quantity	Model	Description	Engine Tier Level	Operating Hours	Zone 1	Zone 4
2	D10T	D10T Trash Dozer	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
2	657E	657E Scraper	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	D7E	D7E Tractor	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	D5K2	D5K2 XL Crawler Tractor	T4I	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	836K	836K Compactor	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	966H	966H Wheel Loader	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	IT38H	IT38H Tool Carrier	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	440	440 Backhoe Loader	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
2	730-04A	6,000 Gallon Water Truck	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	140M3	140M3 Motor Grader	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I

Construction Use Equipment						
Quantity	Model	Description	Engine Tier Level	Operating Hours	Zone 1	Zone 4
30	657E	657E Scraper	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
2	834K	834K Wheel Dozer	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	345CL	345CL Excavator	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
4	740E	Ejector Truck	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	440	440 Backhoe Loader	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
3	740EJ	8,000 Gallon Water Truck	T3	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
1	140M3	140M3 Motor Grader	T4F	6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I
8		1-Ton Pickup Truck with Service Bed		6AM to 6PM	B, C, D	A, B, C, D, E, F, G, H, I

Blasting Equipment						
Quantity	Model	Description	Engine Tier Level	Operating Hours	Zone 1	Zone 4
2		Drill/Boring Rig	T3	6AM to 6PM		
2		Dozers		6AM to 6PM		
2		Excavators		6AM to 6PM		
2		Loaders		6AM to 6PM		
2		150-HP Generators		6AM to 6PM		
1		Rock Crusher		6AM to 6PM		
5				6AM to 6PM		

2 drills
 2 dozers
 2 excavators
 2 loaders
 on-site crushers
 Electrically powered crushers and screening plants

Model Year		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy		Fuel Consumption		Total Activity, hrs		Total Population		Horsepower, Hours, Ht	
Region Type: Sub Area		Calendar Year		Fuel		HC_tpy		CO_tpy		CO2_tpy		PM10_tpy		PM2.5_tpy		SOx_tpy		NH3_tpy									

EMFAC2017 (v1.0.3) Emission Rates

Region Type: County

Region: ORANGE (SC)

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	Calendar	Vehicle Class	Model Year	Speed	Fuel	VMT	ROG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2_5_RUNEX	Fuel %
Orange (SC)	2023	LDA	Aggregate	5	Gasoline	161,746	0.047357755	1.057426095	0.054874975	0.005980042	0.009344104	0.008591579	
Orange (SC)	2023	LDA	Aggregate	5	Diesel	1,690	0.167934563	3.208230192	0.123506651	0.004687597	0.016722385	0.015998982	
Orange (SC)	2023	LDA	Aggregate	15	Gasoline	608,476	0.020132243	0.881112153	0.041436199	0.003986452	0.00391181	0.003596775	98.97%
Orange (SC)	2023	LDA	Aggregate	15	Diesel	6,356	0.063407446	1.184487307	0.079196019	0.003212025	0.010386879	0.009937548	1.03%
Orange (SC)	2023	LDA	Aggregate	40	Gasoline	5,222,910	0.005860795	0.577670215	0.028418647	0.002250873	0.001128348	0.001037479	98.97%
Orange (SC)	2023	LDA	Aggregate	40	Diesel	54,559	0.009426152	0.151735256	0.045212611	0.001618358	0.004872153	0.004661386	1.03%
Orange (SC)	2023	MDV	Aggregate	5	Gasoline	35,655	0.103805638	1.666858857	0.141377925	0.009274636	0.009610848	0.008837146	
Orange (SC)	2023	MDV	Aggregate	5	Diesel	951	0.173320414	3.468669255	0.124518885	0.007914425	0.011244374	0.010757947	
Orange (SC)	2023	MDV	Aggregate	15	Gasoline	134,133	0.044810353	1.358783812	0.105103247	0.006174659	0.004041953	0.003716592	97.40%
Orange (SC)	2023	MDV	Aggregate	15	Diesel	3,579	0.064272144	1.274608892	0.076515758	0.005700091	0.007816376	0.007478243	2.60%
Orange (SC)	2023	MDV	Aggregate	40	Gasoline	1,151,340	0.013376551	0.880898734	0.071997995	0.003488838	0.001174879	0.001080325	97.40%
Orange (SC)	2023	MDV	Aggregate	40	Diesel	30,717	0.008380239	0.155749979	0.03823931	0.002934292	0.003902247	0.003733437	2.60%
Orange (SC)	2023	MHDT	Aggregate	5	Gasoline	1,239	0.20151114	1.490451853	0.435101173	0.039074106	0.005960325	0.005480299	
Orange (SC)	2023	MHDT	Aggregate	5	Diesel	4,776	0.054136998	0.772647348	6.399744022	0.021979464	0.005331866	0.005101212	
Orange (SC)	2023	MHDT	Aggregate	15	Gasoline	4,315	0.084796524	1.206507878	0.334297125	0.025941122	0.002492436	0.002291702	20.28%
Orange (SC)	2023	MHDT	Aggregate	15	Diesel	16,964	0.019179204	0.258712273	3.441614712	0.014308499	0.003618517	0.003461981	79.72%
Orange (SC)	2023	MHDT	Aggregate	40	Gasoline	43,370	0.024767889	0.788889702	0.22991288	0.014675842	0.000718652	0.000660774	17.25%
Orange (SC)	2023	MHDT	Aggregate	40	Diesel	207,996	0.005698007	0.057651255	0.878145549	0.007657332	0.004457806	0.004264964	82.75%
Orange (SC)	2023	HHDT	Aggregate	5	Gasoline	3,836,197	2.857859125	51.65199796	6.054742133	0.045000476	0.008099642	0.007447322	
Orange (SC)	2023	HHDT	Aggregate	5	Diesel	3484,799	0.116879602	1.739044183	16.86251359	0.040173298	0.017113825	0.016373488	
Orange (SC)	2023	HHDT	Aggregate	15	Gasoline	13,35771	1.20878135	41.59849867	4.770255839	0.029959362	0.003427557	0.003151512	0.13%
Orange (SC)	2023	HHDT	Aggregate	15	Diesel	10478.1	0.046633145	0.662701534	7.914558478	0.023242324	0.010261517	0.009817608	99.87%
Orange (SC)	2023	HHDT	Aggregate	40	Gasoline	134,2601	0.357165774	27.14046707	3.501705814	0.016990975	0.001015311	0.000933541	0.10%
Orange (SC)	2023	HHDT	Aggregate	40	Diesel	128224.4	0.014121539	0.156443256	2.023474276	0.011478324	0.011209909	0.010724974	99.90%

Prima Deshecha Landfill GDP Project

Project Trip Generation

Landfill Construction and Operatio

Summary of Vehicle Types	Incremental Daily Trips
Trip Generation (Cars)	214
Trip Generation (2-Axle Trucks)	30
Trip Generation (3-Axle Trucks)	611
Trip Generation (4+ Axle Trucks)	208
Trips/Unit (Total)	1,063

Land Use	Size	Units	ADT
Existing Uses			
Landfill	2,120	TPD	688
Landfill Employees ²	25	Vehicles	50
Landfill Material Deliveries	5	Trucks	10
HHW Collection Center ³	80	Vehicles	160
HHW Employees ³	2	Vehicles	4
Subtotal			912
Approved Uses			
Max Permitted Landfill Operation	1,880	TPD	611
Capistrano Greenery	15	Trucks	30
Subtotal			641
Proposed Project			
Breccia Removal	81	Trucks	162
SSO Trucks		Trucks	
SSO Construction Workers		Vehicles	
SSO Material Deliveries		Trucks	
Soil Import for Liner Install	23	Trucks	46
Subtotal			208
Total			1,761

Source: LSA Traffic Impact Analysis Report (October 2020)

Note: Trip generation is in passenger car equivalents.

¹ Based on information from the OC Waste & Recycling.

² Landfill employee schedules are 6:30 a.m. to 4:30 p.m.

Although landfill employees arrive prior to the a.m. peak hour, they depart during the p.m. peak hour.

³ The HHW collection center is open from 9 a.m. to 3 p.m.

Although HHW employees arrive during the a.m. peak hour, all other HHW trips occur outside of the a.m. and p.m. peak hours.

ADT = average daily traffic

FEIR = Final Environmental Impact Report

GDP = General Development Plan

HHW = household hazardous waste

SSO = source-separate organic waste

TPD = tons per day

Estimated on-site travel distance

Zone	Cell	Estimated Off-Road Roundtrip	Converted to Feet
1	B	1.4	7,392
1	C	1.6	8,448
1	D	1.6	8,448
4	A	0.7	3,696
4	B	0.9	4,752
4	C	1.3	6,864
4	D	1.8	9,504
4	E	2.0	10,560
4	F	1.0	5,280
4	G	1.8	9,504
4	H	1.9	10,032
4	I	1.4	7,392

Employee Vehicles and Trucks Trip Emissions - Prima Deshecha Landfill GDP Project - 2023

Vehicle Class		Speed (mph)	Miles per day	Emission Factors (g/mi)							Emission Rates (lbs/day)					
		ADT		VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}		VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Landfill Activities										Subtotal	0.055	5.465	0.268	0.021	0.011	0.010
LDV	214	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044		0.003	0.051	0.003	0.000	0.000	0.000
MDV	30	15	0.6	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478		0.011	0.206	0.051	0.004	0.005	0.005
MDV	30	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733		0.016	0.209	2.782	0.012	0.003	0.003
MHDT	611	15	0.6	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462		0.154	1.553	23.657	0.206	0.120	0.115
MHDT	611	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	15	0.6	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725		0.000	0.000	0.000	0.000	0.000	0.000
										Subtotal	0.238	7.484	26.761	0.243	0.139	0.133
Breccia Removal																
LDV	0	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044	Subtotal	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.6	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.6	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	162	15	0.6	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818		0.010	0.142	1.696	0.005	0.002	0.002
HHDT	162	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725		0.101	1.117	14.453	0.082	0.080	0.077
											Subtotal	0.111	1.259	16.149	0.087	0.082
Soil Import for Liner Install																
LDV	0	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044	Subtotal	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.5	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.5	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	46	15	0.5	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818		0.002	0.034	0.401	0.001	0.001	0.000
HHDT	46	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725		0.029	0.317	4.104	0.023	0.023	0.022
											Subtotal	0.031	0.351	4.505	0.024	0.023
Total										0.38	9.09	47.42	0.35	0.24	0.23	
SCAQMD Threshold										55	550	55	150	150	55	

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars) - Includes EMFAC Off-Model Adjustment Factors to Account for the SAFE Rule for gasoline vehicle only.

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHDT (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHTD (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

Truck route		
Unpaved	2,640	feet
Paved	500	feet
Total	0.6	mile
# Trips	20	per day

Employee Vehicles and Trucks Trip Emissions - Prima Deshecha Landfill GDP Project - 2043

Vehicle Class	ADT	Speed (mph)	Miles per day	Emission Factors (g/mi)							Emission Rates (lbs/day)					
				VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}		VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Landfill Activities																
LDV	214	40	20	0.001382	0.383898	0.015479	0.001712	0.000436	0.000401		0.013	3.622	0.146	0.016	0.004	0.004
MDV	30	15	0.6	0.033193	1.074748	0.026817	0.004269	0.001667	0.001595		0.001	0.043	0.001	0.000	0.000	0.000
MDV	30	40	20	0.003851	0.124367	0.008921	0.002197	0.000892	0.000853		0.005	0.165	0.012	0.003	0.001	0.001
MHDT	611	15	0.6	0.018307	0.265296	3.730104	0.011436	0.003378	0.003231		0.015	0.214	3.015	0.009	0.003	0.003
MHDT	611	40	20	0.00558	0.058693	0.890001	0.006134	0.004611	0.004412		0.150	1.581	23.977	0.165	0.124	0.119
HHDT	0	15	0.6	0.042546	0.684706	7.017069	0.015658	0.007582	0.007254		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	40	20	0.012957	0.152167	1.677844	0.008311	0.010223	0.00978		0.000	0.000	0.000	0.000	0.000	0.000
										Subtotal	0.185	5.625	27.150	0.194	0.132	0.126
Breccia Removal																
LDV	0	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.6	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.6	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	15	0.6	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725		0.000	0.000	0.000	0.000	0.000	0.000
										Subtotal	0.000	0.000	0.000	0.000	0.000	0.000
Soil Import for Liner Install																
LDV	0	40	20	0.001382	0.383898	0.015479	0.001712	0.000436	0.000401		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.5	0.033193	1.074748	0.026817	0.004269	0.001667	0.001595		0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.003851	0.124367	0.008921	0.002197	0.000892	0.000853		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.5	0.018307	0.265296	3.730104	0.011436	0.003378	0.003231		0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.00558	0.058693	0.890001	0.006134	0.004611	0.004412		0.000	0.000	0.000	0.000	0.000	0.000
HHDT	46	15	0.5	0.042546	0.684706	7.017069	0.015658	0.007582	0.007254		0.002	0.035	0.356	0.001	0.000	0.000
HHDT	46	40	20	0.012957	0.152167	1.677844	0.008311	0.010223	0.00978		0.026	0.309	3.403	0.017	0.021	0.020
										Subtotal	0.028	0.343	3.759	0.018	0.021	0.020
Total											0.21	5.97	30.91	0.21	0.15	0.15
SCAQMD Threshold											55	550	55	150	150	55

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars) - Includes EMFAC Off-Model Adjustment Factors to Account for the SAFE Rule for gasoline vehicle only.

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHDT (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHD (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

Truck route		
Unpaved	2,640	feet
Paved	500	feet
Total	0.6	mile
# Trips	20	per day

Employee Vehicles and Trucks Trip Emissions - Prima Deshecha Landfill GDP Project - 2058

Vehicle Class	ADT	Speed (mph)	Miles per day	Emission Factors (g/mi))						Emission Rates (lbs/day)					
				VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Landfill Activities															
LDV	214	40	20	0.001329	0.381	0.015557	0.001702	0.000411	0.000377	0.013	3.595	0.147	0.016	0.004	0.004
MDV	30	15	0.6	0.031983	1.066716	0.02527	0.004218	0.001444	0.001382	0.001	0.042	0.001	0.000	0.000	0.000
MDV	30	40	20	0.0037	0.123302	0.008156	0.002171	0.000775	0.000742	0.005	0.163	0.011	0.003	0.001	0.001
MHDT	611	15	0.6	0.018294	0.265692	3.752154	0.011229	0.003382	0.003236	0.015	0.215	3.032	0.009	0.003	0.003
MHDT	611	40	20	0.00558	0.058769	0.891885	0.006025	0.004626	0.004426	0.150	1.583	24.027	0.162	0.125	0.119
HHDT	0	15	0.6	0.042427	0.688374	6.977921	0.015174	0.007494	0.00717	0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	40	20	0.012932	0.152407	1.659324	0.008123	0.01023	0.009787	0.000	0.000	0.000	0.000	0.000	0.000
Subtotal										0.184	5.598	27.218	0.190	0.132	0.126
Breccia Removal															
LDV	0	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.6	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733	0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.6	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462	0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265	0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	15	0.6	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818	0.000	0.000	0.000	0.000	0.000	0.000
HHDT	0	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725	0.000	0.000	0.000	0.000	0.000	0.000
Subtotal										0.000	0.000	0.000	0.000	0.000	0.000
Soil Import for Liner Install															
LDV	0	40	20	0.005865	0.579172	0.028433	0.002251	0.001136	0.001044	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	15	0.5	0.064272	1.274609	0.076516	0.0057	0.007816	0.007478	0.000	0.000	0.000	0.000	0.000	0.000
MDV	0	40	20	0.00838	0.15575	0.038239	0.002934	0.003902	0.003733	0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	15	0.5	0.019179	0.258712	3.441615	0.014308	0.003619	0.003462	0.000	0.000	0.000	0.000	0.000	0.000
MHDT	0	40	20	0.005698	0.057651	0.878146	0.007657	0.004458	0.004265	0.000	0.000	0.000	0.000	0.000	0.000
HHDT	115	15	0.5	0.046633	0.662702	7.914558	0.023242	0.010262	0.009818	0.006	0.084	1.003	0.003	0.001	0.001
HHDT	115	40	20	0.014122	0.156443	2.023474	0.011478	0.01121	0.010725	0.072	0.793	10.260	0.058	0.057	0.054
Subtotal										0.078	0.877	11.263	0.061	0.058	0.056
Total										0.26	6.48	38.48	0.25	0.19	0.18
SCAQMD Threshold										55	550	55	150	150	55

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars) - Includes EMFAC Off-Model Adjustment Factors to Account for the SAFE Rule for gasoline vehicle only.

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHDT (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDt (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

Truck route		
Unpaved	2,640	feet
Paved	500	feet
Total	0.6	mile
# Trips	20	per day

Drilling and Blasting - Breccia Removal

ID	Source	holes/blast	Blast Frequency			Tons ANFO/ Blast
			blasts/day	blasts/month	blasts/ year	
B-1	Blasting Activity	2	2	5	50	2

Notes

3,600 x 1,800 = 6,840,000 sf area of drilling

18,000,000 pounds (or 9,000,000cy) rocks to be blasted

Blasting Emissions - Criteria Pollutants and GHG emissions

ID	Source	Area (ft2)	CO EF blasting	NOx EF blasting	SO2 EF blasting	Amount of rocks blasted	CO Emissions			NOx Emissions			SO2 Emissions		
							lb/hr	lb/day	TPY	lb/hr	lb/day	TPY	lb/hr	lb/day	TPY
B-1	Blasting	1,000	67	17	2	6,500	1.2596	10.07948	0.5695	0.3196	2.55748	0.1445	0.0376	0.30088	0.017

1. Emissions Factor Source: AP-42 5th Edition, Section 13.3, Table 13.3-1, January 1995.

2. Total area to be blasted 9,000,000 cy of material / 20 years (2023-2042) = 450,000 cf per year.

3. 9,000,000 cy of material / 20 years (2023-2042) / 50 blasts annually = 9,000 cy/blast for export

4. 9,000,000 cubic yards/6140 operating days (i.e., 307 operating days per year x 20 years) = 1,466 cubic yards per day; 18 cy load = 81 truck trips per day

Dust - PM10

ID	Source	Area (ft2)	PM10 EF Drilling (lb/hole)	PM2.5 EF Drilling (lb/hole)	Drilling Control Efficiency	PM10 EF Blasting (lb/blast)	PM10 EF Blasting (lb/blast)	PM10 Emissions				PM2.5 Emissions			Source Type
								lb/hr	lb/day	TPY		lb/hr	lb/day	TPY	
B-1	Blasting	1,000	-	-	-	0.2302	0.0133	0.4604	0.4604	0.0058		0.0266	0.0266	0.0003	Area
D-1	Drilling	1,000	0.65	0.12	75%	-	-	0.1625	0.325	0.008125		0.03	0.06	0.0015	Area
Total								0.62	0.79	0.01		0.06	0.09	0.00	

Notes:

1. Blasting Source: AECOM. Assumes 1.0 pounds of ANFO per cubic yard of rock blasted. Estimated 18,000,000 lbs (or 9,000,000cy) rocks to be blasted.

2. Emissions Factor Source: AP-42 5th Edition, Section 11.9, Table 11.9-4, October 1998. Assumes PM10 = TSP/2 = 1.3 lbs/hole / 2 = 0.65 lb/hole.

3. Emissions factor for PM2.5 is calculated based on a similar mechanical process for aggregate rock crushing. The emission factors for tertiary rock crushing will be used, based on AP-42 11.19.2, Table 11.19.2-2, Final Section, updated August 2004. The tertiary crushing emission factor for PM10 is 0.00054 lb/ton and the emissions factor for PM2.5 is 0.00010 lb/ton. The ratio of PM2.5 to PM10 is 0.00010/0.00054 = 0.185. Since the PM10 emission factor is estimated to be 0.65 lb/hole (see note 1), the emission factor for PM2.5 is estimated to be 0.65 lb/hole x 0.185 = 0.12 lb/hole.

4. Control Efficiency estimated to be between 63% and 88%, based on drill rotoclone or similar dust shroud device. Assumed midpoint of range reported.

5. AP-42 5th Edition, Section 11.9, Table 11.9-1. Also referenced Appendix E.2 of Background document to AP-42 5th Edition, Section 11.9.

PM10 EF = 0.000014(A)¹⁻⁵(0.52), where A = horizontal area in ft2 with a scaling factor for ≤10um of 0.52

PM2.5 EF = 0.000014(A)¹⁻⁵(0.03), where A = horizontal area in ft2 with a scaling factor for ≤2.5um of 0.03

Drill goes 90 feet deep. Total of 2 drilling holes. 180 ft/day drilling.

Example Calculation

Blasting PM10 = (7.28 lb/blast) x (1 blast/hr) = 7.28 lb/hr

Blasting PM10 = (1.57 lb/day) x (1 blast/day) = 1.57 lb/day

Blasting PM10 = (1.57 lb/day) x (250 blast/year) / (2,000 lb/ton) = 0.2 ton/year

5. Daily drilling emissions based on ability to drill one hole per hour per drill rig for 8 hours per day with one drill rig.

6. Based on 1 blast for the worst hourly potential to emit (PTE). However, modeled emission rate will be based on average of 1 blast in an 8-hour day.

7. Based on 1 blast per day, for the maximum daily PTE.

Storage Piles and Loading Operations

Storage Piles - Breccia Removal

ID	Source	PM10 EF lb/acre/day	PM2.5 EF lb/acre/day	Control Method	Control Efficiency	-	Pile Size (acres)	PM 10 Emissions			PM2.5 Emissions		
								lb/hr	lb/day	TPY	lb/hr	lb/day	TPY
SP1	Primary Storage Pile	5.6544	3.1248	Wet Suppr	90%	-	0.406	0.022957	0.229569	0.041896	0.012687	0.126867	0.023153
SP2	Active Storage Pile	5.6544	3.1248	Wet Suppr	90%	-	0.18	0.010178	0.101779	0.018575	0.005625	0.056246	0.010265

Notes:

- Storage piles are active 52 weeks.
- Total area to be stored 3,300,000 cy of material / 20 years (2023-2042) = 165,000 cy per year.
- Emissions Factor Source: AP-42 5th Edition, Section 11.9, Table 11.9-1 (Storage Piles), dated July 1998, as follows:

$TSP (<=30 \text{ mm}) = 0.72 \times u \text{ lb TSP/acre-hr, where } u \text{ (wind speed)} = 3.44 \text{ mph}$
 $0.72 \times 3.44 = 2.48 \text{ lb TSP/acre-hr}$
 $PM_{10} = TSP \times SF, \text{ where } SF \text{ (Scaling Factor)} = 0.19$
 $PM_{10} = 2.48 \times 0.19 = 0.42 \text{ lb } PM_{10}/\text{acre-hr} \times 12 \text{ operating hrs/day} = 5.65 \text{ lb } PM_{10}/\text{acre-day}$
 $PM_{2.5} = TSP \times SF, \text{ where } SF \text{ (Scaling Factor)} = 0.105$
 $PM_{2.5} = 2.48 \times 0.105 = 0.2604 \text{ lb } PM_{10}/\text{acre-hr} \times 12 \text{ operating hrs/day} = 3.1248 \text{ lb } PM_{2.5}/\text{acre-day}$

a) Annual average wind speed of 3.44 mph obtained from Mission Viejo Station #93184
- AP-42 Section 13.2.4-4 states wet suppression results in 90% control.

total 0.063 0.633 0.088 0.035 0.349 0.049

Example Calculation: Storage Pile $PM_{10} = 0.406 \text{ acres} \times 5.7 \text{ lb/acre/day} \times (1 - 0.9) = 0.2296 \text{ lb/day}$

Truck Loading Operation (Aggregate Loadout)

ID	Source	Material Loaded		PM10 EF lb/ton	PM2.5 EF lb/ton	PM10 Emissions			PM2.5 Emissions		
		TPD	TPY			lb/hr	lb/day	TPY	lb/hr	lb/day	TPY
TL1	Loading to haul trucks	3,000	549,000	0.00010	0.000055	0.030	0.302	0.028	0.017	0.166	0.015

6. The following calculation procedures to estimate transfer point toxic emissions is based on AP-42 5th Ed. Section 13.2.4.3 Equation 1, January 1995, for the calculation of particulate matter. This equation has been modified by the San Diego Air Pollution Control District to incorporate toxic emissions, based on trace metal concentrations in aggregate dust, based upon test results from several San Diego County mineral product facilities provided to the District by AWR Consultants in July 1996.

$$E_a = U_a \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

$$E_h = U_h \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

Where:

E_a = Annual emissions of each listed substance, (lbs/year)

E_h = Maximum hourly emissions of each listed substance, (lbs/hour)

U_a = Annual material throughput for each transfer point, (tons/year)

U_h = Maximum hourly throughput for each transfer point, (tons/hour)

k = Particulate size multiplier, (dimensionless), $k = 0.35$ for PM_{10}

u = Mean wind speed, (miles/hour) = 3.44 mph.

m = Material moisture content, (weight %) = 7.9%

C_i = Concentration of each listed substance in each material processed, (lbs/lb)

e = Control equipment efficiency, (%) (none)

a) Annual average wind speed of 3.44 mph obtained from Mission Viejo Station #93184.

7. Includes overburden loadout.

8. Emissions factor for $PM_{2.5}$ is calculated based on a ratio of controlled emission factors for a conveyor transfer point. The emissions factor for conveyor transfer point (controlled) will be used, based on AP-42 11.19.2, Table 11.19.2-2, Final Section, updated August 2004. The PM_{10} emission factor is 0.0000460 lb/ton and the emission factor for $PM_{2.5}$ is 0.0000130 lb/ton. The ratio of $PM_{2.5}$ to PM_{10} is $0.0000130/0.0000460 = 0.283$. Since the PM_{10} emission factor is estimated to be 0.00009 lb/ton, the emission factor for $PM_{2.5}$ is estimated to be 0.000047 lb/ton.

Onsite Vehicle Fugitive PM Emissions - Unpaved Roads

Vehicle Activity - Breecia Removal

Group ID	Source	Miles per round trip	Load Weight (tons)	Material Transferred (Tons)		VMT	
				Annual	Daily	Annual	Daily
ST	Off-Highway Trucks ⁽¹⁾	3.38	37	263,800	11,000	24,098.49	1,005
L1	Front End Loader	0.32	3.5	132,000	1,370	12,069	125
L2	Excavator	0.32	45	132,000	5,500	939	39
L3	Motor Grader	1.6	12.5	32,900	5,500	4,211	704
L4	Compactor	0.06	12.8	13,750	570	64	3
L5	Tractor with dozer	4.8	40	132,000	5,500	15,840	660
WT1	Water Truck					2,600	10
T2	Construction/Misc Truck					780	3

Notes:

(1) Includes off-road haul trucks only. Trucks hauling concrete travel on unpaved surface.

Emission Factors

ID	Source	k (PM10)	k (PM2.5)	s ⁽¹⁾	W ⁽²⁾	% Control Efficiency ⁽³⁾	Moisture ⁽¹⁾	PM10 EF lb/VMT	PM2.5 EF lb/VMT
ST	Off-Highway Trucks	0.36	0.095	6.4	102	98	8.5	0.020	0.005
L1	Front End Loader	0.36	0.095	6.4	6	98	8.5	0.006	0.002
L2	Excavator	0.36	0.095	6.4	55	98	8.5	0.015	0.004
L3	Motor Grader	0.36	0.095	6.4	13	98	8.5	0.008	0.002
L4	Compactor	0.36	0.095	6.4	9	98	8.5	0.007	0.002
L5	Tractor with dozer	0.36	0.095	6.4	43	98	8.5	0.013	0.004
WT1	Water Truck	0.36	0.095	6.4	19	98	8.5	0.009	0.002
T2	Construction/Misc Truck	0.36	0.095	6.4	1.5	98	8.5	0.003	0.001

Notes:

(1) Average silt content and moisture content for unpaved roads with routine watering.

(2) The vehicle weights are based on the average weight of unloaded and loaded weights for haul trucks and the water truck. The other vehicle weights are based on the estimated Gross Mean Vehicle Weight provided by manufacturers. The following table summarizes the weight basis:

ID	Vehicle Type	Advertised Empty GMVW (tons)	Load Weight (tons)	Ave Weight (tons)	Source
ST	Off-Highway Trucks	57.5	88.4	102	Caterpillar Advertised Weights and Capacities - http://www.cat.com/cda/layout?m=37840&x=7&location=drop
L1	Front End Loader	3.5	5.9	6	
L2	Excavator	32.5	45	55	
L3	Motor Grader	6.5	12.5	13	
L4	Compactor	3	12.8	9	
L5	Tractor with dozer	22.5	40	43	
WT1	Water Truck	8.5	20	19	Manufacturer Advertised Weight for vehicle class
T2	Construction/Misc Truck	1.5	NA	1.5	

(3) Control efficiency from Figure 13.2.2-2, AP-42 5th Ed., Section 13.2.2, Unpaved Roads, December 2003, revision. Uncontrolled moisture content was assumed to be 1.0% and control moisture 5.7% which gives an M of 5.7 (and control efficiency of 99.7%). To be conservative, used 98% control. The uncontrolled road moisture was based on Fugitive Particulate Matter Emissions Final Draft Report, U.S. Environmental Protection Agency, Research Triangle Park, NC, EPA Contract No. 68-D2-0159, Assignment 4-06, January 1997, which reported a uncontrolled moisture content of 0.52% on unpaved roads. A value of 1.0% was selected which results in a more conservative estimate of control efficiency.

Assume 98% control also applies to soil stabilization based on the frequency of water application.

Emission Factor Source: AP-42 5th Ed., Section 13.2.2, Unpaved Roads, Rev.: December, 2003.

$$E = k(s/12)^a(W/3)^b$$

E = emission factor in lb/VMT

k = particle size multiplier (0.36 for PM10, 0.095 for PM2.5)

s = silt content of road surface materials, %

W = mean vehicle weight, ton

a = 0.9 for PM10

b = 0.45 for PM10

a = 0.9 for PM2.5

b = 0.45 for PM2.5

PM10 Emissions - Unpaved Roads

Group ID	Source	PM10 Emissions		PM2.5 Emissions		Source Type
		Daily lb/day	Annual TPY	Daily lb/day	Annual TPY	
ST	Off-Highway Trucks	20.06	0.24	5.29	0.06	Area
L1	Front End Loader	0.72	0.03	0.19	0.01	Area
L2	Excavator	0.59	0.01	0.16	0.00	Area
L3	Motor Grader	5.52	0.017	1.46	0.004	Area
L4	Compactor	0.02	0.000	0.00	0.000	Area
L5	Tractor with dozer	8.90	0.107	2.35	0.028	Area
WT1	Water Truck	0.09	0.012	0.02	0.003	Area
	Sub-Total - Plant Area	35.90	0.42	9.47	0.11	
T2	Construction/Misc Truck	0.01	0.001	0.00	0.000	Area
	Total	35.91	0.42	9.48	0.11	
	Threshold Limits	150.00	100.00	55.00	70.00	
	Exceedance?	No	No	No	No	

Example Calculation: Loader PM10 = (44 VMT/day) x (0.103 lb/VMT) = 4.53 lb/day

Loader PM10 = (11,250 VMT/day) x (0.103 lb/VMT) / (2000 lb/ton) = 0.58 TPY

Truck Unloading Operation (Aggregate Load) - Soil Importation for Liner Installation

ID	Source	Material Loaded		PM10 EF	PM2.5 EF	PM10 Emissions			PM2.5 Emissions		
		TPD	TPY	lb/ton	lb/ton	lb/hr	lb/day	TPY	lb/hr	lb/day	TPY
TL2	Unloading	2,027	8,108	0.00010	0.000055	0.020	0.204	0.000	0.011	0.112	0.000

6. The following calculation procedures to estimate transfer point toxic emissions is based on AP-42 5th Ed. Section 13.2.4.3 Equation 1, January 1995, for the calculation of particulate matter. This equation has been modified by the San Diego Air Pollution Control District to incorporate toxic emissions, based on trace metal concentrations in aggregate dust, based upon test results from several San Diego County mineral product facilities provided to the District by AWR Consultants in July 1996.

$$E_a = U_a \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

$$E_h = U_h \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

Where:

E_a = Annual emissions of each listed substance, (lbs/year)

E_h = Maximum hourly emissions of each listed substance, (lbs/hour)

U_a = Annual material throughput for each transfer point, (tons/year)

U_h = Maximum hourly throughput for each transfer point, (tons/hour)

k = Particulate size multiplier, (dimensionless), $k = 0.35$ for PM10

u = Mean wind speed, (miles/hour) = 3.44 mph.

m = Material moisture content, (weight %) = 7.9%

C_i = Concentration of each listed substance in each material processed, (lbs/lb)

e = Control equipment efficiency, (%) (none)

a) Annual average wind speed of 3.44 mph obtained from Mission Viejo Station #93184.

7. Includes overburden loadout.

8. Emissions factor for PM2.5 is calculated based on a ratio of controlled emission factors for a conveyor transfer point. The emissions factor for conveyor transfer point (controlled) will be used, based on AP-42 11.19.2, Table 11.19.2-2, Final Section, updated August 2004. The PM10 emission factor is 0.0000460 lb/ton and the emission factor for PM2.5 is 0.0000130 lb/ton. The ratio of PM2.5 to PM10 is $0.0000130/0.0000460 = 0.283$. Since the PM10 emission factor is estimated to be 0.00009 lb/ton, the emission factor for PM2.5 is estimated to be 0.000047 lb/ton.

Onsite Vehicle Fugitive PM Emissions - Unpaved Roads

Vehicle Activity - Soil Importation for Liner Installation

Group ID	Source	Miles per round trip	Load Weight (tons)	Material Transferred (Tons)		VMT	
				Annual	Daily	Annual	Daily
ST	Off-Highway Trucks ⁽¹⁾	2.96	37	8,108	2,027	649	162
L1	Front End Loader	0.32	3.5	8,108	2,027	741	185
L2	Excavator	0	45	-	-	-	-
L3	Motor Grader	0	12.5	-	-	-	-
L4	Compactor	0.6	12.8	8,108	2,027	380	95
L5	Tractor with dozer	0	40	-	-	-	-
WT1	Water Truck					120	2
T2	Construction/Misc Truck					80	1

Notes:

(1) Includes off-road haul trucks only. Trucks hauling concrete travel on unpaved surface.

Emission Factors

ID	Source	k (PM10)	k (PM2.5)	s ⁽¹⁾	W ⁽²⁾	% Control Efficiency ⁽³⁾	Moisture ⁽¹⁾	PM10 EF lb/VMT	PM2.5 EF lb/VMT
ST	Off-Highway Trucks	0.36	0.095	6.4	102	98	8..5	0.020	0.005
L1	Front End Loader	0.36	0.095	6.4	6	98	8..5	0.006	0.002
L2	Excavator	0.36	0.095	6.4	55	98	8..5	0.015	0.004
L3	Motor Grader	0.36	0.095	6.4	13	98	8..5	0.008	0.002
L4	Compactor	0.36	0.095	6.4	9	98	8..5	0.007	0.002
L5	Tractor with dozer	0.36	0.095	6.4	43	98	8..5	0.013	0.004
WT1	Water Truck	0.36	0.095	6.4	19	98	8..5	0.009	0.002
T2	Construction/Misc Truck	0.36	0.095	6.4	1.5	98	8..5	0.003	0.001

Notes:

(1) Average silt content and moisture content for unpaved roads with routine watering.

(2) The vehicle weights are based on the average weight of unloaded and loaded weights for haul trucks and the water truck. The other vehicle weights are based on the estimated Gross Mean Vehicle Weight provided by manufacturers. The following table summarizes the weight basis:

ID	Vehicle Type	Advertised Empty GMVW (tons)	Load Weight (tons)	Ave Weight (tons)	Source
ST	Off-Highway Trucks	57.5	88.4	102	Caterpillar Advertised Weights and Capacities - http://www.cat.com/cda/layout?m=37840&x=7&location=drop
L1	Front End Loader	3.5	5.9	6	
L2	Excavator	32.5	45	55	
L3	Motor Grader	6.5	12.5	13	
L4	Compactor	3	12.8	9	
L5	Tractor with dozer	22.5	40	43	
WT1	Water Truck	8.5	20	19	Manufacturer Advertised Weight for vehicle class
T2	Construction/Misc Truck	1.5	NA	1.5	

(3) Control efficiency from Figure 13.2.2-2, AP-42 5th Ed., Section 13.2.2, Unpaved Roads, December 2003, revision. Uncontrolled moisture content was assumed to be 1.0% and control moisture 5.7% which gives an M of 5.7 (and control efficiency of 99.7%). To be conservative, used 98% control. The uncontrolled road moisture was based on Fugitive Particulate Matter Emissions Final Draft Report, U.S. Environmental Protection Agency, Research Triangle Park, NC, EPA Contract No. 68-D2-0159, Assignment 4-06, January 1997, which reported a uncontrolled moisture content of 0.52% on unpaved roads. A value of 1.0% was selected which results in a more conservative estimate of control efficiency.

Assume 98% control also applies to soil stabilization based on the frequency of water application.

Emission Factor Source: AP-42 5th Ed., Section 13.2.2, Unpaved Roads, Rev.: December, 2003.

$$E = k(s/12)^a(W/3)^b$$

E = emission factor in lb/VMT

k = particle size multiplier (0.36 for PM10, 0.095 for PM2.5)

s = silt content of road surface materials, %

W = mean vehicle weight, ton

a = 0.9 for PM10

b = 0.45 for PM10

a = 0.9 for PM2.5

b = 0.45 for PM2.5

PM10 Emissions - Unpaved Roads

Group ID	Source	PM10 Emissions		PM2.5 Emissions		Source Type
		Daily lb/day	Annual TPY	Daily lb/day	Annual TPY	
ST	Off-Highway Trucks	3.24	0.01	0.85	0.00	Area
L1	Front End Loader	1.07	0.00	0.28	0.00	Area
L2	Excavator	-	-	-	-	Area
L3	Motor Grader	-	-	-	-	Area
L4	Compactor	0.65	0.001	0.17	0.000	Area
L5	Tractor with dozer	-	-	-	-	Area
WT1	Water Truck	0.02	0.001	0.00	0.000	Area
	Sub-Total - Plant Area	4.97	0.01	1.31	0.00	
T2	Construction/Misc Truck	0.00	0.000	0.00	0.000	Area
	Total	4.98	0.01	1.31	0.00	
	Threshold Limits	150.00	100.00	55.00	70.00	
	Exceedance?	No	No	No	No	

Example Calculation: Loader PM10 = (44 VMT/day) x (0.103 lb/VMT) = 4.53 lb/day

Loader PM10 = (11,250 VMT/day) x (0.103 lb/VMT) / (2000 lb/ton) = 0.58 TPY

Truck Unloading Operation (Aggregate Load) - Landfill

ID	Source	Material Loaded		PM10 EF	PM2.5 EF	PM10 Emissions			PM2.5 Emissions		
		TPD	TPY	lb/ton	lb/ton	lb/hr	lb/day	TPY	lb/hr	lb/day	TPY
TL2	Unloading	2,027	8,108	0.00010	0.000055	0.020	0.204	0.000	0.011	0.112	0.000

6. The following calculation procedures to estimate transfer point toxic emissions is based on AP-42 5th Ed. Section 13.2.4.3 Equation 1, January 1995, for the calculation of particulate matter. This equation has been modified by the San Diego Air Pollution Control District to incorporate toxic emissions, based on trace metal concentrations in aggregate dust, based upon test results from several San Diego County mineral product facilities provided to the District by AWR Consultants in July 1996.

$$E_a = U_a \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

$$E_h = U_h \times [k \times 0.0032 \times (u/5)^{1.3} / (m/2)^{1.4}] \times C_i \times (1 - e)$$

Where:

E_a = Annual emissions of each listed substance, (lbs/year)

E_h = Maximum hourly emissions of each listed substance, (lbs/hour)

U_a = Annual material throughput for each transfer point, (tons/year)

U_h = Maximum hourly throughput for each transfer point, (tons/hour)

k = Particulate size multiplier, (dimensionless), $k = 0.35$ for PM10

u = Mean wind speed, (miles/hour) = 3.44 mph.

m = Material moisture content, (weight %) = 7.9%

C_i = Concentration of each listed substance in each material processed, (lbs/lb)

e = Control equipment efficiency, (%) (none)

a) Annual average wind speed of 3.44 mph obtained from Mission Viejo Station #93184.

7. Includes overburden loadout.

8. Emissions factor for PM2.5 is calculated based on a ratio of controlled emission factors for a conveyor transfer point. The emissions factor for conveyor transfer point (controlled) will be used, based on AP-42 11.19.2, Table 11.19.2-2, Final Section, updated August 2004. The PM10 emission factor is 0.0000460 lb/ton and the emission factor for PM2.5 is 0.0000130 lb/ton. The ratio of PM2.5 to PM10 is $0.0000130/0.0000460 = 0.283$. Since the PM10 emission factor is estimated to be 0.00009 lb/ton, the emission factor for PM2.5 is estimated to be 0.000047 lb/ton.

Onsite Vehicle Fugitive PM Emissions - Unpaved Roads

Vehicle Activity - Landfill

Group ID	Source	Miles per round trip	Load Weight (tons)	Material Transferred (Tons)		VMT	
				Annual	Daily	Annual	Daily
ST	Off-Highway Trucks ⁽¹⁾	2.6	37	488,800	1,880	34,348.11	132
L1	Front End Loader	0.32	3.5	488,800	1,880	44,690	172
L2	Excavator	0.32	45	733,200	2,820	5,214	20
L3	Motor Grader	1.6	12.5	733,200	2,820	93,850	361
L4	Compactor	0.06	12.8	733,200	2,820	3,437	13
L5	Tractor with dozer	4.8	40	733,200	2,820	87,984	338
WT1	Water Truck					2,600	10
T2	Construction/Misc Truck					780	3

Notes:

(1) Includes off-road haul trucks only. Trucks hauling concrete travel on unpaved surface.

Emission Factors

ID	Source	k (PM10)	k (PM2.5)	s ⁽¹⁾	W ⁽²⁾	% Control Efficiency ⁽³⁾	Moisture ⁽¹⁾	PM10 EF lb/MT	PM2.5 EF lb/MT
ST	Off-Highway Trucks	0.36	0.095	6.4	102	98	8.5	0.020	0.005
L1	Front End Loader	0.36	0.095	6.4	6	98	8.5	0.006	0.002
L2	Excavator	0.36	0.095	6.4	55	98	8.5	0.015	0.004
L3	Motor Grader	0.36	0.095	6.4	13	98	8.5	0.008	0.002
L4	Compactor	0.36	0.095	6.4	9	98	8.5	0.007	0.002
L5	Tractor with dozer	0.36	0.095	6.4	43	98	8.5	0.013	0.004
WT1	Water Truck	0.36	0.095	6.4	19	98	8.5	0.009	0.002
T2	Construction/Misc Truck	0.36	0.095	6.4	1.5	98	8.5	0.003	0.001

Notes:

(1) Average silt content and moisture content for unpaved roads with routine watering.

(2) The vehicle weights are based on the average weight of unloaded and loaded weights for haul trucks and the water truck. The other vehicle weights are based on the estimated Gross Mean Vehicle Weight provided by manufacturers. The following table summarizes the weight basis:

ID	Vehicle Type	Advertised Empty GMVW (tons)	Load Weight (tons)	Ave Weight (tons)	Source
ST	Off-Highway Trucks	57.5	88.4	102	Caterpillar Advertised Weights and Capacities - http://www.cat.com/cda/layout?m=37840&x=7&location=drop
L1	Front End Loader	3.5	5.9	6	
L2	Excavator	32.5	45	55	
L3	Motor Grader	6.5	12.5	13	
L4	Compactor	3	12.8	9	
L5	Tractor with dozer	22.5	40	43	
WT1	Water Truck	8.5	20	19	Manufacturer Advertised Weight for vehicle class
T2	Construction/Misc Truck	1.5	NA	1.5	

(3) Control efficiency from Figure 13.2.2-2, AP-42 5th Ed., Section 13.2.2, Unpaved Roads, December 2003, revision. Uncontrolled moisture content was assumed to be 1.0% and control moisture 5.7% which gives an M of 5.7 (and control efficiency of 99.7%). To be conservative, used 98% control. The uncontrolled road moisture was based on Fugitive Particulate Matter Emissions Final Draft Report, U.S. Environmental Protection Agency, Research Triangle Park, NC, EPA Contract No. 68-D2-0159, Assignment 4-06, January 1997, which reported a uncontrolled moisture content of 0.52% on unpaved roads. A value of 1.0% was selected which results in a more conservative estimate of control efficiency.

Assume 98% control also applies to soil stabilization based on the frequency of water application.

Emission Factor Source: AP-42 5th Ed., Section 13.2.2, Unpaved Roads, Rev.: December, 2003.

$$E = k(s/12)^a(W/3)^b$$

E = emission factor in lb/VMT

k = particle size multiplier (0.36 for PM10, 0.095 for PM2.5)

s = silt content of road surface materials, %

W = mean vehicle weight, ton

a = 0.9 for PM10

b = 0.45 for PM10

a = 0.9 for PM2.5

b = 0.45 for PM2.5

PM10 Emissions - Unpaved Roads

Group ID	Source	PM10 Emissions		PM2.5 Emissions		Source Type
		Daily lb/day	Annual TPY	Daily lb/day	Annual TPY	
ST	Off-Highway Trucks	2.64	0.34	0.70	0.09	Area
L1	Front End Loader	0.99	0.13	0.26	0.03	Area
L2	Excavator	0.30	0.04	0.08	0.01	Area
L3	Motor Grader	2.83	0.368	0.75	0.097	Area
L4	Compactor	0.09	0.012	0.02	0.003	Area
L5	Tractor with dozer	4.56	0.593	1.20	0.156	Area
WT1	Water Truck	0.09	0.012	0.02	0.003	Area
	Sub-Total - Plant Area	11.51	1.50	3.04	0.39	
T2	Construction/Misc Truck	0.01	0.001	0.00	0.000	Area
	Total	11.52	1.50	3.04	0.40	
	Threshold Limits	150.00	100.00	55.00	70.00	
	Exceedance?	No	No	No	No	

Example Calculation: Loader PM10 = (44 VMT/day) x (0.103 lb/VMT) = 4.53 lb/day

Loader PM10 = (11,250 VMT/day) x (0.103 lb/VMT) / (2000 lb/ton) = 0.58 TPY

Source: EMFAC2017 (v1.0.3) Emission Rates

Region Type: Sub-Area

Region: Orange (SC)

Calendar Year: 2043

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	VMT	ROG_RUNEX	CO_RUNEX	NOx_RUNEX	SOx_RUNEX	PM10_RUNEX	PM2.5_RUNEX
Orange (SC)	2043	LDA	Aggregate		5 Gasoline	190407.3	0.011497	0.696169	0.029512	0.004554	0.003606	0.003316
Orange (SC)	2043	LDA	Aggregate		5 Diesel	2370.876	0.078816	2.597488	0.041897	0.003681	0.001638	0.001567
Orange (SC)	2043	LDA	Aggregate		15 Gasoline	833938.1	0.004839	0.584484	0.022375	0.003039	0.001506	0.001385
Orange (SC)	2043	LDA	Aggregate		15 Diesel	10383.87	0.028814	0.949489	0.02332	0.002522	0.001336	0.001278
Orange (SC)	2043	LDA	Aggregate		40 Gasoline	5705427	0.00138	0.382903	0.015471	0.001712	0.000433	0.000398
Orange (SC)	2043	LDA	Aggregate		40 Diesel	71041.72	0.003334	0.109761	0.007542	0.001271	0.000717	0.000686
Orange (SC)	2043	MDV	Aggregate		5 Gasoline	38539.13	0.020413	0.840348	0.036345	0.00639	0.003931	0.003615
Orange (SC)	2043	MDV	Aggregate		5 Diesel	1390.136	0.090766	2.939884	0.047943	0.005927	0.00206	0.001971
Orange (SC)	2043	MDV	Aggregate		15 Gasoline	168792.2	0.00861	0.705044	0.027464	0.004257	0.001642	0.00151
Orange (SC)	2043	MDV	Aggregate		15 Diesel	6088.46	0.033193	1.074748	0.026817	0.004269	0.001667	0.001595
Orange (SC)	2043	MDV	Aggregate		40 Gasoline	1154800	0.002464	0.461873	0.018956	0.002402	0.000472	0.000434
Orange (SC)	2043	MDV	Aggregate		40 Diesel	41654.49	0.003851	0.124367	0.008921	0.002197	0.000892	0.000853
Orange (SC)	2043	MHDT	Aggregate		5 Gasoline	888.7042	0.061708	0.345923	0.154192	0.031137	0.00771	0.007089
Orange (SC)	2043	MHDT	Aggregate		5 Diesel	7285.258	0.052446	0.796291	7.08814	0.017576	0.00485	0.00464
Orange (SC)	2043	MHDT	Aggregate		15 Gasoline	3707.023	0.025822	0.288221	0.117786	0.020671	0.00322	0.002961
Orange (SC)	2043	MHDT	Aggregate		15 Diesel	28431.99	0.018307	0.265296	3.730104	0.011436	0.003378	0.003231
Orange (SC)	2043	MHDT	Aggregate		40 Gasoline	26722.03	0.007409	0.190205	0.080757	0.011694	0.000926	0.000851
Orange (SC)	2043	MHDT	Aggregate		40 Diesel	248878.9	0.00558	0.058693	0.890001	0.006134	0.004611	0.004412
Orange (SC)	2043	HHDT	Aggregate		5 Gasoline	8.048013	2.129931	55.30037	5.354862	0.035933	0.0078	0.007172
Orange (SC)	2043	HHDT	Aggregate		5 Diesel	4590.548	0.120493	2.029548	13.51946	0.024662	0.011034	0.010557
Orange (SC)	2043	HHDT	Aggregate		15 Gasoline	33.57042	0.891293	46.07593	4.090548	0.023979	0.003258	0.002995
Orange (SC)	2043	HHDT	Aggregate		15 Diesel	15580.17	0.042546	0.684706	7.017069	0.015658	0.007582	0.007254
Orange (SC)	2043	HHDT	Aggregate		40 Gasoline	241.9919	0.255727	30.40674	2.804573	0.013623	0.000937	0.000861
Orange (SC)	2043	HHDT	Aggregate		40 Diesel	162064	0.012957	0.152167	1.677844	0.008311	0.010223	0.00978

Source: EMFAC2017 (v1.0.3) Emission Rates

Region Type: Sub-Area

Region: Orange (SC)

Calendar Year: 2050

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	VMT	ROG_RUNE	CO_RUNEX	NOx_RUNE	SOx_RUNE	PM10_RUN	PM2.5_RUNEX
Orange (SC)	2050	LDA	Aggregate		5 Gasoline	191977.8	0.011059	0.690909	0.029662	0.004528	0.003396	0.003123
Orange (SC)	2050	LDA	Aggregate		5 Diesel	2395.884	0.077591	2.592213	0.040901	0.003664	0.001524	0.001458
Orange (SC)	2050	LDA	Aggregate		15 Gasoline	840816.7	0.004655	0.58007	0.022488	0.003022	0.001419	0.001304
Orange (SC)	2050	LDA	Aggregate		15 Diesel	10493.4	0.028362	0.947516	0.022708	0.00251	0.001249	0.001195
Orange (SC)	2050	LDA	Aggregate		40 Gasoline	5752488	0.001328	0.380012	0.015549	0.001702	0.000408	0.000375
Orange (SC)	2050	LDA	Aggregate		40 Diesel	71791.09	0.003277	0.109477	0.007235	0.001265	0.000671	0.000642
Orange (SC)	2050	MDV	Aggregate		5 Gasoline	38752.46	0.016124	0.799479	0.031669	0.006258	0.003495	0.003213
Orange (SC)	2050	MDV	Aggregate		5 Diesel	1413.164	0.087487	2.918206	0.045415	0.005856	0.00177	0.001693
Orange (SC)	2050	MDV	Aggregate		15 Gasoline	169726.5	0.006785	0.671022	0.024007	0.004169	0.00146	0.001342
Orange (SC)	2050	MDV	Aggregate		15 Diesel	6189.317	0.031983	1.066716	0.02527	0.004218	0.001444	0.001382
Orange (SC)	2050	MDV	Aggregate		40 Gasoline	1161192	0.001936	0.439727	0.016602	0.002352	0.00042	0.000386
Orange (SC)	2050	MDV	Aggregate		40 Diesel	42344.51	0.0037	0.123302	0.008156	0.002171	0.000775	0.000742
Orange (SC)	2050	MHDT	Aggregate		5 Gasoline	883.1548	0.04278	0.306683	0.14974	0.030683	0.007781	0.007155
Orange (SC)	2050	MHDT	Aggregate		5 Diesel	7820.488	0.052431	0.797584	7.140025	0.01726	0.004854	0.004644
Orange (SC)	2050	MHDT	Aggregate		15 Gasoline	3683.875	0.017902	0.255526	0.114385	0.02037	0.00325	0.002988
Orange (SC)	2050	MHDT	Aggregate		15 Diesel	30520.82	0.018294	0.265692	3.752154	0.011229	0.003382	0.003236
Orange (SC)	2050	MHDT	Aggregate		40 Gasoline	26555.17	0.005136	0.168629	0.078425	0.011524	0.000934	0.000859
Orange (SC)	2050	MHDT	Aggregate		40 Diesel	267163.4	0.00558	0.058769	0.891885	0.006025	0.004626	0.004426
Orange (SC)	2050	HHDT	Aggregate		5 Gasoline	8.164988	2.045034	52.81033	5.537111	0.035629	0.007801	0.007173
Orange (SC)	2050	HHDT	Aggregate		5 Diesel	4960.797	0.121253	2.060603	13.31411	0.023456	0.010767	0.010302
Orange (SC)	2050	HHDT	Aggregate		15 Gasoline	34.05835	0.855767	44.00124	4.229767	0.023772	0.003258	0.002996
Orange (SC)	2050	HHDT	Aggregate		15 Diesel	17001.34	0.042427	0.688374	6.977921	0.015174	0.007494	0.00717
Orange (SC)	2050	HHDT	Aggregate		40 Gasoline	245.5092	0.245534	29.0376	2.900025	0.013503	0.000937	0.000861
Orange (SC)	2050	HHDT	Aggregate		40 Diesel	177457.1	0.012932	0.152407	1.659324	0.008123	0.01023	0.009787

SrcID	StkID	ProdID	PollID	PolAbbrev	Multiplier	Max Hr Ems (lbs/yr)	Max Hr Ems (lbs/hr)	MWAF
SLINE1	0	0	9901	diesel part.	1	1.885E-02	2.150E-06	1
SLINE1	0	0	88101	PM2.5	1	1.803E-02	2.057E-06	1
SLINE1	0	0	106990	1,3-butadiene	1	6.961E-05	7.941E-09	1
SLINE1	0	0	71432	benzene	1	3.336E-04	3.806E-08	1
SLINE1	0	0	100414	ethylbenzene	1	1.357E-04	1.548E-08	1
SLINE1	0	0	78933	MEK	1	2.405E-06	2.743E-10	1
SLINE1	0	0	91203	naphthalene	1	6.075E-06	6.930E-10	1
SLINE1	0	0	115071	propylene	1	3.959E-04	4.516E-08	1
SLINE1	0	0	100425	styrene	1	1.595E-05	1.819E-09	1
SLINE1	0	0	108883	toluene	1	7.442E-04	8.490E-08	1
SLINE1	0	0	1330207	m & p-xylene	1	4.607E-04	5.255E-08	1
SLINE2	0	0	9901	diesel part.	1	1.885E-02	2.151E-06	1
SLINE2	0	0	88101	PM2.5	1	1.804E-02	2.057E-06	1
SLINE2	0	0	106990	1,3-butadiene	1	6.963E-05	7.943E-09	1
SLINE2	0	0	71432	benzene	1	3.337E-04	3.807E-08	1
SLINE2	0	0	100414	ethylbenzene	1	1.357E-04	1.548E-08	1
SLINE2	0	0	78933	MEK	1	2.405E-06	2.744E-10	1
SLINE2	0	0	91203	naphthalene	1	6.076E-06	6.932E-10	1
SLINE2	0	0	115071	propylene	1	3.960E-04	4.517E-08	1
SLINE2	0	0	100425	styrene	1	1.595E-05	1.820E-09	1
SLINE2	0	0	108883	toluene	1	7.444E-04	8.491E-08	1
SLINE2	0	0	1330207	m & p-xylene	1	4.608E-04	5.257E-08	1
SLINE3	0	0	9901	diesel part.	1	7.398E-05	8.439E-09	1
SLINE3	0	0	88101	PM2.5	1	7.078E-05	8.074E-09	1
SLINE3	0	0	106990	1,3-butadiene	1	1.103E-04	1.258E-08	1
SLINE3	0	0	71432	benzene	1	5.287E-04	6.031E-08	1
SLINE3	0	0	100414	ethylbenzene	1	2.150E-04	2.453E-08	1
SLINE3	0	0	78933	MEK	1	3.811E-06	4.347E-10	1
SLINE3	0	0	91203	naphthalene	1	9.627E-06	1.098E-09	1
SLINE3	0	0	115071	propylene	1	6.273E-04	7.156E-08	1
SLINE3	0	0	100425	styrene	1	2.527E-05	2.883E-09	1
SLINE3	0	0	108883	toluene	1	1.179E-03	1.345E-07	1
SLINE3	0	0	1330207	m & p-xylene	1	7.300E-04	8.328E-08	1
SLINE4	0	0	9901	diesel part.	1	2.155E-05	2.458E-09	1
SLINE4	0	0	88101	PM2.5	1	2.061E-05	2.351E-09	1
SLINE4	0	0	106990	1,3-butadiene	1	1.365E-05	1.557E-09	1
SLINE4	0	0	71432	benzene	1	6.540E-05	7.461E-09	1
SLINE4	0	0	100414	ethylbenzene	1	2.660E-05	3.034E-09	1
SLINE4	0	0	78933	MEK	1	4.714E-07	5.378E-11	1
SLINE4	0	0	91203	naphthalene	1	1.191E-06	1.359E-10	1
SLINE4	0	0	115071	propylene	1	7.761E-05	8.853E-09	1
SLINE4	0	0	100425	styrene	1	3.126E-06	3.566E-10	1
SLINE4	0	0	108883	toluene	1	1.459E-04	1.664E-08	1
SLINE4	0	0	1330207	m & p-xylene	1	9.031E-05	1.030E-08	1
SLINE5	0	0	9901	diesel part.	1	1.751E-02	1.997E-06	1
SLINE5	0	0	88101	PM2.5	1	1.675E-02	1.911E-06	1
SLINE5	0	0	106990	1,3-butadiene	1	7.341E-05	8.374E-09	1
SLINE5	0	0	71432	benzene	1	3.518E-04	4.013E-08	1
SLINE5	0	0	100414	ethylbenzene	1	1.431E-04	1.632E-08	1
SLINE5	0	0	78933	MEK	1	2.536E-06	2.893E-10	1
SLINE5	0	0	91203	naphthalene	1	6.406E-06	7.308E-10	1
SLINE5	0	0	115071	propylene	1	4.175E-04	4.763E-08	1
SLINE5	0	0	100425	styrene	1	1.682E-05	1.918E-09	1
SLINE5	0	0	108883	toluene	1	7.848E-04	8.953E-08	1
SLINE5	0	0	1330207	m & p-xylene	1	4.858E-04	5.542E-08	1
SLINE6	0	0	9901	diesel part.	1	1.434E-02	1.635E-06	1
SLINE6	0	0	88101	PM2.5	1	1.372E-02	1.565E-06	1
SLINE6	0	0	106990	1,3-butadiene	1	4.700E-04	5.362E-08	1
SLINE6	0	0	71432	benzene	1	2.253E-03	2.570E-07	1
SLINE6	0	0	100414	ethylbenzene	1	9.161E-04	1.045E-07	1
SLINE6	0	0	78933	MEK	1	1.624E-05	1.852E-09	1
SLINE6	0	0	91203	naphthalene	1	4.102E-05	4.679E-09	1
SLINE6	0	0	115071	propylene	1	2.673E-03	3.049E-07	1
SLINE6	0	0	100425	styrene	1	1.077E-04	1.228E-08	1
SLINE6	0	0	108883	toluene	1	5.025E-03	5.732E-07	1
SLINE6	0	0	1330207	m & p-xylene	1	3.111E-03	3.549E-07	1
PAREA1	0	0	9901	diesel part.	1	3.956E-04	4.513E-08	1
PAREA1	0	0	88101	PM2.5	1	3.597E-04	4.103E-08	1
PAREA1	0	0	106990	1,3-butadiene	1	5.473E-06	6.244E-10	1
PAREA1	0	0	71432	benzene	1	2.623E-05	2.992E-09	1
PAREA1	0	0	100414	ethylbenzene	1	1.067E-05	1.217E-09	1
PAREA1	0	0	78933	MEK	1	1.891E-07	2.157E-11	1
PAREA1	0	0	91203	naphthalene	1	4.776E-07	5.449E-11	1
PAREA1	0	0	115071	propylene	1	3.113E-05	3.551E-09	1
PAREA1	0	0	100425	styrene	1	1.254E-06	1.430E-10	1
PAREA1	0	0	108883	toluene	1	5.851E-05	6.675E-09	1
PAREA1	0	0	1330207	m & p-xylene	1	3.622E-05	4.132E-09	1
PAREA2	0	0	9901	diesel part.	1	7.571E-05	8.636E-09	1
PAREA2	0	0	88101	PM2.5	1	7.571E-05	8.636E-09	1
PAREA2	0	0	106990	1,3-butadiene	1	1.353E-06	1.544E-10	1
PAREA2	0	0	71432	benzene	1	6.486E-06	7.399E-10	1
PAREA2	0	0	100414	ethylbenzene	1	2.638E-06	3.009E-10	1
PAREA2	0	0	78933	MEK	1	4.675E-08	5.333E-12	1
PAREA2	0	0	91203	naphthalene	1	1.181E-07	1.347E-11	1
PAREA2	0	0	115071	propylene	1	7.696E-06	8.780E-10	1
PAREA2	0	0	100425	styrene	1	3.100E-07	3.537E-11	1
PAREA2	0	0	108883	toluene	1	1.447E-05	1.650E-09	1
PAREA2	0	0	1330207	m & p-xylene	1	8.956E-06	1.022E-09	1

Prima Deshecha Landfill GDP Project

Project Trip Generation

Landfill Construction and Operations

Summary of Vehicle Types	Incremental Daily Trips
Trip Generation (Cars)	214
Trip Generation (2-Axle Trucks)	30
Trip Generation (3-Axle Trucks)	611
Trip Generation (4+ Axle Trucks)	208
Trips/Unit (Total)	1,063

Note: From LSA Traffic Impact Analysis Report (October 2020)

Land Use	Size	Units	ADT
Existing Uses			
Landfill	2,120	TPD	688
Landfill Employees ²	25	Vehicles	50
Landfill Material Deliveries	5	Trucks	10
HHW Collection Center ³	80	Vehicles	160
HHW Employees ³	2	Vehicles	4
Subtotal			912
Approved Uses			
Max Permitted Landfill Operation	1,880	TPD	611
Capistrano Greenery	15	Trucks	30
Subtotal			641
Proposed Project			
Breccia Removal	81	Trucks	162
SSO Trucks		Trucks	
SSO Construction Workers		Vehicles	
SSO Material Deliveries		Trucks	
Soil Import for Liner Install	23	Trucks	46
Subtotal			208
Total			1,761

Note: Trip generation is in passenger car equivalents.

¹ Based on information from the OC Waste & Recycling.

² Landfill employee schedules are 6:30 a.m. to 4:30 p.m.

Although landfill employees arrive prior to the a.m. peak hour, they depart during the p.m. peak hour.

³ The HHW collection center is open from 9 a.m. to 3 p.m.

Although HHW employees arrive during the a.m. peak hour, all other HHW trips occur outside of the a.m. and p.m. peak hours.

ADT = average daily traffic

FEIR = Final Environmental Impact Report

GDP = General Development Plan

HHW = household hazardous waste

SSO = source-separate organic waste

TPD = tons per day

Prima Deshecha Landfill GDP Project

Off-site trucks Inbound		AADT by Truck Category ¹				Percent of traffic on this road 50%				
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵					
		0	15	306	104					
		% of Vehicles That Are Diesel-Powered ⁶								
		1.0%	3%	83%	100%					
Average Speed		Diesel Exhaust PM10 & PM2.5 Emissions at 40 mph (g/mi) ⁷								
40 mph		PM ₁₀	0.0049	3.90E-03	4.46E-03	1.12E-02				
		PM _{2.5}	0.0047	3.73E-03	4.26E-03	1.07E-02				
		% of Vehicles That Are Gasoline-Powered ⁶								
		99%	97%	17%	0.1%					
Total distance covered by Off-site trucks roadway sources		Gasoline Exhaust ROG Emissions at 40 mph (g/mi) ⁶				Number	Emission Rates per source			
						of				
		ROG	0.0059	1.34E-02	2.48E-02	3.57E-01	Sources	g/s	lb/hr	lb/yr
		PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)								
7,441 meters	PM ₁₀	0.00E+00	8.14E-08	6.03E-05	6.23E-05	453	2.7E-07	2.2E-06	0.0188	
	PM _{2.5}	0.00E+00	7.79E-08	5.77E-05	5.96E-05	453	2.6E-07	2.1E-06	0.0180	
	ROG	0.00E+00	1.05E-05	6.99E-05	2.08E-06	453	1.8E-07	1.4E-06	0.0127	

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

		lb/yr	lb/hr
diesel part.	--	1.88E-02	2.15E-06
PM2.5	--	1.80E-02	2.06E-06
1,3-butadiene	0.0055	6.96E-05	7.94E-09
benzene	0.02636	3.34E-04	3.81E-08
ethylbenzene	0.01072	1.36E-04	1.55E-08
MEK	0.00019	2.40E-06	2.74E-10
naphthalene	0.00048	6.08E-06	6.93E-10
propylene	0.03127998	3.96E-04	4.52E-08
styrene	0.00126	1.59E-05	1.82E-09
toluene	0.05879998	7.44E-04	8.49E-08
m & p-xylene	0.03639998	4.61E-04	5.26E-08

Prima Deshecha Landfill GDP Project

Off-site trucks Outbound		AADT by Truck Category ¹				Percent of traffic on this road 50%			
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵				
		0	15	306	104				
		% of Vehicles That Are Diesel-Powered ⁶							
Average Speed 40 mph		1.0%	3%	83%	100%				
	Diesel Exhaust PM10 & PM2.5 Emissions at 40 mph (g/mi) ⁷								
	PM ₁₀	0.0049	3.90E-03	4.46E-03	1.12E-02				
	PM _{2.5}	0.0047	3.73E-03	4.26E-03	1.07E-02				
Total distance covered by Off- site trucks roadway sources		% of Vehicles That Are Gasoline-Powered ⁸				Number of Sources	Emission Rates per source		
		99%	97%	17%	0.1%				
			Gasoline Exhaust ROG Emissions at 40 mph (g/mi) ⁶						
	ROG	0.0059	1.34E-02	2.48E-02	3.57E-01				
		PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)							
7,525 meters	PM ₁₀	0.00E+00	8.23E-08	6.10E-05	6.30E-05	458	2.7E-07	2.2E-06	0.0189
	PM _{2.5}	0.00E+00	7.88E-08	5.83E-05	6.03E-05	458	2.6E-07	2.1E-06	0.0180
	ROG	0.00E+00	1.06E-05	7.07E-05	2.10E-06	458	1.8E-07	1.4E-06	0.0127

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

		lb/yr	lb/hr
diesel part.	--	1.89E-02	2.15E-06
PM2.5	--	1.80E-02	2.06E-06
1,3-butadiene	0.0055	6.96E-05	7.94E-09
benzene	0.02636	3.34E-04	3.81E-08
ethylbenzene	0.01072	1.36E-04	1.55E-08
MEK	0.00019	2.41E-06	2.74E-10
naphthalene	0.00048	6.08E-06	6.93E-10
propylene	0.03127998	3.96E-04	4.52E-08
styrene	0.00126	1.60E-05	1.82E-09
toluene	0.05879998	7.44E-04	8.49E-08
m & p-xylene	0.03639998	4.61E-04	5.26E-08

Prima Deshecha Landfill GDP Project

Off-site travel Employees Inbound		AADT by Truck Category ¹				Percent of traffic on this road 50%				
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵					
		107	0	0	0					
		% of Vehicles That Are Diesel-Powered ⁶								
Average Speed 40 mph		1.0%	0%	3%	17%					
		Diesel Exhaust PM10 & PM2.5 Emissions at 40 mph (g/mi) ⁷								
		PM ₁₀	0.0167	4.87E-03	7.82E-03	5.33E-03				
		PM _{2.5}	0.0160	4.66E-03	7.48E-03	5.10E-03				
		% of Vehicles That Are Gasoline-Powered ⁸								
			99%	100%	97%	82.7%				
Total distance covered by Off-site travel roadway sources		Gasoline Exhaust ROG Emissions at 40 mph (g/mi) ⁶				Number	Emission Rates per source			
						of				
		ROG	0.0474	5.86E-03	2.02E-01	2.02E-01	Sources	g/s	lb/hr	lb/yr
		PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)								
7,521 meters	PM ₁₀	1.00E-06	0.00E+00	0.00E+00	0.00E+00	941	1.1E-09	8.4E-09	0.0001	
	PM _{2.5}	9.57E-07	0.00E+00	0.00E+00	0.00E+00	941	1.0E-09	8.1E-09	0.0001	
	ROG	2.71E-04	0.00E+00	0.00E+00	0.00E+00	941	2.9E-07	2.3E-06	0.0201	

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

		lb/yr	lb/hr
diesel part.	--	7.40E-05	8.44E-09
PM2.5	--	7.08E-05	8.07E-09
1,3-butadiene	0.0055	1.10E-04	1.26E-08
benzene	0.02636	5.29E-04	6.03E-08
ethylbenzene	0.01072	2.15E-04	2.45E-08
MEK	0.00019	3.81E-06	4.35E-10
naphthalene	0.00048	9.63E-06	1.10E-09
propylene	0.03127998	6.27E-04	7.16E-08
styrene	0.00126	2.53E-05	2.88E-09
toluene	0.05879998	1.18E-03	1.35E-07
m & p-xylene	0.03639998	7.30E-04	8.33E-08

Prima Deshecha Landfill GDP Project

Off-site travel Employees Outbound		AADT by Truck Category ¹				Percent of traffic on this road 50%				
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵					
		107	0	0	0					
		% of Vehicles That Are Diesel-Powered ⁶								
Average Speed 40 mph		1.0%	3%	83%	100%					
		Diesel Exhaust PM10 & PM2.5 Emissions at 40 mph (g/mi) ⁷								
		PM ₁₀	0.0049	3.90E-03	4.46E-03	1.12E-02				
		PM _{2.5}	0.0047	3.73E-03	4.26E-03	1.07E-02				
		% of Vehicles That Are Gasoline-Powered ⁶								
		99%	97%	17%	0.1%					
Total distance covered by Off-site travel roadway sources		Gasoline Exhaust ROG Emissions at 40 mph (g/mi) ⁶				Number	Emission Rates per source			
						of				
		ROG	0.0059	1.34E-02	2.48E-02	3.57E-01	Sources	g/s	lb/hr	lb/yr
		PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)								
7,350 meters	PM ₁₀	2.85E-07	0.00E+00	0.00E+00	0.00E+00	920	3.1E-10	2.5E-09	0.0000	
	PM _{2.5}	2.73E-07	0.00E+00	0.00E+00	0.00E+00	920	3.0E-10	2.4E-09	0.0000	
	ROG	3.28E-05	0.00E+00	0.00E+00	0.00E+00	920	3.6E-08	2.8E-07	0.0025	

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

		lb/yr	lb/hr
diesel part.	--	2.15E-05	2.46E-09
PM2.5	--	2.06E-05	2.35E-09
1,3-butadiene	0.0055	1.36E-05	1.56E-09
benzene	0.02636	6.54E-05	7.46E-09
ethylbenzene	0.01072	2.66E-05	3.03E-09
MEK	0.00019	4.71E-07	5.38E-11
naphthalene	0.00048	1.19E-06	1.36E-10
propylene	0.03127998	7.76E-05	8.85E-09
styrene	0.00126	3.13E-06	3.57E-10
toluene	0.05879998	1.46E-04	1.66E-08
m & p-xylene	0.03639998	9.03E-05	1.03E-08

Prima Deshecha Landfill GDP Project

On-site Zone 4 Trucks		AADT by Truck Category ¹				Number of Sources	Emission Rates per source		
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵				
Average Speed 15 mph		0	30	0	208				
		% of Vehicles That Are Diesel-Powered ⁶							
		1.0%	3%	80%	100%				
		Diesel Exhaust PM10 & PM2.5 Emissions at 15 mph (g/mi) ⁷							
Total distance covered by On-site Zone 4 driveway sources	PM ₁₀	0.0104	7.82E-03	3.62E-03	1.03E-02				
	PM _{2.5}	0.0099	7.48E-03	3.46E-03	9.82E-03				
		% of Vehicles That Are Gasoline-Powered ⁶							
		99%	97%	20%	0.1%				
		Gasoline Exhaust ROG Emissions at 15 mph (g/mi) ⁶							
2,439 meters	ROG	0.0201	4.48E-02	8.48E-02	1.21E+00				
		PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)							
	PM ₁₀	0.00E+00	1.07E-07	0.00E+00	3.74E-05	149	2.5E-07	2.0E-06	0.0175
	PM _{2.5}	0.00E+00	1.02E-07	0.00E+00	3.58E-05	149	2.4E-07	1.9E-06	0.0168
	ROG	0.00E+00	2.30E-05	0.00E+00	5.62E-06	149	1.9E-07	1.5E-06	0.0133

Percent of traffic on-site

100%

Speciated Emissions Rates

		lb/yr	lb/hr
diesel part.	--	1.75E-02	2.00E-06
PM2.5	--	1.68E-02	1.91E-06
1,3-butadiene	0.0055	7.34E-05	8.37E-09
benzene	0.02636	3.52E-04	4.01E-08
ethylbenzene	0.01072	1.43E-04	1.63E-08
MEK	0.00019	2.54E-06	2.89E-10
naphthalene	0.00048	6.41E-06	7.31E-10
propylene	0.03127998	4.17E-04	4.76E-08
styrene	0.00126	1.68E-05	1.92E-09
toluene	0.05879998	7.85E-04	8.95E-08
m & p-xylene	0.03639998	4.86E-04	5.54E-08

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

Prima Deshecha Landfill GDP Project

On-site Zone 1 Trucks Inbound		AADT by Truck Category ¹				Percent of traffic on-site			
		LDV ²	2-Axle ³	3-Axle ⁴	4+-Axle ⁵	100%			
		0	0	611	0				
Average Speed 15 mph	% of Vehicles That Are Diesel-Powered ⁶								
		1.0%	3%	80%	100%				
	Diesel Exhaust PM10 & PM2.5 Emissions at 15 mph (g/mi) ⁷								
	PM ₁₀	0.0104	7.82E-03	3.62E-03	1.03E-02				
	PM _{2.5}	0.0099	7.48E-03	3.46E-03	9.82E-03				
Total distance covered by On- site Zone 1 driveway sources	% of Vehicles That Are Gasoline-Powered ⁶								
		99%	97%	20%	0.1%				
	Gasoline Exhaust ROG Emissions at 15 mph (g/mi) ⁶					Number of Sources	Emission Rates per source		
	ROG	0.0201	4.48E-02	8.48E-02	1.21E+00		g/s	lb/hr	lb/yr
	PM ₁₀ , PM _{2.5} & ROG Exhaust Emissions (g/s)								
1,317 meters	PM ₁₀	0.00E+00	0.00E+00	1.67E-05	0.00E+00	81	2.1E-07	1.6E-06	0.0143
	PM _{2.5}	0.00E+00	0.00E+00	1.60E-05	0.00E+00	81	2.0E-07	1.6E-06	0.0137
	ROG	0.00E+00	0.00E+00	9.95E-05	0.00E+00	81	1.2E-06	9.7E-06	0.0855

Percent of traffic on-site

100%

Speciated Emissions Rates

		lb/yr	lb/hr
diesel part.	--	1.43E-02	1.64E-06
PM2.5	--	1.37E-02	1.56E-06
1,3-butadiene	0.0055	4.70E-04	5.36E-08
benzene	0.02636	2.25E-03	2.57E-07
ethylbenzene	0.01072	9.16E-04	1.05E-07
MEK	0.00019	1.62E-05	1.85E-09
naphthalene	0.00048	4.10E-05	4.68E-09
propylene	0.03127998	2.67E-03	3.05E-07
styrene	0.00126	1.08E-04	1.23E-08
toluene	0.05879998	5.02E-03	5.73E-07
m & p-xylene	0.03639998	3.11E-03	3.55E-07

¹ AADT from project traffic study

² LDV assumed to LDA (Passenger Cars)

³ 2 axle trucks are assumed to be MDV (Medium-Duty Truck GVW=5,574-8,500 lbs.)

⁴ 3 axle trucks are assumed to be MHD (Medium-Heavy Duty Truck GVW=14,001-33,000 lbs.)

⁵ 4+ axle trucks are assumed to be HHDT (Heavy-Heavy Duty Truck GVW=33,001-60,000 lbs.)

⁶ Source: EMFAC2017 fleet percentages.

⁷ Source: EMFAC2017 emission factors for 2023 (model year aggregate).

Prima Deshecha Landfill GDP Project

On-site Zone 4 Area Source		Equipment Exhaust Emissions (tons/year)					
		Emission data was obtained from Construction Emission Table					
	PM ₁₀	0.33		Number of Acres	Emission Rates per acre		
	PM _{2.5}	0.30					
	ROG	0.83					
	Equipment Exhaust Emissions (g/s)						
	PM ₁₀	9.49E-03	412.5		5.7E-09	4.5E-08	3.96E-04
	PM _{2.5}	8.63E-03	412.5	5.2E-09	4.1E-08	3.60E-04	
	ROG	2.39E-02	412.5	1.4E-08	1.1E-07	9.95E-04	

Conversion factors

2000 lbs/ton
 453.59 grams/lb
 365 days/year
 24 hrs/day
 3600 seconds/hour
 4046.825 m²/acre

Speciated Emissions Rates

		lb/yr	lb/hr
diesel part.	--	3.96E-04	4.51E-08
PM2.5	--	3.60E-04	4.10E-08
1,3-butadiene	0.0055	5.47E-06	6.24E-10
benzene	0.02636	2.62E-05	2.99E-09
ethylbenzene	0.01072	1.07E-05	1.22E-09
MEK	0.00019	1.89E-07	2.16E-11
naphthalene	0.00048	4.78E-07	5.45E-11
propylene	0.03127998	3.11E-05	3.55E-09
styrene	0.00126	1.25E-06	1.43E-10
toluene	0.05879998	5.85E-05	6.67E-09
m & p-xylene	0.03639998	3.62E-05	4.13E-09

Prima Deshecha Landfill GDP Project

On-site Zone 1		Equipment Exhaust Emissions (tons/year)				
Area Source		Emission data was obtained from Construction Emission Table				
	PM ₁₀	0.04	Number of Acres	Emission Rates per acre		
	PM _{2.5}	0.04		g/s	lb/hr	lb/yr
	ROG	0.13	261.3			
	Equipment Exhaust Emissions (g/s)					
	PM ₁₀	1.15E-03		1.1E-09	8.6E-09	7.57E-05
	PM _{2.5}	1.15E-03		1.1E-09	8.6E-09	7.57E-05
	ROG	3.74E-03		3.5E-09	2.8E-08	2.46E-04

Conversion factors

2000 lbs/ton
 453.59 grams/lb
 365 days/year
 24 hrs/day
 3600 seconds/hour
 4046.825 m²/acre

Speciated Emissions Rates

		lb/yr	lb/hr
diesel part.	--	7.57E-05	8.64E-09
PM2.5	--	7.57E-05	8.64E-09
1,3-butadiene	0.0055	1.35E-06	1.54E-10
benzene	0.02636	6.49E-06	7.40E-10
ethylbenzene	0.01072	2.64E-06	3.01E-10
MEK	0.00019	4.67E-08	5.33E-12
naphthalene	0.00048	1.18E-07	1.35E-11
propylene	0.03127998	7.70E-06	8.78E-10
styrene	0.00126	3.10E-07	3.54E-11
toluene	0.05879998	1.45E-05	1.65E-09
m & p-xylene	0.03639998	8.96E-06	1.02E-09

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips

[illegible]

EMFAC2017 (v1.0.3) Emission Rates

Region Type: County

Region: ORANGE (SC)

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	Calendar	Vehicle Class	Model Year	Speed	Fuel	VMT	ROG_RUNEX	PM10_RUNEX	PM2_5_RUNEX	Fuel %
Orange (SC)	2023	LDA	Aggregate	5	Gasoline	161,746	0.047357755	0.009344104	0.008591579	
Orange (SC)	2023	LDA	Aggregate	5	Diesel	1,690	0.167934563	0.016722385	0.015998982	
Orange (SC)	2023	LDA	Aggregate	15	Gasoline	608,476	0.020132243	0.00391181	0.003596775	98.97%
Orange (SC)	2023	LDA	Aggregate	15	Diesel	6,356	0.063407446	0.010386879	0.009937548	1.03%
Orange (SC)	2023	LDA	Aggregate	40	Gasoline	5,222,910	0.005860795	0.001128348	0.001037479	98.97%
Orange (SC)	2023	LDA	Aggregate	40	Diesel	54,559	0.009426152	0.004872153	0.004661386	1.03%
Orange (SC)	2023	MDV	Aggregate	5	Gasoline	35,655	0.103805638	0.009610848	0.008837146	
Orange (SC)	2023	MDV	Aggregate	5	Diesel	951	0.173320414	0.011244374	0.010757947	
Orange (SC)	2023	MDV	Aggregate	15	Gasoline	134,133	0.044810353	0.004041953	0.003716592	97.40%
Orange (SC)	2023	MDV	Aggregate	15	Diesel	3,579	0.064272144	0.007816376	0.007478243	2.60%
Orange (SC)	2023	MDV	Aggregate	40	Gasoline	1,151,340	0.013376551	0.001174879	0.001080325	97.40%
Orange (SC)	2023	MDV	Aggregate	40	Diesel	30,717	0.008380239	0.003902247	0.003733437	2.60%
Orange (SC)	2023	MHDT	Aggregate	5	Gasoline	1,239	0.20151114	0.005960325	0.005480299	
Orange (SC)	2023	MHDT	Aggregate	5	Diesel	4,776	0.054136998	0.005331866	0.005101212	
Orange (SC)	2023	MHDT	Aggregate	15	Gasoline	4,315	0.084796524	0.002492436	0.002291702	20.28%
Orange (SC)	2023	MHDT	Aggregate	15	Diesel	16,964	0.019179204	0.003618517	0.003461981	79.72%
Orange (SC)	2023	MHDT	Aggregate	40	Gasoline	43,370	0.024767889	0.000718652	0.000660774	17.25%
Orange (SC)	2023	MHDT	Aggregate	40	Diesel	207,996	0.005698007	0.004457806	0.004264964	82.75%
Orange (SC)	2023	HHDT	Aggregate	5	Gasoline	3,836,197	2.857859125	0.008099642	0.007447322	
Orange (SC)	2023	HHDT	Aggregate	5	Diesel	3484,799	0.116879602	0.017113825	0.016373488	
Orange (SC)	2023	HHDT	Aggregate	15	Gasoline	13,357,71	1.20878135	0.003427557	0.003151512	0.13%
Orange (SC)	2023	HHDT	Aggregate	15	Diesel	10478.1	0.046633145	0.010261517	0.009817608	99.87%
Orange (SC)	2023	HHDT	Aggregate	40	Gasoline	134,2601	0.357165774	0.001015311	0.000933541	0.10%
Orange (SC)	2023	HHDT	Aggregate	40	Diesel	128224.4	0.014121539	0.011209909	0.010724974	99.90%

Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Year	Vehicle Cat	Model Year	Speed	Fuel	VMT	NOx_RUNE	PM2.5_RUNE	PM10_RUNE	CO2_RUNE	CH4_RUNE	N2O_RUNE	ROG_RUNE	TOG_RUNE	CO_RUNEX	SOx_RUNEX
Orange (SC	2023	LDA	Aggregate	5	Gasoline	161745.8	0.054875	0.008592	0.009344	604.3004	0.013078	0.007001	0.047358	0.069098	1.057426	0.00598
Orange (SC	2023	LDA	Aggregate	5	Diesel	1689.603	0.123507	0.015999	0.016722	495.8534	0.0078	0.077941	0.167935	0.191182	3.20823	0.004688
Orange (SC	2023	LDA	Aggregate	15	Gasoline	608476.3	0.041436	0.003597	0.003912	402.8424	0.00554	0.005309	0.020132	0.029374	0.881112	0.003986
Orange (SC	2023	LDA	Aggregate	15	Diesel	6356.17	0.079196	0.009938	0.010387	339.7675	0.002945	0.053407	0.063407	0.072185	1.184487	0.003212
Orange (SC	2023	LDA	Aggregate	40	Gasoline	5222910	0.028419	0.001037	0.001128	227.4571	0.001605	0.003646	0.005861	0.008551	0.57767	0.002251
Orange (SC	2023	LDA	Aggregate	40	Diesel	54558.74	0.045213	0.004661	0.004872	171.1897	0.000438	0.026909	0.009426	0.010731	0.151735	0.001618
Orange (SC	2023	MDV	Aggregate	5	Gasoline	35655.28	0.141378	0.008837	0.009611	937.2285	0.026122	0.012311	0.103806	0.151357	1.666859	0.009275
Orange (SC	2023	MDV	Aggregate	5	Diesel	951.2457	0.124519	0.010758	0.011244	837.1867	0.00805	0.131594	0.17332	0.197314	3.468669	0.007914
Orange (SC	2023	MDV	Aggregate	15	Gasoline	134132.7	0.105103	0.003717	0.004042	623.9669	0.011214	0.009224	0.04481	0.065329	1.358784	0.006175
Orange (SC	2023	MDV	Aggregate	15	Diesel	3578.52	0.076516	0.007478	0.007816	602.9548	0.002985	0.094776	0.064272	0.07317	1.274609	0.0057
Orange (SC	2023	MDV	Aggregate	40	Gasoline	1151340	0.071998	0.00108	0.001175	352.5571	0.003318	0.006316	0.013377	0.019495	0.880899	0.003489
Orange (SC	2023	MDV	Aggregate	40	Diesel	30716.54	0.038239	0.003733	0.003902	310.389	0.000389	0.048789	0.00838	0.00954	0.15575	0.002934
Orange (SC	2023	MHDT	Aggregate	5	Gasoline	1239.2	0.435101	0.00548	0.00596	3948.55	0.044088	0.025879	0.201511	0.294045	1.490452	0.039074
Orange (SC	2023	MHDT	Aggregate	5	Diesel	4776.294	6.399744	0.005101	0.005332	2326.484	0.002515	0.365691	0.054137	0.061631	0.772647	0.021979
Orange (SC	2023	MHDT	Aggregate	15	Gasoline	4314.916	0.334297	0.002292	0.002492	2621.425	0.018522	0.01986	0.084797	0.123735	1.206508	0.025941
Orange (SC	2023	MHDT	Aggregate	15	Diesel	16963.82	3.441615	0.003462	0.003619	1514.527	0.000891	0.238063	0.019179	0.021834	0.258712	0.014308
Orange (SC	2023	MHDT	Aggregate	40	Gasoline	43369.79	0.229913	0.000661	0.000719	1483.036	0.00539	0.013615	0.024768	0.036141	0.78889	0.014676
Orange (SC	2023	MHDT	Aggregate	40	Diesel	207996	0.878146	0.004265	0.004458	810.5137	0.000265	0.127401	0.005698	0.006487	0.057651	0.007657
Orange (SC	2023	HHDT	Aggregate	5	Gasoline	3.836197	6.054742	0.007447	0.0081	4547.427	0.584827	0.24241	2.857859	4.170181	51.652	0.045
Orange (SC	2023	HHDT	Aggregate	5	Diesel	3484.799	16.86251	0.016373	0.017114	4252.266	0.005429	0.668397	0.11688	0.133059	1.739044	0.040173
Orange (SC	2023	HHDT	Aggregate	15	Gasoline	13.35771	4.770256	0.003152	0.003428	3027.479	0.246709	0.188014	1.208781	1.763851	41.5985	0.029959
Orange (SC	2023	HHDT	Aggregate	15	Diesel	10478.1	7.914558	0.009818	0.010262	2460.155	0.002166	0.386702	0.046633	0.053088	0.662702	0.023242
Orange (SC	2023	HHDT	Aggregate	40	Gasoline	134.2601	3.501706	0.000934	0.001015	1716.987	0.072465	0.132605	0.357166	0.521175	27.14047	0.016991
Orange (SC	2023	HHDT	Aggregate	40	Diesel	128224.4	2.023474	0.010725	0.01121	1214.958	0.000656	0.190975	0.014122	0.016076	0.156443	0.011478