

## Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> Dockweiler Drive Alignment Phase 1: Widening of 13th and Ex				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (lbs/day)
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	
Grubbing/Land Clearing	1.8	16.6	17.2	70.7	0.7	70.0	15.2	0.7	14.6	3,739.7
Grading/Excavation	8.2	71.7	78.8	73.6	3.6	70.0	17.8	3.2	14.6	16,088.9
Drainage/Utilities/Sub-Grade	6.7	58.7	60.8	72.9	2.9	70.0	17.2	2.6	14.6	11,999.2
Paving	2.3	24.6	20.5	1.1	1.1	-	1.0	1.0	-	4,687.7
<b>Maximum (pounds/day)</b>	<b>8.2</b>	<b>71.7</b>	<b>78.8</b>	<b>73.6</b>	<b>3.6</b>	<b>70.0</b>	<b>17.8</b>	<b>3.2</b>	<b>14.6</b>	<b>16,088.9</b>
<b>Total (tons/construction project)</b>	<b>0.6</b>	<b>5.3</b>	<b>5.5</b>	<b>6.2</b>	<b>0.3</b>	<b>6.0</b>	<b>1.5</b>	<b>0.2</b>	<b>1.2</b>	<b>1,106.6</b>

Notes: Project Start Year -> 2022  
 Project Length (months) -> 9  
 Total Project Area (acres) -> 15  
 Maximum Area Disturbed/Day (acres) -> 7  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 2795

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Dockweiler Drive Alignment Phase 1: Widening of 13th and Ex				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (kgs/day)
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	
Grubbing/Land Clearing	0.8	7.6	7.8	32.2	0.3	31.8	6.9	0.3	6.6	1,699.9
Grading/Excavation	3.7	32.6	35.8	33.5	1.6	31.8	8.1	1.5	6.6	7,313.1
Drainage/Utilities/Sub-Grade	3.1	26.7	27.6	33.2	1.3	31.8	7.8	1.2	6.6	5,454.2
Paving	1.1	11.2	9.3	0.5	0.5	-	0.5	0.5	-	2,130.8
<b>Maximum (kilograms/day)</b>	<b>3.7</b>	<b>32.6</b>	<b>35.8</b>	<b>33.5</b>	<b>1.6</b>	<b>31.8</b>	<b>8.1</b>	<b>1.5</b>	<b>6.6</b>	<b>7,313.1</b>
<b>Total (megagrams/construction project)</b>	<b>0.5</b>	<b>4.8</b>	<b>5.0</b>	<b>5.6</b>	<b>0.2</b>	<b>5.4</b>	<b>1.3</b>	<b>0.2</b>	<b>1.1</b>	<b>1,003.7</b>

Notes: Project Start Year -> 2022  
 Project Length (months) -> 9  
 Total Project Area (hectares) -> 6  
 Maximum Area Disturbed/Day (hectares) -> 3  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 2137

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

**Road Construction Emissions Model**

Version 7.1.5.1



**Data Entry Worksheet**

Note: Required data input sections have a yellow background.  
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.  
 The user is required to enter information in cells C10 through C25.

**Input Type**

Project Name	Dockweiler Drive Alignment Phase	1. Widening of 13th and Extension of Arch St to Dockweiler Dr.
Construction Start Year	2022	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1. New Road Construction 2. Road Widening 3. Bridge/Overpass Construction
Project Construction Time	9.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.40	miles
Total Project Area	15.00	acres
Maximum Area Disturbed/Day	7.00	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd <sup>3</sup> /day
Soil Exported	2795.00	yd <sup>3</sup> /day
Average Truck Capacity	20	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program Calculated		2005		2006		2007	
	Construction Months	Months	%	%	%	%	%	%		
Grubbing/Land Clearing	1.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Grading/Excavation	2.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00		
Drainage/Utilities/Sub-Grade	5.00	2.70	0.00	0.00	0.00	0.00	0.00	0.00		
Paving	1.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00		
<b>Totals</b>	<b>9.00</b>	<b>9.00</b>								

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.  
 Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of		Default Values	
	Soil Hauling Defaults	Default Values		
Miles/round trip	1.00	30		
Round trips/day	140.00	140		
Vehicle miles traveled/day (calculated)				140

  

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.18	1.77	0.83	0.15	0.08	1546.69
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.06	0.55	0.26	0.05	0.03	476.95
Tons per construction period	0.00	0.01	0.01	0.00	0.00	10.49

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker		Default Values	
	Commute Default Values	Default Values		
Miles/one-way trip		20		
One-way trips/day		2		
No. of employees: Grubbing/Land Clearing		6		
No. of employees: Grading/Excavation		26		
No. of employees: Drainage/Utilities/Sub-Grade		24		
No. of employees: Paving		15		

  

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.097	0.112	1.056	0.047	0.020	441.772
Emission rate - Grading/Excavation (grams/mile)	0.097	0.112	1.056	0.047	0.020	441.772
Emission rate - Draining/Utilities/Sub-Grade (g/mile)	0.097	0.112	1.056	0.047	0.020	441.772
Emission rate - Paving (grams/mile)	0.097	0.112	1.056	0.047	0.020	441.772
Emission rate - Grubbing/Land Clearing (grams/trip)	0.310	0.168	2.386	0.004	0.004	96.127
Emission rate - Grading/Excavation (grams/trip)	0.310	0.168	2.386	0.004	0.004	96.127
Emission rate - Draining/Utilities/Sub-Grade (g/trip)	0.310	0.168	2.386	0.004	0.004	96.127
Emission rate - Paving (grams/trip)	0.310	0.168	2.386	0.004	0.004	96.127
Pounds per day - Grubbing/Land Clearing	0.062	0.066	0.647	0.026	0.011	245.913
Tons per const. Period - Grub/Land Clear	0.001	0.001	0.007	0.000	0.000	2.705
Pounds per day - Grading/Excavation	0.259	0.278	2.719	0.109	0.046	1032.835
Tons per const. Period - Grading/Excavation	0.006	0.006	0.060	0.002	0.001	22.722
Pounds per day - Drainage/Utilities/Sub-Grade	0.234	0.251	2.460	0.098	0.041	934.469
Tons per const. Period - Drain/Util/Sub-Grade	0.013	0.014	0.135	0.005	0.002	51.396
Pounds per day - Paving	0.148	0.159	1.554	0.062	0.026	590.191
Tons per const. Period - Paving	0.002	0.002	0.017	0.001	0.000	6.492
tons per construction period	0.021	0.022	0.219	0.009	0.004	83.315

Water Truck Emissions	User Override of		Program Estimate of		User Override of Truck		Default Values	
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	Miles Traveled/Day	Miles Traveled/Day	Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust	2	2	80	80				
Grading/Excavation - Exhaust	2	2	40	40				
Drainage/Utilities/Subgrade	1	1						
	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate - Grubbing/Land Clearing (grams/mile)	0.18	1.77	0.83	0.15	0.08	1546.69		
Emission rate - Grading/Excavation (grams/mile)	0.18	1.77	0.83	0.15	0.08	1546.69		
Emission rate - Drainage/Utilities/Subgrade (grams/mile)	0.18	1.77	0.83	0.15	0.08	1546.69		
Tons per day - Grubbing/Land Clearing	0.06	0.62	0.29	0.05	0.03	545.09		
Tons per day - Grubbing/Excavation	0.00	0.01	0.00	0.00	0.00	6.00		
Tons per day - Grading/Excavation	0.06	0.62	0.29	0.05	0.03	545.09		
Tons per day - Drainage/Utilities/Subgrade	0.00	0.01	0.01	0.00	0.00	11.99		
Tons per day - Drainage/Utilities/Subgrade	0.02	0.16	0.07	0.01	0.01	136.27		
Tons per day - Drainage/Utilities/Subgrade	0.00	0.01	0.00	0.00	0.00	7.49		

Fugitive dust default values can be overridden in cells C110 through C112

Fugitive Dust	User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
	Average Disturb/Day	Maximum Average/Day	pounds/day	tonnes/period	pounds/day	tonnes/period	pounds/day	tonnes/period
Fugitive Dust - Grubbing/Land Clearing	7	70.0	2.8	14.6	0.2			
Fugitive Dust - Grading/Excavation	7	70.0	3.1	14.6	0.4			
Fugitive Dust - Drainage/Utilities/Subgrade	7	70.0	2.1	14.6	0.4			

Off-Road Equipment Emissions		Default		ROG	CO	NOx	PM10	PM2.5	CO2
Grubbing/Land Clearing	Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Grubbing/Land Clearing	Override of Default Number of Vehicles		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00
	2	8.92	Crawler Tractors	8.92	11.76	0.44	0.41	164.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.44	Excavators	0.44	5.58	3.87	0.18	0.16	114.28
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
			Graders	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Pavers	0.00	0.00	0.00	0.00	0.00	0.00
			Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00
			Rotors	0.00	0.00	0.00	0.00	0.00	0.00
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	0.18	Signal Boards	0.18	1.20	1.07	0.04	0.04	157.43
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
			Tractor/Loader/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per day			1.6	15.7	16.5	0.7	0.6	268.7
Grubbing/Land Clearing	tons per phase			0.0	0.2	0.2	0.0	0.0	32.4

Grading/Excavation		Default		ROG	CO	NOx	PM10	PM2.5	CO2
Grading/Excavation	Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Grading/Excavation	Override of Default Number of Vehicles		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
	1	0.38	Cranes	0.38	3.00	4.07	0.17	0.16	601.73
	2	1.01	Crawler Tractors	1.01	8.92	11.76	0.44	0.41	164.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.88	Excavators	0.88	11.15	7.35	0.36	0.33	2290.55
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
	2	1.16	Graders	1.16	6.92	10.38	0.58	0.53	1334.25
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Pavers	0.00	0.00	0.00	0.00	0.00	0.00
			Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.52	Rotors	0.52	4.53	5.14	0.30	0.27	836.53
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.60	Rubber Tired Loaders	0.60	6.23	5.98	0.20	0.18	1325.74
	3	2.54	Scrapers	2.54	21.81	26.54	1.04	0.95	4834.14
	1	0.18	Signal Boards	0.18	1.20	1.07	0.04	0.04	157.43
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.52	Tractor/Loader/Backhoes	0.52	4.71	5.05	0.27	0.25	1005.65
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
			Welders	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	tons per day			7.8	68.5	77.3	3.4	3.1	1494.0
Grading/Excavation	tons per phase			0.2	1.5	1.7	0.1	0.1	38.7

Drainage/Utilities/Subgrade		Default		ROG	CO	NOx	PM10	PM2.5	CO2
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Drainage/Utilities/Subgrade	Override of Default Number of Vehicles		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.76	Air Compressors	0.76	6.55	5.25	0.31	0.29	1015.89
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00
			Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Excavators	0.00	0.00	0.00	0.00	0.00	0.00
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.53	Generator Sets	0.53	5.76	4.72	0.24	0.23	974.13
	2	1.16	Graders	1.16	6.92	10.38	0.58	0.53	1334.25
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Pavers	0.00	0.00	0.00	0.00	0.00	0.00
			Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.08	Plate Compactors	0.08	0.42	0.50	0.02	0.02	68.90
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.46	Pumps	0.46	4.75	3.80	0.21	0.19	792.28
			Rotors	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.24	Rough Terrain Forklifts	0.24	4.06	2.99	0.10	0.10	745.77
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	3	2.54	Scrapers	2.54	21.81	26.54	1.04	0.95	4834.14
	1	0.18	Signal Boards	0.18	1.20	1.07	0.04	0.04	157.43
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
			Surfing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.52	Tractor/Loader/Backhoes	0.52	4.71	5.05	0.27	0.25	1005.65
			Trenchers	0.					

Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Override of Default Number of Vehicles	Number of Vehicles Program-estimate						
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	2	Pavers	0.41	5.68	4.01	0.19	0.18	964.04
	2	Paving Equipment	0.36	5.39	3.39	0.17	0.15	852.33
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	4	Rollers	0.69	6.04	6.85	0.40	0.36	1118.04
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.18	1.20	1.07	0.04	0.04	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	3	Tractors/Loaders/Backhoes	0.52	4.71	5.05	0.27	0.25	1005.65
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
		Paving	2.2	23.0	20.4	1.1	1.0	4097.5
		Paving	0.0	0.3	0.2	0.0	0.0	45.1
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>			<b>0.6</b>	<b>5.0</b>	<b>5.4</b>	<b>0.2</b>	<b>0.2</b>	<b>987.3</b>

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	126	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	362	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	98	8
Trenchers	81	8
Welders	45	8

0  
END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> Dockweiler Drive Alignment Phase 2: Construction of 12 Street				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	0.9	8.9	7.8	20.3	0.3	20.0	4.5	0.3	4.2	1,835.7
Grading/Excavation	4.5	42.9	40.9	21.9	1.9	20.0	5.8	1.7	4.2	9,255.3
Drainage/Utilities/Sub-Grade	3.7	34.5	33.3	21.5	1.5	20.0	5.5	1.4	4.2	7,193.3
Paving	1.4	15.4	12.4	0.7	0.7	-	0.6	0.6	-	2,968.7
<b>Maximum (pounds/day)</b>	<b>4.5</b>	<b>42.9</b>	<b>40.9</b>	<b>21.9</b>	<b>1.9</b>	<b>20.0</b>	<b>5.8</b>	<b>1.7</b>	<b>4.2</b>	<b>9,255.3</b>
<b>Total (tons/construction project)</b>	<b>0.1</b>	<b>1.1</b>	<b>1.0</b>	<b>0.9</b>	<b>0.0</b>	<b>0.9</b>	<b>0.2</b>	<b>0.0</b>	<b>0.2</b>	<b>233.8</b>
Notes: Project Start Year -> 2023										
Project Length (months) -> 4										
Total Project Area (acres) -> 2										
Maximum Area Disturbed/Day (acres) -> 2										
Total Soil Imported/Exported (yd <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										

Emission Estimates for -> Dockweiler Drive Alignment Phase 2: Construction of 12 Street				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	0.4	4.0	3.6	9.2	0.2	9.1	2.0	0.1	1.9	834.4
Grading/Excavation	2.0	19.5	18.6	9.9	0.8	9.1	2.6	0.8	1.9	4,207.0
Drainage/Utilities/Sub-Grade	1.7	15.7	15.2	9.8	0.7	9.1	2.5	0.6	1.9	3,269.7
Paving	0.6	7.0	5.6	0.3	0.3	-	0.3	0.3	-	1,349.4
<b>Maximum (kilograms/day)</b>	<b>2.0</b>	<b>19.5</b>	<b>18.6</b>	<b>9.9</b>	<b>0.8</b>	<b>9.1</b>	<b>2.6</b>	<b>0.8</b>	<b>1.9</b>	<b>4,207.0</b>
<b>Total (megagrams/construction project)</b>	<b>0.1</b>	<b>1.0</b>	<b>0.9</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>	<b>0.2</b>	<b>0.0</b>	<b>0.2</b>	<b>212.0</b>
Notes: Project Start Year -> 2023										
Project Length (months) -> 4										
Total Project Area (hectares) -> 1										
Maximum Area Disturbed/Day (hectares) -> 1										
Total Soil Imported/Exported (meters <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										

**Road Construction Emissions Model**

Version 7.1.5.1

**Data Entry Worksheet**

Note: Required data input sections have a yellow background.  
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.  
 The user is required to enter information in cells C10 through C25.



**Input Type**

Project Name	Dockweiler Drive Alignment Phase 2	Construction of 12 Street Roundabout
Construction Start Year	2023	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	4.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.10	miles
Total Project Area	2.00	acres
Maximum Area Disturbed/Day	2.00	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd <sup>3</sup> /day
Soil Exported	0.00	yd <sup>3</sup> /day
Average Truck Capacity	0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program Calculated		2005		2006		2007	
	Construction Months	Months	%	%	%	%	%	%		
Grubbing/Land Clearing	1.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	1.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	1.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	1.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Totals</b>	<b>4.00</b>	<b>4.00</b>								

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

Soil Hauling Emissions	User Override of		Default Values							
	Soil Hauling Defaults	Construction Months	Default Values	Months						
User Input										
Miles/round trip	0.00		30							
Round trips/day	0.00		#DIV/0!							
Vehicle miles traveled/day (calculated)					0					
<b>Hauling Emissions</b>					<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate (grams/mile)					0.17	1.35	0.77	0.15	0.08	1541.90
Emission rate (grams/trip)					0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day					0.00	0.00	0.00	0.00	0.00	0.00
Tons per construction period					0.00	0.00	0.00	0.00	0.00	0.00

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker		Default Values							
	Commute Default Values	Construction Months	Default Values	Months						
Miles/one-way trip			20							
One-way trips/day			2							
No. of employees: Grubbing/Land Clearing			4							
No. of employees: Grading/Excavation			16							
No. of employees: Drainage/Utilities/Sub-Grade			14							
No. of employees: Paving			10							
					<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)					0.093	0.105	0.999	0.047	0.020	441.716
Emission rate - Grading/Excavation (grams/mile)					0.093	0.105	0.999	0.047	0.020	441.716
Emission rate - Draining/Utilities/Sub-Grade (g/mile)					0.093	0.105	0.999	0.047	0.020	441.716
Emission rate - Paving (grams/mile)					0.093	0.105	0.999	0.047	0.020	441.716
Emission rate - Grubbing/Land Clearing (grams/trip)					0.292	0.154	2.207	0.004	0.004	96.196
Emission rate - Grading/Excavation (grams/trip)					0.292	0.154	2.207	0.004	0.004	96.196
Emission rate - Draining/Utilities/Sub-Grade (g/trip)					0.292	0.154	2.207	0.004	0.004	96.196
Emission rate - Paving (grams/trip)					0.292	0.154	2.207	0.004	0.004	96.196
Pounds per day - Grubbing/Land Clearing					0.036	0.037	0.366	0.016	0.007	147.531
Tons per const. Period - Grub/Land Clear					0.000	0.000	0.004	0.000	0.000	1.623
Pounds per day - Grading/Excavation					0.154	0.161	1.588	0.067	0.028	639.300
Tons per const. Period - Grading/Excavation					0.002	0.002	0.017	0.001	0.000	7.032
Pounds per day - Drainage/Utilities/Sub-Grade					0.130	0.137	1.344	0.057	0.024	540.946
Tons per const. Period - Drain/Util/Sub-Grade					0.001	0.002	0.015	0.001	0.000	5.950
Pounds per day - Paving					0.095	0.099	0.977	0.041	0.017	393.415
Tons per const. Period - Paving					0.001	0.001	0.011	0.000	0.000	4.328
tons per construction period					0.005	0.005	0.047	0.002	0.001	18.933

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.

Water Truck Emissions		User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day		
Grubbing/Land Clearing - Exhaust			1		40		
Grading/Excavation - Exhaust			1		40		
Drainage/Utilities/Subgrade			1		40		
		<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
Emission rate - Grubbing/Land Clearing (grams/mile)	0.17		1.35	0.77	0.15	0.08	1541.90
Emission rate - Grading/Excavation (grams/mile)	0.17		1.35	0.77	0.15	0.08	1541.90
Emission rate - Drainage/Utilities/Sub-Grade (gr/mile)	0.17		1.35	0.77	0.15	0.08	1541.90
Pounds per day - Grubbing/Land Clearing	0.01		0.12	0.07	0.01	0.01	135.85
Tons per const. Period - Grubbing/Land Clear	0.00		0.00	0.00	0.00	0.00	1.49
Pound per day - Grading/Excavation	0.01		0.12	0.07	0.01	0.01	135.85
Tons per const. Period - Grading/Excavation	0.00		0.00	0.00	0.00	0.00	1.49
Pound per day - Drainage/Utilities/Subgrade	0.01		0.12	0.07	0.01	0.01	135.85
Tons per const. Period - Drainage/Utilities/Subgrade	0.00		0.00	0.00	0.00	0.00	1.49

Fugitive dust default values can be overridden in cells C110 through C112.

Fugitive Dust		User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/period	PM2.5 pounds/day	PM2.5 tons/period
Fugitive Dust - Grubbing/Land Clearing			2	20.0	0.2	4.2	0.0
Fugitive Dust - Grading/Excavation			2	20.0	0.4	4.2	0.1
Fugitive Dust - Drainage/Utilities/Subgrade			2	20.0	0.3	4.2	0.1

Off-Road Equipment Emissions		Default		ROG	CO	NOx	PM10	PM2.5	CO2	
Grubbing/Land Clearing	Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
Override of Default Number of Vehicles										
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	
			Cranes	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Crawler Tractors	0.45	4.45	5.02	0.19	0.18	822.18	
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Excavators	0.20	2.79	1.60	0.08	0.07	572.74	
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	
			Graders	0.00	0.00	0.00	0.00	0.00	0.00	
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Pavers	0.00	0.00	0.00	0.00	0.00	0.00	
			Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00	
			Rollers	0.00	0.00	0.00	0.00	0.00	0.00	
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	
			Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
			Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43	
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	
			Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	
			Welders	0.00	0.00	0.00	0.00	0.00	0.00	
			Grubbing/Land Clearing	pounds per day	0.8	8.4	7.7	0.3	0.3	1562.4
			Grubbing/Land Clearing	tons per phase	0.0	0.1	0.1	0.0	0.0	17.1

Grading/Excavation		Default		ROG	CO	NOx	PM10	PM2.5	CO2	
Grading/Excavation	Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
Override of Default Number of Vehicles										
			Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	
			Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	
			Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	
			Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	
	0		Cranes	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Crawler Tractors	0.45	4.45	5.02	0.19	0.18	822.18	
			Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
	3		Excavators	0.61	8.37	4.80	0.24	0.22	1718.22	
			Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Graders	0.51	3.46	4.46	0.25	0.23	666.98	
			Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
			Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	
			Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Pavers	0.00	0.00	0.00	0.00	0.00	0.00	
			Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	
			Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	
			Pumps	0.00	0.00	0.00	0.00	0.00	0.00	
	2		Rollers	0.32	3.02	3.20	0.18	0.16	559.03	
			Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
			Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	
	1		Rubber Tired Loaders	0.28	3.12	2.62	0.09	0.08	662.75	
	2		Scrapers	1.63	14.54	16.39	0.64	0.59	3222.40	
	1		Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43	
			Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
			Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
			Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	
	2		Tractors/Loaders/Backhoes	0.32	3.14	3.09	0.15	0.14	671.18	
			Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	
			Welders	0.00	0.00	0.00	0.00	0.00	0.00	
			Grading/Excavation	pounds per day	4.3	41.3	40.6	1.8	1.6	8480.2
			Grading	tons per phase	0.0	0.5	0.4	0.0	0.0	93.3

Drainage/Utilities/Subgrade	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Number of Vehicles	Program-estimate						
Override of Default Number of Vehicles			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			0.00	0.00	0.00	0.00	0.00	0.00
	1	Aerial Lifts	0.36	3.27	2.43	0.14	0.13	507.95
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Generator Sets	0.25	2.87	2.20	0.11	0.10	487.07
	1	Graders	0.51	3.46	4.46	0.25	0.23	666.98
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pumps	0.22	2.37	1.81	0.09	0.08	396.14
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rough Terrain Forklifts	0.11	2.03	1.41	0.05	0.04	372.94
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	2	Scrapers	1.83	14.54	16.39	0.64	0.59	3222.40
	1	Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.32	3.14	3.09	0.15	0.14	671.18
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
Drainage		pounds per day	3.6	33.1	33.1	1.5	1.4	6516.5
Drainage		tons per phase	0.0	0.4	0.4	0.0	0.0	71.7

Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2
	Number of Vehicles	Program-estimate						
Override of Default Number of Vehicles			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			0.00	0.00	0.00	0.00	0.00	0.00
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.19	2.84	1.80	0.08	0.08	481.98
	1	Paving Equipment	0.17	2.69	1.56	0.08	0.07	426.16
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	3	Rollers	0.48	4.53	4.80	0.26	0.24	898.54
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.32	3.14	3.09	0.15	0.14	671.18
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
Paving		pounds per day	1.3	14.4	12.3	0.6	0.6	2575.3
Paving		tons per phase	0.0	0.2	0.1	0.0	0.0	28.3
Total Emissions all Phases (tons per construction period) =>			0.1	1.1	1.0	0.0	0.0	210.4

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	490	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	129	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	392	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	89	8
Trenchers	81	8
Welders	45	8

END OF DATA ENTRY SHEET



## Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> Dockweiler Drive Alignment Phase 3: Reconstruction of 13th S				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (lbs/day)
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	0.9	8.9	7.8	20.3	0.3	20.0	4.5	0.3	4.2	1,835.7
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	3.7	34.5	33.3	21.5	1.5	20.0	5.5	1.4	4.2	7,193.3
Paving	1.4	15.4	12.4	0.7	0.7	-	0.6	0.6	-	2,968.7
<b>Maximum (pounds/day)</b>	<b>3.7</b>	<b>34.5</b>	<b>33.3</b>	<b>21.5</b>	<b>1.5</b>	<b>20.0</b>	<b>5.5</b>	<b>1.4</b>	<b>4.2</b>	<b>7,193.3</b>
<b>Total (tons/construction project)</b>	<b>0.1</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.0</b>	<b>0.5</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>125.7</b>
Notes: Project Start Year -> 2023 Project Length (months) -> 3 Total Project Area (acres) -> 2 Maximum Area Disturbed/Day (acres) -> 2 Total Soil Imported/Exported (yd <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										
Emission Estimates for -> Dockweiler Drive Alignment Phase 3: Reconstruction of 13th S				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	CO2 (kgs/day)
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	0.4	4.0	3.6	9.2	0.2	9.1	2.0	0.1	1.9	834.4
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	1.7	15.7	15.2	9.8	0.7	9.1	2.5	0.6	1.9	3,269.7
Paving	0.6	7.0	5.6	0.3	0.3	-	0.3	0.3	-	1,349.4
<b>Maximum (kilograms/day)</b>	<b>1.7</b>	<b>15.7</b>	<b>15.2</b>	<b>9.8</b>	<b>0.7</b>	<b>9.1</b>	<b>2.5</b>	<b>0.6</b>	<b>1.9</b>	<b>3,269.7</b>
<b>Total (megagrams/construction project)</b>	<b>0.1</b>	<b>0.6</b>	<b>0.5</b>	<b>0.5</b>	<b>0.0</b>	<b>0.5</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>114.1</b>
Notes: Project Start Year -> 2023 Project Length (months) -> 3 Total Project Area (hectares) -> 1 Maximum Area Disturbed/Day (hectares) -> 1 Total Soil Imported/Exported (meters <sup>3</sup> /day)-> 0										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.										

**Road Construction Emissions Model**

Version 7.1.5.1



**Data Entry Worksheet**

Note: Required data input sections have a yellow background.  
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.  
 The user is required to enter information in cells C10 through C25.

**Input Type**

Project Name	Dockweiler Drive Alignment Phase 3: Reconstruction of 13th St to Arch St	
Construction Start Year	2023	Enter a Year between 2009 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	3.00	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.20	miles
Total Project Area	2.00	acres
Maximum Area Disturbed/Day	2.00	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd <sup>3</sup> /day
Soil Exported	0.00	yd <sup>3</sup> /day
Average Truck Capacity	0	yd <sup>3</sup> (assume 20 if unknown)

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		2005		2006		2007	
	Construction Months	Program Calculated Months	%	%	%	%	%	
Grubbing/Land Clearing	1.50	0.30	0.00	0.00	0.00	0.00	0.00	
Grading/Excavation	0.00	1.35	0.00	0.00	0.00	0.00	0.00	
Drainage/Utilities/Sub-Grade	1.00	0.90	0.00	0.00	0.00	0.00	0.00	
Paving	0.50	0.45	0.00	0.00	0.00	0.00	0.00	
<b>Totals</b>	<b>3.00</b>	<b>3.00</b>						

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

User Input	User Override of		Hauling Emissions					
	Soil Hauling Defaults	Default Values	ROG	NOx	CO	PM10	PM2.5	CO2
Miles/round trip	0.00	30	0.00	0.00	0.00	0.00	0.00	0.00
Round trips/day	0.00	#DIV/0!	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle miles traveled/day (calculated)			0					
Emission rate (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker		Default Values					
	Commute Default Values	Default Values	ROG	NOx	CO	PM10	PM2.5	CO2
Miles/one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing		4						
No. of employees: Grading/Excavation		16						
No. of employees: Drainage/Utilities/Sub-Grade		14						
No. of employees: Paving		10						
Emission rate - Grubbing/Land Clearing (grams/mile)		0.093	0.105	0.999	0.047	0.020	441.716	
Emission rate - Grading/Excavation (grams/mile)		0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)		0.093	0.105	0.999	0.047	0.020	441.716	
Emission rate - Paving (grams/mile)		0.093	0.105	0.999	0.047	0.020	441.716	
Emission rate - Grubbing/Land Clearing (grams/trip)		0.292	0.154	2.207	0.004	0.004	96.196	
Emission rate - Grading/Excavation (grams/trip)		0.000	0.000	0.000	0.000	0.000	0.000	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)		0.292	0.154	2.207	0.004	0.004	96.196	
Emission rate - Paving (grams/trip)		0.292	0.154	2.207	0.004	0.004	96.196	
Pounds per day - Grubbing/Land Clearing		0.036	0.037	0.366	0.016	0.007	147.531	
Tons per const. Period - Grub/Land Clear		0.001	0.001	0.006	0.000	0.000	2.434	
Pounds per day - Grading/Excavation		0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Grading/Excavation		0.000	0.000	0.000	0.000	0.000	0.000	
Pounds per day - Drainage/Utilities/Sub-Grade		0.130	0.137	1.344	0.057	0.024	540.946	
Tons per const. Period - Drain/Util/Sub-Grade		0.001	0.002	0.015	0.001	0.000	5.950	
Pounds per day - Paving		0.095	0.099	0.977	0.041	0.017	393.415	
Tons per const. Period - Paving		0.001	0.001	0.005	0.000	0.000	2.164	
Tons per construction period		0.003	0.003	0.026	0.001	0.000	10.548	



Drainage/Utilities/Subgrade		Number of Vehicles	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles		Program-estimate	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.36	3.27	2.43	0.14	0.13	507.95
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Generator Sets	0.25	2.87	2.20	0.11	0.10	487.07
	1	Graders	0.51	3.46	4.46	0.25	0.23	666.98
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pumps	0.22	2.37	1.81	0.09	0.08	396.14
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rough Terrain Forklifts	0.11	2.03	1.41	0.05	0.04	372.94
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
	2	Scrapers	1.63	14.54	16.39	0.84	0.59	3222.40
	1	Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.32	3.14	3.09	0.15	0.14	671.18
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage	pounds per day	3.6	33.1	33.1	1.5	1.4	6516.5
	Drainage	tons per phase	0.0	0.4	0.4	0.0	0.0	71.7

Paving		Default Number of Vehicles	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles		Program-estimate	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.19	2.84	1.80	0.08	0.08	481.98
	1	Paving Equipment	0.17	2.69	1.56	0.08	0.07	426.16
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
	3	Rollers	0.48	4.53	4.80	0.26	0.24	838.54
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Signal Boards	0.17	1.19	1.04	0.04	0.03	157.43
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.32	3.14	3.09	0.15	0.14	671.18
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	1.3	14.4	12.3	0.6	0.6	2573.3
	Paving	tons per phase	0.0	0.1	0.1	0.0	0.0	14.2
Total Emissions all Phases (tons per construction period) =>			0.1	0.6	0.6	0.0	0.0	111.5

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values	Default Values
	Horsepower	Hours/day
Aerial Lifts	63	8
Air Compressors	108	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	228	8
Crawler Tractors	238	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	128	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	290	8
Scrapers	392	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	96	8
Trenchers	81	8
Welders	45	8

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> Dockweiler Drive Alignment Phase 4 - Landscaping, Lighting, :				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	3.9	35.8	34.4	21.6	1.6	20.0	5.6	1.4	4.2	7,399.9
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (pounds/day)</b>	<b>3.9</b>	<b>35.8</b>	<b>34.4</b>	<b>21.6</b>	<b>1.6</b>	<b>20.0</b>	<b>5.6</b>	<b>1.4</b>	<b>4.2</b>	<b>7,399.9</b>
<b>Total (tons/construction project)</b>	<b>0.1</b>	<b>0.8</b>	<b>0.8</b>	<b>0.2</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>162.8</b>

Notes: Project Start Year -> 2023  
 Project Length (months) -> 2  
 Total Project Area (acres) -> 7  
 Maximum Area Disturbed/Day (acres) -> 2  
 Total Soil Imported/Exported (yd<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Dockweiler Drive Alignment Phase 4 - Landscaping, Lighting, :				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	1.8	16.3	15.6	9.8	0.7	9.1	2.5	0.6	1.9	3,363.6
Paving	-	-	-	-	-	-	-	-	-	-
<b>Maximum (kilograms/day)</b>	<b>1.8</b>	<b>16.3</b>	<b>15.6</b>	<b>9.8</b>	<b>0.7</b>	<b>9.1</b>	<b>2.5</b>	<b>0.6</b>	<b>1.9</b>	<b>3,363.6</b>
<b>Total (megagrams/construction project)</b>	<b>0.1</b>	<b>0.7</b>	<b>0.7</b>	<b>0.2</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>147.7</b>

Notes: Project Start Year -> 2023  
 Project Length (months) -> 2  
 Total Project Area (hectares) -> 3  
 Maximum Area Disturbed/Day (hectares) -> 1  
 Total Soil Imported/Exported (meters<sup>3</sup>/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

**Road Construction Emissions Model**

Version 7.1.5.1



**Data Entry Worksheet**

Note: Required data input sections have a yellow background.  
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.  
 The user is required to enter information in cells C10 through C25.

**Input Type**

Project Name	Dockweiler Drive Alignment Phase 4 - Landscaping, Lighting, Signing, Striping
Construction Start Year	2023 <small>Enter a Year between 2009 and 2025 (inclusive)</small>
Project Type	1 <small>1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction</small>
Project Construction Time	2.00 <small>months</small>
Predominant Soil/Site Type: Enter 1, 2, or 3	2 <small>1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock</small>
Project Length	1.00 <small>mile</small>
Total Project Area	7.00 <small>acres</small>
Maximum Area Disturbed/Day	2.00 <small>acres</small>
Water Trucks Used?	1 <small>1. Yes 2. No</small>
Soil Imported	0.00 <small>yd<sup>3</sup>/day</small>
Soil Exported	0.00 <small>yd<sup>3</sup>/day</small>
Average Truck Capacity	0 <small>yd<sup>3</sup> (assume 20 if unknown)</small>

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.

Construction Periods	User Override of		Program Calculated		2005		2006		2007	
	Construction Months	Months			%	%	%	%	%	
Grubbing/Land Clearing	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	2.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Totals</b>	<b>2.00</b>	<b>2.00</b>								

NOTE: soil hauling emissions are included in the Grading/Excavation Construction Period Phase, therefore the Construction Period for Grading/Excavation cannot be zero if hauling is part of the project.

Hauling emission default values can be overridden in cells C45 through C46.

User Input	User Override of		Default Values	
	Soil Hauling Defaults	Default Values		
Miles/round trip	0.00	30		
Round trips/day	0.00	#DIV/0!		
Vehicle miles traveled/day (calculated)				0

  

Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day	0.00	0.00	0.00	0.00	0.00	0.00
Tons per construction period	0.00	0.00	0.00	0.00	0.00	0.00

Worker commute default values can be overridden in cells C60 through C65.

Worker Commute Emissions	User Override of Worker		Default Values	
	Commute Default Values	Default Values		
Miles/one-way trip		20		
One-way trips/day		2		
No. of employees: Grubbing/Land Clearing		5		
No. of employees: Grading/Excavation		18		
No. of employees: Drainage/Utilities/Sub-Grade		15		
No. of employees: Paving		11		

  

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.093	0.105	0.999	0.047	0.020	441.716
Emission rate - Paving (grams/mile)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grubbing/Land Clearing (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Grading/Excavation (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.292	0.154	2.207	0.004	0.004	96.196
Emission rate - Paving (grams/trip)	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grubbing/Land Clearing	0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Grading/Excavation	0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Grading/Excavation	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per day - Drainage/Utilities/Sub-Grade	0.142	0.149	1.466	0.062	0.026	590.123
Tons per const. Period - Drain/Util/Sub-Grade	0.003	0.003	0.032	0.001	0.001	12.983
Pounds per day - Paving	0.000	0.000	0.000	0.000	0.000	0.000
Tons per const. Period - Paving	0.000	0.000	0.000	0.000	0.000	0.000
tons per construction period	0.003	0.003	0.032	0.001	0.001	12.983

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values		
	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Day	PM10	PM2.5	CO2
Grubbing/Land Clearing - Exhaust	1	1	49			
Grading/Excavation - Exhaust	1	1	40			
Drainage/Utilities/Subgrade	1	1	40			
	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Grading/Excavation (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00
Emission rate - Drainage/Utilities/Subgrade (grams/mile)	0.17	1.36	0.17	0.28	0.08	152.16
Pounds per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per const. Period - Drainage/Utilities/Subgrade	0.01	0.12	0.07	0.01	0.01	155.85
Pounds per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	2.99

Fugitive dust default values can be overridden in cells C110 through C112

Fugitive Dust	User Override of Max	Default	PM10	PM10	PM2.5	PM2.5
	Average Disturb/Day	Maximum Average/Day	pounds/day	tonnes/period	pounds/day	tonnes/period
Fugitive Dust - Grubbing/Land Clearing	0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust - Grading/Excavation	0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade	2	20.0	0.1	4.2	0.0	0.0

Off-Road Equipment Emissions									
Grubbing/Land Clearing	Default Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Overwrite of Default Number of Vehicles									
Aerial Lifts				0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors				0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs				0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers				0.00	0.00	0.00	0.00	0.00	0.00
Concrete/Industrial Saws				0.00	0.00	0.00	0.00	0.00	0.00
Cranes				0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	1			0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Excavators	1			0.00	0.00	0.00	0.00	0.00	0.00
Forklifts				0.00	0.00	0.00	0.00	0.00	0.00
Generator Sets				0.00	0.00	0.00	0.00	0.00	0.00
Graders				0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Tractors				0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks				0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other Material Handling Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pavers				0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pile Compactors				0.00	0.00	0.00	0.00	0.00	0.00
Pressure Washers				0.00	0.00	0.00	0.00	0.00	0.00
Pumps				0.00	0.00	0.00	0.00	0.00	0.00
Rotors				0.00	0.00	0.00	0.00	0.00	0.00
Rough Terrain Forklifts				0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Dozers				0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders				0.00	0.00	0.00	0.00	0.00	0.00
Scrapers				0.00	0.00	0.00	0.00	0.00	0.00
Signal Boards	2			0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders				0.00	0.00	0.00	0.00	0.00	0.00
Surfing Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers				0.00	0.00	0.00	0.00	0.00	0.00
Tractor/Loaders/Backhoes				0.00	0.00	0.00	0.00	0.00	0.00
Trenchers				0.00	0.00	0.00	0.00	0.00	0.00
Welders				0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing		pounds per day		0.0	0.0	0.0	0.0	0.0	0.0
Grubbing/Land Clearing		tons per phase		0.0	0.0	0.0	0.0	0.0	0.0

Grading/Excavation									
Grubbing/Excavation	Default Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Overwrite of Default Number of Vehicles									
Aerial Lifts				0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors				0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs				0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers				0.00	0.00	0.00	0.00	0.00	0.00
Concrete/Industrial Saws				0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0			0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	1			0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Excavators	3			0.00	0.00	0.00	0.00	0.00	0.00
Forklifts				0.00	0.00	0.00	0.00	0.00	0.00
Generator Sets				0.00	0.00	0.00	0.00	0.00	0.00
Graders	1			0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Tractors				0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks				0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other Material Handling Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pavers				0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pile Compactors				0.00	0.00	0.00	0.00	0.00	0.00
Pressure Washers				0.00	0.00	0.00	0.00	0.00	0.00
Pumps				0.00	0.00	0.00	0.00	0.00	0.00
Rotors	2			0.00	0.00	0.00	0.00	0.00	0.00
Rough Terrain Forklifts				0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Dozers				0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	1			0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	2			0.00	0.00	0.00	0.00	0.00	0.00
Signal Boards	2			0.00	0.00	0.00	0.00	0.00	0.00
Skid Steer Loaders				0.00	0.00	0.00	0.00	0.00	0.00
Surfing Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers				0.00	0.00	0.00	0.00	0.00	0.00
Tractor/Loaders/Backhoes	2			0.00	0.00	0.00	0.00	0.00	0.00
Trenchers				0.00	0.00	0.00	0.00	0.00	0.00
Welders				0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation		pounds per day		0.0	0.0	0.0	0.0	0.0	0.0
Grading		tons per phase		0.0	0.0	0.0	0.0	0.0	0.0

Drainage/Utilities/Subgrade									
Drainage/Utilities/Subgrade	Default Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Overwrite of Default Number of Vehicles									
Aerial Lifts				0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	1			0.36	3.27	2.43	0.14	0.13	507.95
Bore/Drill Rigs				0.00	0.00	0.00	0.00	0.00	0.00
Cement and Mortar Mixers				0.00	0.00	0.00	0.00	0.00	0.00
Concrete/Industrial Saws				0.00	0.00	0.00	0.00	0.00	0.00
Cranes				0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors				0.00	0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Excavators				0.00	0.00	0.00	0.00	0.00	0.00
Forklifts				0.00	0.00	0.00	0.00	0.00	0.00
Generator Sets	1			0.25	2.87	2.20	0.11	0.10	487.07
Graders	1			0.51	3.46	4.46	0.25	0.23	666.98
Off-Highway Tractors				0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Trucks				0.00	0.00	0.00	0.00	0.00	0.00
Other Construction Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Other Material Handling Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pavers				0.00	0.00	0.00	0.00	0.00	0.00
Paving Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Pile Compactors	1			0.04	0.21	0.25	0.01	0.01	34.45
Pressure Washers				0.00	0.00	0.00	0.00	0.00	0.00
Pumps	1			0.22	2.37	1.81	0.09	0.08	396.14
Rotors	1			0.00	0.00	0.00	0.00	0.00	0.00
Rough Terrain Forklifts				0.11	2.03	1.41	0.05	0.04	372.94
Rubber Tired Dozers				0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders				0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	2			1.63	14.54	16.39	0.64	0.59	3222.40
Signal Boards	2			0.33	2.37	2.09	0.07	0.07	314.87
Skid Steer Loaders				0.00	0.00	0.00	0.00	0.00	0.00
Surfing Equipment				0.00	0.00	0.00	0.00	0.00	0.00
Sweepers/Scrubbers				0.00	0.00	0.00	0.00	0.00	0.00
Tractor/Loaders/Backhoes	2			0.32	3.14	3.09	0.15	0.14	671.16
Trenchers				0.00	0.00	0.00	0.00	0.00	0.00
Welders				0.00	0.00	0.00	0.00	0.00	0.00
Drainage		pounds per day		3.8	34.3	34.1	1.5	1.4	6874.0
Drainage		tons per phase		0.1	0.8	0.8	0.0	0.0	146.0

Paving	Default		ROG	CO	NOx	PM10	PM2.5	CO2	
	Override of Default Number of Vehicles	Number of Vehicles Program-estimate							Type
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	
		Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	
		Cranes	0.00	0.00	0.00	0.00	0.00	0.00	
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00	
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	
		Graders	0.00	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
	1	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	
	1	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00	
	3	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	
	2	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	
	2	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	
		Welders	0.00	0.00	0.00	0.00	0.00	0.00	
		Paving	pounds per day	0.0	0.0	0.0	0.0	0.0	
		Paving	tons per phase	0.0	0.0	0.0	0.0	0.0	
<b>Total Emissions all Phases (tons per construction period) =&gt;</b>				0.1	0.8	0.8	0.0	0.0	146.8

Equipment default values for horsepower and hours/day can be overridden in cells C289 through C322 and E289 through E322.

Equipment	Default Values Horsepower	Default Values Hours/day
Aerial Lifts	63	8
Air Compressors	106	8
Bore/Drill Rigs	206	8
Cement and Mortar Mixers	10	8
Concrete/Industrial Saws	64	8
Cranes	226	8
Crawler Tractors	208	8
Crushing/Proc. Equipment	142	8
Excavators	163	8
Forklifts	89	8
Generator Sets	66	8
Graders	175	8
Off-Highway Tractors	123	8
Off-Highway Trucks	400	8
Other Construction Equipment	172	8
Other General Industrial Equipment	88	8
Other Material Handling Equipment	167	8
Pavers	128	8
Paving Equipment	131	8
Plate Compactors	8	8
Pressure Washers	26	8
Pumps	53	8
Rollers	81	8
Rough Terrain Forklifts	100	8
Rubber Tired Dozers	255	8
Rubber Tired Loaders	200	8
Scrapers	362	8
Signal Boards	20	8
Skid Steer Loaders	65	8
Surfacing Equipment	254	8
Sweepers/Scrubbers	64	8
Tractors/Loaders/Backhoes	98	8
Trenchers	81	8
Welders	45	8