

## Appendix A. Construction Emissions

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Introduction.....	A-1
Time Slices.....	A-2
Demolition Emissions.....	A-3
Demolition Dust.....	A-3
Demolition On-Road Diesel Exhaust.....	A-3
Demolition – Off Road Diesel Exhaust.....	A-4
Demolition Worker Commute Trips.....	A-5
Fine Site Grading Emissions.....	A-6
Mass Site Grading.....	A-9
Mass Site Grading Fugitive Dust.....	A-9
Mass Site Grading On-Road Diesel Exhaust.....	A-9
Mass Site Grading Off-Road Diesel Exhaust.....	A-9
Mass Site Grading Worker Commute Trips.....	A-10
Trenching.....	A-10
Trenching Off-Road Diesel.....	A-10
Trenching Commute Trips.....	A-10
Building Construction.....	A-11
Building Construction Off-Road Diesel Exhaust.....	A-11
Building Construction Worker Commute Trips.....	A-11
Building Construction Vendor Trips.....	A-11
Architectural Coatings.....	A-12
Off-Gas Emissions.....	A-12
Residential.....	A-13
Non-Residential.....	A-13
Total Emissions.....	A-13
Architectural Painting Worker Commute Trips.....	A-13
Asphalt Paving.....	A-14
Asphalt Paving Off-Gas Emissions.....	A-14
Asphalt Paving Off-Road Diesel Exhaust.....	A-14
Asphalt Paving On-Road Diesel Exhaust.....	A-14
Asphalt Worker Trips.....	A-15
References.....	A-15

### TABLES

Table A-1. URBEMIS Default Construction Phases, Phase Lengths, and Equipment Estimates.....	A-1
Table A-2. Time Slice Example.....	A-2
Table A-3. Construction Equipment Used for Demolition.....	A-4
Table A-4. Fugitive Dust Estimation Approach.....	A-6
Table A-5. Acreage Estimates for Grading.....	A-7
Table A-6. Construction Grading Soil-Hauling Assumptions.....	A-8

<input checked="" type="checkbox"/>	0.0	0.0	Other General Industrial Equipment	238.00	0.510	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Other Material Handling Equipment	191.00	0.590	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Pavers	100.00	0.620	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Paving Equipment	104.00	0.530	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Plate Compactors	8.00	0.430	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Pressure Washers	1.00	0.600	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Pumps	53.00	0.740	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Rollers	95.00	0.560	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Rough Terrain Forklifts	93.00	0.600	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Rubber Tired Loaders	164.00	0.540	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Scrapers	313.00	0.720	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Signal Boards	15.00	0.780	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Skid Steer Loaders	44.00	0.550	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Surfacing Equipment	362.00	0.450	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Sweepers/Scrubbers	91.00	0.680	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Trenchers	63.00	0.750	8.0	avg
<input checked="" type="checkbox"/>	0.0	0.0	Welders	45.00	0.450	8.0	avg
<input checked="" type="checkbox"/>	1.0	1.0	Graders	174.00	0.610	6.0	avg
<input checked="" type="checkbox"/>	1.0	1.0	Rubber Tired Dozers	357.00	0.590	6.0	avg
<input checked="" type="checkbox"/>	1.0	1.0	Tractors/Loaders/Backhoes	108.00	0.550	7.0	avg
<input checked="" type="checkbox"/>	1.0	1.0	Water Trucks	189.00	0.500	8.0	avg

For each piece of equipment selected, URBEMIS generates an emission estimate. The emission equation used by URBEMIS for each piece of equipment is as follows:

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$$\text{Equipment Emissions (pounds/day)} = \# \text{ of pieces of equipment} * \text{grams per brake horsepower-hour} * \text{equipment horsepower} * \text{hours/day} * \text{load factor}$$

*Where: grams per brake-horsepower hour is based on the construction year and represents a statewide average for each piece of equipment. Grams per brake horsepower per hour emissions are based on the California Air Resources Board's OFFROAD2007 model (California Air Resources Board, 2006). The pounds per day emission factors are found in Appendix I.*

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## Demolition Worker Commute Trips

Demolition worker commute trips assume that the number of workers equals 125% of the total pieces of construction equipment selected. The emission estimates assume a construction worker commute fleet mix of 50% light duty autos and 50% light duty trucks. The worker commute travel distance, speed, and temperature are based on the worker commute speed information included in the Operational Trip Characteristics screen.

2005		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	MaxHP	ROG	CO	NOX	SOX	PM	CO2
	1000	0.542	2.580	5.471	0.034	0.195	364.039
Crushing/Proc. Equipment	50	2.742	6.051	4.979	0.052	0.619	443.672
	120	1.144	3.276	6.553	0.047	0.601	443.672
	175	0.751	2.615	5.987	0.045	0.331	443.672
	250	0.518	1.434	5.633	0.045	0.205	443.672
	500	0.458	1.800	5.047	0.039	0.184	443.672
	750	0.462	1.726	5.167	0.041	0.184	443.672
	9999	0.573	2.193	6.122	0.041	0.200	443.672
Dumpers/Tenders	25	0.440	1.175	2.094	0.025	0.152	216.148
Excavators	25	0.419	1.342	2.812	0.037	0.179	324.222
	50	2.114	4.737	3.670	0.038	0.477	324.222
	120	0.844	2.453	4.727	0.034	0.463	324.222
	175	0.555	1.960	4.314	0.033	0.251	324.222
	250	0.378	1.010	4.072	0.033	0.146	324.222
	500	0.337	1.149	3.550	0.029	0.132	324.222
	750	0.342	1.148	3.661	0.030	0.134	324.222
Forklifts	50	1.162	2.554	1.949	0.020	0.258	170.643
	120	0.457	1.292	2.483	0.018	0.253	170.643
	175	0.303	1.022	2.286	0.017	0.137	170.643
	250	0.184	0.466	2.118	0.017	0.069	170.643
	500	0.164	0.480	1.852	0.015	0.063	170.643
Generator Sets	15	0.852	3.183	5.429	0.059	0.359	420.920
	25	0.875	2.799	4.364	0.048	0.311	420.920
	50	1.841	4.286	4.445	0.049	0.461	420.920
	120	0.923	2.822	5.727	0.045	0.454	420.920
	175	0.602	2.255	5.233	0.043	0.250	420.920
	250	0.417	1.249	4.929	0.043	0.159	420.920
	500	0.374	1.504	4.535	0.037	0.147	420.920
	750	0.386	1.504	4.640	0.038	0.149	420.920
	9999	0.503	1.876	5.458	0.038	0.180	420.920
Graders	50	2.312	5.089	3.970	0.041	0.514	346.974
	120	0.934	2.653	5.299	0.037	0.498	346.974
	175	0.615	2.129	4.834	0.035	0.275	346.974
	250	0.449	1.244	4.599	0.035	0.179	346.974
	500	0.398	1.610	4.086	0.031	0.160	346.974
	750	0.403	1.608	4.185	0.032	0.162	346.974
Off-Highway Tractors	120	1.163	3.084	6.557	0.039	0.590	369.727
	175	0.781	2.535	5.981	0.038	0.345	369.727
	250	0.638	1.817	5.777	0.038	0.263	369.727
	750	0.568	3.043	5.323	0.034	0.231	369.727
	1000	0.608	3.279	5.887	0.034	0.224	369.727
Off-Highway Trucks	175	0.579	2.004	4.418	0.033	0.261	324.222
	250	0.401	1.057	4.176	0.033	0.154	324.222
	500	0.361	1.220	3.644	0.029	0.139	324.222
	750	0.364	1.219	3.754	0.030	0.141	324.222
	1000	0.416	1.472	4.502	0.030	0.145	324.222
Other Construction Equipment	15	0.447	2.153	2.945	0.050	0.211	352.662