

Air Quality Technical Appendix

AIR QUALITY

The air quality emissions analysis for the ARCF GRR was developed based on several interrelated assumptions and constraints:

- The project will require 14 separate years to construct the required features;
- Project funding will be limited to \$100 million per construction year;
- The project will receive \$100 million per construction year;
- In any given year, approximately 85% of the funding will be applied toward construction;
- A construction season is six months (April 15 to October 15);
- Construction will begin in 2015;
- All required administrative, legal, real estate and environmental clearances/approvals will be acquired prior to initiation of construction.
- All project plans and specifications will require that construction contractors use only off-road equipment that implements the Sacramento Metropolitan Air Quality Management Districts' (SMAQMD) Enhanced Exhaust Control Practices and only use on-road hauling equipment that was manufactured in 2010, or later.
- If the off-road equipment and on-road hauling specifications stated above are not met, it cannot be assured that the project air emissions can meet the Federal *de minimis* standards.

It was determined through internal discussions, as well as discussions with staff from the SMAQMD, that the most reasonable approach to determine if the project was to be in compliance with Federal and local standards was to base the evaluation on a “worst case scenario” construction year.

The project team determined that construction in the second year within Reach F of the American River South basin would be the construction season that would result in the most combined air emissions. Reach F was chosen because it is the single longest reach (5 miles) in the entire Common Features Project, and due to design, constructability and funding constraints, will take 3 1/3 years to construct. This would allow for 1.5 miles of construction in years 1 through 3, with the last 0.5 miles to be completed in the fourth year. The following construction activities are scheduled for this reach: clearing of trees and vegetation, degrading and excavation of the levee, construction of two types of seepage control slurry cutoff walls (conventional slot-trench and deep soil mixing), construction of a retaining wall to allow corrections to the levee height and width, reconstruction of the levee, relocation of utilities, and delivery and installation of rip-rap on the waterside slope. The second year of construction in Reach F was chosen because the slurry cutoff walls must be allowed to cure until the following construction season before the rip-rap is placed. Under this scenario, the rip-rap would be placed on the slopes of the segment completed in the first year of construction, while all other construction activities are

being conducted in the second year segment. The staggering of construction years for the placement of rip-rap would continue until Reach F would be completed.

In close coordination with SMAQMD, the Corps uses their Road Construction Emissions Model (RCEM), as it was designed to calculate air emissions for linear projects. The construction activities listed above were broken out into 19 individual sub-tasks based on information developed by Corps engineering and cost-estimating staff. Using the RCEM, a model run was conducted for each sub-task, with one exception: the barging of rip-rap material to the project site. In this case, information for barging material was developed, in close coordination with SMAQMD staff, for similar activities being conducted for the Joint Federal Project (JFP). It was agreed that it is reasonable to use this information for the purposes of a feasibility-level study. Although calculations for the JFP involved smaller harbor craft than that assumed for the Common Features project, SMAQMD staff determined that it was reasonable to extrapolate the air emissions data by increasing the horsepower, daily hours and number of days in the JFP model to calculate specific emissions data (ROG, CO, NOx, PM and CO₂) for the Common Features project.

In order to provide a means of comparison for future decision-making purposes, the delivery and placement task was also calculated using the assumption that same amount of material to be barged to the project site, would be trucked to the site in the same period of time. Those results are shown in Tables 1a and 2a (calculated in pounds per day under local standards) and 1b and 2b (calculated in tons per construction project under Federal standards). Note that neither version of this scenario (barging or trucking rip-rap) would be able to perform consistently under the local standard for NOx (Tables 1a and 2a), however, the trucking alternative would require a lower overall mitigation fee cost. In the case of the Federal *de minimis* standards (Tables 1b and 2b) the alternative that involves trucking the rip-rap is within the Federal de minimis standard, even without mitigation, while the barging alternative would likely meet the standard using the mitigation provided by the implementation of Enhance Exhaust Control Practices for off-road equipment and only using on-road hauling equipment that was manufactured in 2010, or later.

**Table 2a. Estimated Air Emissions for the American River Common Features Project (South) – Reach F (Year 2)
(with Truck Rip-Rap Delivery)**

Project Tasks	ROG	CO	NO _x	Total PM ₁₀	Exhaust PM ₁₀	Fugitive Dust PM ₁₀	Total PM _{2.5}	Exhaust PM _{2.5}	Fugitive Dust PM _{2.5}	CO ₂
1. Clear Vegetation	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	62.8
2. Tree Removal	0.0	0.0	0.2	0.0	0.0	-	0.0	0.0	-	29.2
3. Strip to Stockpile	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	20.1
4. Strip to Spoils	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.1
5. Excavation to Stockpile	0.2	0.9	2.1	0.6	0.1	0.5	0.2	0.1	0.1	202.7
6. Excavation to Spoils	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	25.9
7. Import Sand	0.0	0.1	0.7	0.1	0.0	0.1	0.0	0.0	0.0	128.8
8. Import Fill	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	89.6
9. Cutoff Wall SCB	0.1	0.5	0.8	0.5	0.0	0.5	0.1	0.0	0.1	102.0
10. Cutoff Wall DSM	0.9	5.5	8.6	2.1	0.5	1.7	0.8	0.4	0.3	1,022.9
11a. Retaining Wall (Concrete)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	31.1
11b. Retaining Wall (Forms/Steel)	0.0	0.1	0.2	0.5	0.0	0.5	0.1	0.0	0.1	25.7
12. Fill from Stockpile	0.1	0.4	0.9	0.5	0.0	0.5	0.1	0.0	0.1	96.7
13. Import Random Fill	0.0	0.1	0.6	0.1	0.0	0.1	0.0	0.0	0.0	101.3
14. Import Topsoil Fill	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	84.6
15. Surfacing	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	30.4
16. Import Rip-Rap (Truck)	0.2	1.0	6.4	1.4	0.2	1.2	0.4	0.1	0.2	1,192.6
17. Utilities #1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	4.0
18. Utilities #2	0.0	0.1	0.3	1.2	0.0	1.2	0.3	0.0	0.2	33.4
<hr/>										
Total (tons/construction project)	1.5	9.0	23.0	7.5	0.8	6.8	2.0	0.6	1.1	3,305.9
Federal standards (tons/year)	25	100	25	100	N/A	N/A	N/A	N/A	N/A	N/A

**Table 2b. Estimated Air Emissions for the American River Common Features Project (South) – Reach F (Year 2)
(with Barge Rip-Rap Delivery)**

Harbor Craft Model Emission Factors

	Hp	Year	NO _x	PM	ROG	CO	SO _x	CO ₂
40	2013	0.30	0.03	0.10	0.19	0.000	10.15	
	2014	0.30	0.03	0.10	0.19	0.000	10.15	
	2015	0.30	0.03	0.10	0.19	0.000	10.15	
	2016	0.30	0.03	0.10	0.19	0.000	10.15	
	2017	0.30	0.03	0.10	0.19	0.000	10.15	
200	2013	2.09	0.08	0.21	0.74	0.001	56.38	
	2014	1.99	0.08	0.20	0.73	0.001	56.38	
	2015	1.94	0.07	0.20	0.73	0.001	56.38	
	2016	1.91	0.07	0.20	0.73	0.001	56.38	
	2017	1.88	0.07	0.20	0.74	0.001	56.38	
250	2013	2.70	0.11	0.26	0.87	0.001	78.31	
	2014	2.58	0.10	0.26	0.91	0.001	78.31	
	2015	2.46	0.10	0.26	0.94	0.001	78.31	
	2016	2.34	0.09	0.26	0.98	0.001	78.31	
	2017	2.27	0.09	0.25	0.99	0.001	78.31	
400	2013	4.31	0.18	0.42	1.40	0.001	125.29	
	2014	4.13	0.17	0.42	1.45	0.001	125.29	
	2015	3.94	0.16	0.41	1.51	0.001	125.29	
	2016	3.75	0.15	0.41	1.57	0.001	125.29	
	2017	3.63	0.14	0.41	1.58	0.001	125.29	
450	2013	4.85	0.20	0.48	1.57	0.001	140.95	
	2014	4.64	0.19	0.47	1.63	0.001	140.95	
	2015	4.43	0.18	0.47	1.70	0.001	140.95	
	2016	4.22	0.16	0.46	1.76	0.001	140.95	
	2017	4.08	0.16	0.46	1.77	0.001	140.95	
500	2013	5.39	0.22	0.53	1.75	0.002	156.61	
	2014	5.16	0.21	0.52	1.82	0.002	156.61	
	2015	4.93	0.20	0.52	1.89	0.002	156.61	
	2016	4.69	0.18	0.51	1.96	0.002	156.61	
	2017	4.54	0.18	0.51	1.97	0.002	156.61	
	15	ppm sulfur diesel						
	0.000015							
	64.066	Mol Wt. SO ₂						
	32.065	Mol Wt. S						

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (C&G Clear Vegetation)				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	4.5	22.7	194.3	71.2	4.2	67.0	16.6	2.7	13.9	38,067.8
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	4.5	22.7	194.3	71.2	4.2	67.0	16.6	2.7	13.9	38,067.8
Total (tons/construction project)	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	62.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 3910

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 -> ARCF ARS Reach F-Year 2 (C&G Clear Vegetation)				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	2.0	10.3	88.3	32.4	1.9	30.5	7.6	1.2	6.3	17,303.6
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.0	10.3	88.3	32.4	1.9	30.5	7.6	1.2	6.3	17,303.6
Total (megagrams/construction project)	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	57.0

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2989

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (C&G Clear Vegetation)																																																																				
Construction Start Year	2016	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	0.2	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	3910.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.15</td> <td>0.09</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.06</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.03</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.15</td> <td>0.20</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.02						Grading/Excavation	0.15	0.09						Drainage/Utilities/Sub-Grade	0.00	0.06						Paving	0.00	0.03						Totals	0.15	0.20					
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Please note: You have entered a different number of months than the project length shown in cell C13.																																																																					

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	50.00	30						
Round trips/day		196						
Vehicle miles traveled/day (calculated)			9775					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	3.4	177.7	15.1	3.6	2.1	36168.7		
Tons per construction period	0.01	0.29	0.02	0.01	0.00	59.68		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.98		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
0.00	2	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
0.00	1	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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Signal Boards		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Skid Steer Loaders		0.15	1.77	1.86	0.10	0.10	275.98
		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
	Grading/Excavation	pounds per day		1.1	7.4	13.8	0.6	0.5	1307.1
	Grading	tons per phase		0.0	0.0	0.0	0.0	0.0	2.2

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	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	10.00	8
Surfacing Equipment	254		8
Sweepers/Scrubbers	64		8
Tractors/Loaders/Backhoes	98		8
Trenchers	81		8
Welders	45		8
20			
END OF DATA ENTRY SHEET			

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (C&G Strip to Spoils)				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	13.7	66.8	272.4	75.4	8.4	67.0	20.7	6.8	13.9	40,202.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	13.7	66.8	272.4	75.4	8.4	67.0	20.7	6.8	13.9	40,202.0
Total (tons/construction project)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	22.1

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 3040

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 -> ARCF ARS Reach F-Year 2 (C&G Strip to Spoils)				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	6.2	30.4	123.8	34.3	3.8	30.5	9.4	3.1	6.3	18,273.6
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	6.2	30.4	123.8	34.3	3.8	30.5	9.4	3.1	6.3	18,273.6
Total (megagrams/construction project)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	20.1

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2324

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (C&G Strip to Spoils)																																																																				
Construction Start Year	2016	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	0.1	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	3040.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.01</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.05</td> <td>0.05</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.03</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.05</td> <td>0.10</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.01						Grading/Excavation	0.05	0.05						Drainage/Utilities/Sub-Grade	0.00	0.03						Paving	0.00	0.02						Totals	0.05	0.10					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
Construction Months	Months																																																																				
Grubbing/Land Clearing	0.00	0.01																																																																			
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Paving	0.00	0.02																																																																			
Totals	0.05	0.10																																																																			
Please note: You have entered a different number of months than the project length shown in cell C13.																																																																					

Hauling emission default values can be overridden in cells C45 through C46.							
Soil Hauling Emissions							
User Input	User Override of						
	Soil Hauling Defaults	Default Values					
Miles/round trip	50.00	30					
Round trips/day		152					
Vehicle miles traveled/day (calculated)			7600				
Hauling Emissions							
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86	
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day	2.6	138.1	11.7	2.8	1.7	28120.9	
Tons per construction period	0.00	0.08	0.01	0.00	0.00	15.47	
Worker commute default values can be overridden in cells C60 through C65.							
Worker Commute Emissions							
	User Override of Worker						
	Commute Default Values	Default Values					
Miles/ one-way trip		20					
One-way trips/day		2					
No. of employees: Grubbing/Land Clearing	0.00	10					
No. of employees: Grading/Excavation		15					
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11					
No. of employees: Paving	0.00	13					
ROG							
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)	0.147	0.194	1.744	0.047	0.020	443.650	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
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)	0.505	0.323	4.200	0.004	0.003	95.592	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
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	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
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	0.000	0.000	0.000	0.000	0.000	0.000	

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.33		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.0	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
2.00		Crawler Tractors		1.85	11.17	23.79	0.92	0.84	2062.23
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.33	4.35	12.98	0.73	0.67	838.78
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
4.00	1	Scrapers		7.28	36.27	88.48	3.57	3.28	8040.11
0.00	3	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
		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
	Grading/Excavation	pounds per day		11.0	54.8	131.4	5.5	5.1	11489.0
	Grading	tons per phase		0.0	0.0	0.1	0.0	0.0	6.3

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	10.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	10.00	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	10.00	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

Road Construction Emissions Model, Version 7.1.2

Road Construction Emissions Model		Version 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (C&G Strip to Stockpile)																																																																				
Construction Start Year	2016	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	0.2	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	2520.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.15</td> <td>0.09</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.06</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.03</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.15</td> <td>0.20</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.02						Grading/Excavation	0.15	0.09						Drainage/Utilities/Sub-Grade	0.00	0.06						Paving	0.00	0.03						Totals	0.15	0.20					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
Construction Months	Months																																																																				
Grubbing/Land Clearing	0.00	0.02																																																																			
Grading/Excavation	0.15	0.09																																																																			
Drainage/Utilities/Sub-Grade	0.00	0.06																																																																			
Paving	0.00	0.03																																																																			
Totals	0.15	0.20																																																																			
Please note: You have entered a different number of months than the project length shown in cell C13.																																																																					

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	2.00	30						
Round trips/day		126						
Vehicle miles traveled/day (calculated)			252					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.1	4.6	0.4	0.1	0.1	932.4		
Tons per construction period	0.00	0.01	0.00	0.00	0.00	1.54		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.98		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
2.00		Crawler Tractors		1.66	10.06	21.41	0.83	0.76	1856.00
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.20	3.92	11.68	0.66	0.60	754.90
		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
	1	Other Construction Equipment		0.52	2.71	5.51	0.29	0.27	493.10
		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
1.00		Rollers		0.39	1.70	3.48	0.26	0.24	314.47
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
4.00	1	Scrapers		6.55	32.65	79.63	3.21	2.95	7236.10
0.00	3	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
		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
	Grading/Excavation	pounds per day		10.3	51.0	121.7	5.2	4.8	10654.6
	Grading	tons per phase		0.0	0.1	0.2	0.0	0.0	17.6

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	9.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	9.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	9.00	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	9.00	8
Rough Terrain Forklifts	100		8
Rubber Tired Dozers	255		8
Rubber Tired Loaders	200		8
Scrapers	362	9.00	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

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (C&G Tree Removal)				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	1.4	9.0	33.4	1.0	1.0	-	0.8	0.8	-	5,303.2
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	1.4	9.0	33.4	1.0	1.0	-	0.8	0.8	-	5,303.2
Total (tons/construction project)	0.0	0.0	0.2	0.0	0.0	-	0.0	0.0	-	29.2

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 1505

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 -> ARCF ARS Reach F-Year 2 (C&G Tree Removal)				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	0.7	4.1	15.2	0.4	0.4	-	0.3	0.3	-	2,410.6
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	0.7	4.1	15.2	0.4	0.4	-	0.3	0.3	-	2,410.6
Total (megagrams/construction project)	0.0	0.0	0.2	0.0	0.0	-	0.0	0.0	-	26.5

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 1151

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (C&G Tree Removal)																																																																				
Construction Start Year	2016	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	0.5	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	1505.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.05</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.50</td> <td>0.23</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.15</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.08</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.50</td> <td>0.50</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.05						Grading/Excavation	0.50	0.23						Drainage/Utilities/Sub-Grade	0.00	0.15						Paving	0.00	0.08						Totals	0.50	0.50					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
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Paving	0.00	0.08																																																																			
Totals	0.50	0.50																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	40.00	30						
Round trips/day	25.00	75						
Vehicle miles traveled/day (calculated)			1000					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.3	18.2	1.5	0.4	0.2	3700.1		
Tons per construction period	0.00	0.10	0.01	0.00	0.00	20.35		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust	1.00	2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.03	1.45	0.12	0.03	0.02	296.01		
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	1.63		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation	0.00	6.7	0.0	0.0	0.0	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
0.00	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
0.00	2	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
0.00	1	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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	Signal Boards		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Skid Steer Loaders		0.15	1.77	1.86	0.10	0.10	275.98
		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
	Grading/Excavation	pounds per day		1.1	7.4	13.8	0.6	0.5	1307.1
	Grading	tons per phase		0.0	0.0	0.1	0.0	0.0	7.2

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	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	10.00	8
Surfacing Equipment	254		8
Sweepers/Scrubbers	64		8
Tractors/Loaders/Backhoes	98		8
Trenchers	81		8
Welders	45		8
20			
END OF DATA ENTRY SHEET			

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Cutoff Wall DSM)				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	16.9	100.5	155.6	75.4	8.4	67.0	21.6	7.7	13.9	18,598.4
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	16.9	100.5	155.6	75.4	8.4	67.0	21.6	7.7	13.9	18,598.4
Total (tons/construction project)	0.9	5.5	8.6	2.1	0.5	1.7	0.8	0.4	0.3	1,022.9

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 5
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (G&E Cutoff Wall DSM)				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	7.7	45.7	70.7	34.3	3.8	30.5	9.8	3.5	6.3	8,453.8
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	7.7	45.7	70.7	34.3	3.8	30.5	9.8	3.5	6.3	8,453.8
Total (megagrams/construction project)	0.8	5.0	7.8	1.9	0.4	1.5	0.7	0.4	0.3	927.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 5
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2					
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	ARCF ARS Reach F-Year 2 (G&E Cutoff Wall DSM)						
Construction Start Year	2016	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	5.0	months					
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel					
		2. Weathered Rock-Earth					
	3. Blasted Rock						
Project Length	1.5	miles					
Total Project Area	28.0	acres					
Maximum Area Disturbed/Day	6.7	acres					
Water Trucks Used?	1	1. Yes 2. No					
Soil Imported		yd ³ /day					
Soil Exported		yd ³ /day					
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)					
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		Program					
		User Override of		Calculated			
Construction Months		Months					
Grubbing/Land Clearing	0.00	0.50					
Grading/Excavation	5.00	2.25					
Drainage/Utilities/Sub-Grade	0.00	1.50					
Paving	0.00	0.75					
Totals	5.00	5.00					

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.16	0.01	0.00	0.00	32.56		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	1.7	13.9	0.3		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
2.00		Aerial Lifts		0.15	2.16	2.32	0.10	0.09	446.54
2.00		Air Compressors		1.71	8.55	10.96	0.92	0.84	1269.86
2.00		Bore/Drill Rigs		0.92	9.50	13.22	0.39	0.36	2364.04
4.00		Cement and Mortar Mixers		0.34	1.77	2.11	0.09	0.08	289.41
		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
2.00		Crawler Tractors		1.85	11.17	23.79	0.92	0.84	2062.23
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
2.00	3	Excavators		1.02	6.97	11.17	0.55	0.51	1432.16
		Forklifts		0.00	0.00	0.00	0.00	0.00	0.00
4.00		Generator Sets		2.57	14.92	19.32	1.37	1.26	2435.33
0.00	2	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
2.00	1	Other Construction Equipment		1.72	8.99	18.27	0.96	0.88	1635.48
		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
6.00		Pumps		3.28	18.49	23.94	1.75	1.61	2971.06
		Rollers		0.00	0.00	0.00	0.00	0.00	0.00
2.00		Rough Terrain Forklifts		0.56	5.07	6.83	0.38	0.35	931.86
		Rubber Tired Dozers		0.00	0.00	0.00	0.00	0.00	0.00
	2	Rubber Tired Loaders		1.31	7.79	16.28	0.56	0.51	1656.55
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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
2.00		Welders		1.42	4.93	4.51	0.36	0.33	511.86
		Grading/Excavation	pounds per day	16.8	100.3	152.7	8.3	7.7	18006.4
		Grading	tons per phase	0.9	5.5	8.4	0.5	0.4	990.3

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Cutoff Wall SCB)				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	4.8	30.0	50.1	69.6	2.6	67.0	16.3	2.4	13.9	6,181.5
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	4.8	30.0	50.1	69.6	2.6	67.0	16.3	2.4	13.9	6,181.5
Total (tons/construction project)	0.1	0.5	0.8	0.5	0.0	0.5	0.1	0.0	0.1	102.0

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (G&E Cutoff Wall SCB)				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	2.2	13.7	22.8	31.6	1.2	30.5	7.4	1.1	6.3	2,809.8
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.2	13.7	22.8	31.6	1.2	30.5	7.4	1.1	6.3	2,809.8
Total (megagrams/construction project)	0.1	0.4	0.8	0.5	0.0	0.5	0.1	0.0	0.1	92.5

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (G&E Cutoff Wall SCB)																																																																				
Construction Start Year	2016	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	1.5	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported		yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.15</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>1.50</td> <td>0.68</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.45</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.23</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>1.50</td> <td>1.50</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.15						Grading/Excavation	1.50	0.68						Drainage/Utilities/Sub-Grade	0.00	0.45						Paving	0.00	0.23						Totals	1.50	1.50					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
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Paving	0.00	0.23																																																																			
Totals	1.50	1.50																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.							
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			
Grubbing/Land Clearing - Exhaust		2		80			
Grading/Excavation - Exhaust		2		80			
Drainage/Utilities/Subgrade		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)	0.16	8.25	0.70	0.17	0.10	1679.86	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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	
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00	
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02	
Tons per const. Period - Grading/Excavation	0.00	0.05	0.00	0.00	0.00	9.77	
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00	
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
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period	
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0	
Fugitive Dust - Grading/Excavation		6.7	67.0	0.5	13.9	0.1	
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0	

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	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
	3	Excavators		1.54	10.46	16.75	0.82	0.76	2148.24
		Forklifts		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Generator Sets		0.64	3.73	4.83	0.34	0.32	608.83
0.00	2	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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
2.00		Pumps		1.09	6.16	7.98	0.58	0.54	990.35
		Rollers		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Rough Terrain Forklifts		0.28	2.53	3.42	0.19	0.17	465.93
		Rubber Tired Dozers		0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Rubber Tired Loaders		0.66	3.89	8.14	0.28	0.26	828.28
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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
	Grading/Excavation	pounds per day		4.8	29.8	47.2	2.5	2.3	5589.5
	Grading	tons per phase		0.1	0.5	0.8	0.0	0.0	92.2

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	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	10.00	8
Forklifts	89	8	
Generator Sets	66	10.00	8
Graders	175	8	
Off-Highway Tractors	123	8	
Off-Highway Trucks	400	8	
Other Construction Equipment	172	10.00	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	10.00	8
Rollers	81	8	
Rough Terrain Forklifts	100	10.00	8
Rubber Tired Dozers	255	8	
Rubber Tired Loaders	200	10.00	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	
60			
END OF DATA ENTRY SHEET			

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Fill from Stockpile)											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust		
	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)			
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	4.5	24.0	56.3	69.4	2.4	67.0	16.1	2.2	13.9	6,281.3	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	4.5	24.0	56.3	69.4	2.4	67.0	16.1	2.2	13.9	6,281.3	
Total (tons/construction project)	0.1	0.4	0.9	0.5	0.0	0.5	0.1	0.0	0.1	96.7	

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 3030

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 -> ARCF ARS Reach F-Year 2 (G&E Fill from Stockpile)											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust		
	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	PM2.5 (kgs/day)	CO2 (kgs/day)			
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	2.0	10.9	25.6	31.6	1.1	30.5	7.3	1.0	6.3	2,855.1	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.0	10.9	25.6	31.6	1.1	30.5	7.3	1.0	6.3	2,855.1	
Total (megagrams/construction project)	0.1	0.3	0.8	0.5	0.0	0.4	0.1	0.0	0.1	87.7	

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2317

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (G&E Fill from Stockpile)																																																																				
Construction Start Year	2016	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	1.4	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	3030.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.14</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>1.40</td> <td>0.63</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.42</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.21</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>1.40</td> <td>1.40</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.14						Grading/Excavation	1.40	0.63						Drainage/Utilities/Sub-Grade	0.00	0.42						Paving	0.00	0.21						Totals	1.40	1.40					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
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Paving	0.00	0.21																																																																			
Totals	1.40	1.40																																																																			

Hauling emission default values can be overridden in cells C45 through C46.							
Soil Hauling Emissions							
User Input	User Override of						
Soil Hauling Defaults	Default Values						
Miles/round trip	2.00	30					
Round trips/day		152					
Vehicle miles traveled/day (calculated)			303				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86	
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day	0.1	5.5	0.5	0.1	0.1	1121.1	
Tons per construction period	0.00	0.08	0.01	0.00	0.00	17.27	
Worker commute default values can be overridden in cells C60 through C65.							
Worker Commute Emissions							
User Override of Worker							
Commute Default Values	Default Values						
Miles/ one-way trip		20					
One-way trips/day		2					
No. of employees: Grubbing/Land Clearing	0.00	10					
No. of employees: Grading/Excavation		15					
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11					
No. of employees: Paving	0.00	13					
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)	0.147	0.194	1.744	0.047	0.020	443.650	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000	
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)	0.505	0.323	4.200	0.004	0.003	95.592	
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000	
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	0.000	0.000	0.000	0.000	0.000	0.000	
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000	
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	0.000	0.000	0.000	0.000	0.000	0.000	

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.04	0.00	0.00	0.00	9.12		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0	0.0	
Fugitive Dust - Grading/Excavation		6.7	67.0	0.5	13.9	0.1		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.33	4.35	12.98	0.73	0.67	838.78
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
1.00		Rollers		0.44	1.89	3.86	0.28	0.26	349.42
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		1.02	8.43	13.06	0.45	0.42	1800.91
		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	23.3	47.9	2.2	2.1	4568.1
	Grading	tons per phase		0.1	0.4	0.7	0.0	0.0	70.3

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106		8	
Bore/Drill Rigs	206		8	
Cement and Mortar Mixers	10		8	
Concrete/Industrial Saws	64		8	
Cranes	226		8	
Crawler Tractors	208	10.00	8	
Crushing/Proc. Equipment	142		8	
Excavators	163		8	
Forklifts	89		8	
Generator Sets	66		8	
Graders	175	10.00	8	
Off-Highway Tractors	123		8	
Off-Highway Trucks	400		8	
Other Construction Equipment	172	10.00	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	10.00	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	425.00	98	10.00	8
Trenchers		81		8
Welders		45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Cohesive Fill)				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	8.5	41.5	196.0	72.8	5.8	67.0	18.4	4.5	13.9	32,565.1
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	8.5	41.5	196.0	72.8	5.8	67.0	18.4	4.5	13.9	32,565.1
Total (tons/construction project)	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	89.6

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 2810

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 -> ARCF ARS Reach F-Year 2 (G&E Import Cohesive Fill)				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	3.9	18.9	89.1	33.1	2.7	30.5	8.4	2.0	6.3	14,802.3
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	3.9	18.9	89.1	33.1	2.7	30.5	8.4	2.0	6.3	14,802.3
Total (megagrams/construction project)	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	81.2

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2148

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 7.1.2					
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	ARCF ARS Reach F-Year 2 (G&E Import Cohesive Fill)						
Construction Start Year	2016	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	0.3	months					
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel					
		2. Weathered Rock-Earth					
	3. Blasted Rock						
Project Length	1.5	miles					
Total Project Area	28.0	acres					
Maximum Area Disturbed/Day	6.7	acres					
Water Trucks Used?	1	1. Yes 2. No					
Soil Imported	2810.0	yd ³ /day					
Soil Exported		yd ³ /day					
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)					
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.							
		Program					
		User Override of		Calculated			
Construction Periods		Construction Months		Months			
Grubbing/Land Clearing	0.00		0.03				
Grading/Excavation	0.25		0.11				
Drainage/Utilities/Sub-Grade	0.00		0.08				
Paving	0.00		0.04				
Totals	0.25		0.25				

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	50.00	30						
Round trips/day		141						
Vehicle miles traveled/day (calculated)			7025					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.4	127.7	10.8	2.6	1.5	25993.4		
Tons per construction period	0.01	0.35	0.03	0.01	0.00	71.48		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	1.63		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
1.00	3	Excavators		0.41	2.79	4.47	0.22	0.20	572.86
		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	Graders		2.67	8.70	25.95	1.46	1.34	1677.56
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
1.00		Rollers		0.44	1.89	3.86	0.28	0.26	349.42
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		1.02	8.43	13.06	0.45	0.42	1800.91
		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		6.0	30.4	65.4	3.2	2.9	5979.8
	Grading	tons per phase		0.0	0.1	0.2	0.0	0.0	16.4

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Random Fill)				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	6.7	34.2	176.2	71.8	4.8	67.0	17.5	3.6	13.9	30,691.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	6.7	34.2	176.2	71.8	4.8	67.0	17.5	3.6	13.9	30,691.0
Total (tons/construction project)	0.0	0.1	0.6	0.1	0.0	0.1	0.0	0.0	0.0	101.3

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 2760

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 -> ARCF ARS Reach F-Year 2 (G&E Import Random Fill)				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	3.1	15.5	80.1	32.7	2.2	30.5	8.0	1.6	6.3	13,950.4
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	3.1	15.5	80.1	32.7	2.2	30.5	8.0	1.6	6.3	13,950.4
Total (megagrams/construction project)	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	91.9

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2110

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 7.1.2																																																																												
Data Entry Worksheet																																																																														
<p>Note: Required data input sections have a yellow background.</p> <p>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.</p> <p>The user is required to enter information in cells C10 through C25.</p>																																																																														
Input Type																																																																														
Project Name	ARCF ARS Reach F-Year 2 (G&E Import Random Fill)																																																																													
Construction Start Year	2016	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		0.3	months																																																																											
Predominant Soil/Site Type: Enter 1, 2, or 3			2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock																																																																										
Project Length	1.5			miles																																																																										
Total Project Area	28.0	acres																																																																												
Maximum Area Disturbed/Day	6.7	acres																																																																												
Water Trucks Used?	1	1. Yes 2. No																																																																												
Soil Imported	2760.0	yd ³ /day																																																																												
Soil Exported		yd ³ /day																																																																												
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																												
<p>The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.</p> <p>Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.</p>																																																																														
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="6"></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="6"></th> </tr> <tr> <th></th> <th>Construction Months</th> <th>Months</th> <th colspan="6"></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.03</td> <td colspan="6"></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.30</td> <td>0.11</td> <td colspan="6"></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.08</td> <td colspan="6"></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.04</td> <td colspan="6"></td> </tr> <tr> <td>Totals</td> <td>0.30</td> <td>0.25</td> <td colspan="6"></td> </tr> </tbody> </table>								Construction Periods	Program								User Override of	Calculated								Construction Months	Months							Grubbing/Land Clearing	0.00	0.03							Grading/Excavation	0.30	0.11							Drainage/Utilities/Sub-Grade	0.00	0.08							Paving	0.00	0.04							Totals	0.30	0.25						
Construction Periods	Program																																																																													
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Paving	0.00	0.04																																																																												
Totals	0.30	0.25																																																																												
Please note: You have entered a different number of months than the project length shown in cell C13.																																																																														

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	50.00	30						
Round trips/day		138						
Vehicle miles traveled/day (calculated)			6900					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.4	125.4	10.7	2.5	1.5	25530.9		
Tons per construction period	0.01	0.41	0.04	0.01	0.00	84.25		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	1.95		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.33	4.35	12.98	0.73	0.67	838.78
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
1.00		Rollers		0.44	1.89	3.86	0.28	0.26	349.42
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		1.02	8.43	13.06	0.45	0.42	1800.91
		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	23.3	47.9	2.2	2.1	4568.1
	Grading	tons per phase		0.0	0.1	0.2	0.0	0.0	15.1

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106		8	
Bore/Drill Rigs	206		8	
Cement and Mortar Mixers	10		8	
Concrete/Industrial Saws	64		8	
Cranes	226		8	
Crawler Tractors	208	10.00	8	
Crushing/Proc. Equipment	142		8	
Excavators	163		8	
Forklifts	89		8	
Generator Sets	66		8	
Graders	175	10.00	8	
Off-Highway Tractors	123		8	
Off-Highway Trucks	400		8	
Other Construction Equipment	172	10.00	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	10.00	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	425.00	98	10.00	8
Trenchers		81		8
Welders		45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Barge+)				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	1.2	9.3	17.5	67.6	0.6	67.0	14.5	0.5	13.9	2,377.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	1.2	9.3	17.5	67.6	0.6	67.0	14.5	0.5	13.9	2,377.0
Total (tons/construction project)	0.0	0.4	0.7	1.2	0.0	1.2	0.3	0.0	0.2	94.1

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 4
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Barge+)				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	0.5	4.2	8.0	30.7	0.3	30.5	6.6	0.2	6.3	1,080.5
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	0.5	4.2	8.0	30.7	0.3	30.5	6.6	0.2	6.3	1,080.5
Total (megagrams/construction project)	0.0	0.3	0.6	1.1	0.0	1.1	0.2	0.0	0.2	85.4

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 4
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2																																																																																				
Data Entry Worksheet				 <p>SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT</p>																																																																																		
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	ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Barge+)																																																																																					
Construction Start Year	2016	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	3.6	months																																																																																				
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																																				
		2. Weathered Rock-Earth																																																																																				
	3. Blasted Rock																																																																																					
Project Length	1.5	miles																																																																																				
Total Project Area	28.0	acres																																																																																				
Maximum Area Disturbed/Day	6.7	acres																																																																																				
Water Trucks Used?	1	1. Yes 2. No																																																																																				
Soil Imported	0.0	yd ³ /day																																																																																				
Soil Exported		yd ³ /day																																																																																				
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																																				
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.																																																																																						
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="7"></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="7"></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="7"></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.36</td> <td colspan="7"></td> </tr> <tr> <td>Grading/Excavation</td> <td>3.60</td> <td>1.62</td> <td colspan="7"></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>1.08</td> <td colspan="7"></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.54</td> <td colspan="7"></td> </tr> <tr> <td>Totals</td> <td>3.60</td> <td>3.60</td> <td colspan="7"></td> </tr> </tbody> </table>									Construction Periods	Program									User Override of	Calculated								Construction Months	Months								Grubbing/Land Clearing	0.00	0.36								Grading/Excavation	3.60	1.62								Drainage/Utilities/Sub-Grade	0.00	1.08								Paving	0.00	0.54								Totals	3.60	3.60							
Construction Periods	Program																																																																																					
	User Override of	Calculated																																																																																				
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Paving	0.00	0.54																																																																																				
Totals	3.60	3.60																																																																																				

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.12	0.01	0.00	0.00	23.44		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	1.2	13.9	0.2		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
1.00	0	Cranes		0.97	8.27	13.69	0.48	0.45	1655.80
		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
0.00	3	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
0.00	2	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
0.00	1	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
3.00		Plate Compactors		0.15	0.79	0.94	0.04	0.03	129.18
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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
	Grading/Excavation	pounds per day		1.1	9.1	14.6	0.5	0.5	1785.0
	Grading	tons per phase		0.0	0.4	0.6	0.0	0.0	70.7

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	Hours/day	
		Horsepower				
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	500.00	226	10.00	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	10.00	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	10.00	8		
Trenchers		81		8		
Welders		45		8		

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Truck)				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	4.9	25.9	160.9	71.0	4.0	67.0	16.8	2.8	13.9	30,116.1
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	4.9	25.9	160.9	71.0	4.0	67.0	16.8	2.8	13.9	30,116.1
Total (tons/construction project)	0.2	1.0	6.4	1.4	0.2	1.2	0.4	0.1	0.2	1,192.6

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 4
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 3200

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 -> ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Truck)				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	2.2	11.8	73.1	32.3	1.8	30.5	7.6	1.3	6.3	13,689.1
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.2	11.8	73.1	32.3	1.8	30.5	7.6	1.3	6.3	13,689.1
Total (megagrams/construction project)	0.2	0.9	5.8	1.2	0.1	1.1	0.3	0.1	0.2	1,081.7

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 4
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2446

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 7.1.2					
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	ARCF ARS Reach F-Year 2 (G&E Import Rip Rap - Truck)						
Construction Start Year	2016	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	3.6	months					
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel					
		2. Weathered Rock-Earth					
	3. Blasted Rock						
Project Length	1.5	miles					
Total Project Area	28.0	acres					
Maximum Area Disturbed/Day	6.7	acres					
Water Trucks Used?	1	1. Yes 2. No					
Soil Imported	3200.0	yd ³ /day					
Soil Exported		yd ³ /day					
Average Truck Capacity	40.0	yd ³ (assume 20 if unknown)					
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.							
		Program					
		User Override of		Calculated			
Construction Periods		Construction Months		Months			
Grubbing/Land Clearing		0.00		0.36			
Grading/Excavation		3.60		1.62			
Drainage/Utilities/Sub-Grade		0.00		1.08			
Paving		0.00		0.54			
Totals		3.60		3.60			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	90.00	30						
Round trips/day		80						
Vehicle miles traveled/day (calculated)			7200					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.5	130.9	11.1	2.6	1.6	26640.9		
Tons per construction period	0.10	5.18	0.44	0.10	0.06	1054.98		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.12	0.01	0.00	0.00	23.44		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	1.2	13.9	0.2		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
2.00	3	Excavators		1.02	6.97	11.17	0.55	0.51	1432.16
		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
0.00	2	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
0.00	1	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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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	2.4	14.5	27.2	1.3	1.2	2883.2
		Grading	tons per phase	0.1	0.6	1.1	0.1	0.0	114.2

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	8
Crushing/Proc. Equipment	142		8
Excavators	163	10.00	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	10.00	8
Trenchers	81		8
Welders	45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Sand)				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	6.2	27.7	167.0	71.7	4.7	67.0	17.4	3.5	13.9	29,263.7
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	6.2	27.7	167.0	71.7	4.7	67.0	17.4	3.5	13.9	29,263.7
Total (tons/construction project)	0.0	0.1	0.7	0.1	0.0	0.1	0.0	0.0	0.0	128.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 2755

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 -> ARCF ARS Reach F-Year 2 (G&E Import Sand)				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	2.8	12.6	75.9	32.6	2.1	30.5	7.9	1.6	6.3	13,301.7
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.8	12.6	75.9	32.6	2.1	30.5	7.9	1.6	6.3	13,301.7
Total (megagrams/construction project)	0.0	0.1	0.7	0.1	0.0	0.1	0.0	0.0	0.0	116.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2106

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 7.1.2																										
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	ARCF ARS Reach F-Year 2 (G&E Import Sand)																											
Construction Start Year	2016	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		0.4	months																									
Predominant Soil/Site Type: Enter 1, 2, or 3			1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock																									
Project Length	1.5		miles																									
Total Project Area	28.0	acres																										
Maximum Area Disturbed/Day	6.7	acres																										
Water Trucks Used?	1	1. Yes 2. No																										
Soil Imported	2755.0	yd ³ /day																										
Soil Exported		yd ³ /day																										
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																										
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.																												
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.04</td> </tr> <tr> <td>Grading/Excavation</td> <td>0.40</td> <td>0.16</td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.11</td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.05</td> </tr> <tr> <td>Totals</td> <td>0.40</td> <td>0.36</td> </tr> </tbody> </table>									Construction Periods	Program		User Override of	Calculated	Grubbing/Land Clearing	0.00	0.04	Grading/Excavation	0.40	0.16	Drainage/Utilities/Sub-Grade	0.00	0.11	Paving	0.00	0.05	Totals	0.40	0.36
Construction Periods	Program																											
	User Override of	Calculated																										
Grubbing/Land Clearing	0.00	0.04																										
Grading/Excavation	0.40	0.16																										
Drainage/Utilities/Sub-Grade	0.00	0.11																										
Paving	0.00	0.05																										
Totals	0.40	0.36																										
Please note: You have entered a different number of months than the project length shown in cell C13.																												



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.

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	50.00	30						
Round trips/day		138						
Vehicle miles traveled/day (calculated)			6887.5					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.4	125.2	10.6	2.5	1.5	25484.6		
Tons per construction period	0.01	0.55	0.05	0.01	0.01	112.13		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	2.60		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.33	4.35	12.98	0.73	0.67	838.78
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
1.00		Rollers		0.44	1.89	3.86	0.28	0.26	349.42
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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		3.7	16.8	38.9	2.1	1.9	3187.1
	Grading	tons per phase		0.0	0.1	0.2	0.0	0.0	14.0

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	10.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	10.00	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	10.00	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	10.00	8
Trenchers	81		8
Welders	45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Import Topsoil Fill)				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	5.9	29.9	148.9	71.2	4.2	67.0	17.1	3.1	13.9	25,646.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	5.9	29.9	148.9	71.2	4.2	67.0	17.1	3.1	13.9	25,646.0
Total (tons/construction project)	0.0	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.0	84.6

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 2830

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 -> ARCF ARS Reach F-Year 2 (G&E Import Topsoil Fill)				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	2.7	13.6	67.7	32.3	1.9	30.5	7.8	1.4	6.3	11,657.3
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	2.7	13.6	67.7	32.3	1.9	30.5	7.8	1.4	6.3	11,657.3
Total (megagrams/construction project)	0.0	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	76.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2164

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 7.1.2																																																																												
Data Entry Worksheet																																																																														
<p>Note: Required data input sections have a yellow background.</p> <p>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.</p> <p>The user is required to enter information in cells C10 through C25.</p>																																																																														
Input Type																																																																														
Project Name	ARCF ARS Reach F-Year 2 (G&E Import Topsoil Fill)																																																																													
Construction Start Year	2016	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		0.3	months																																																																											
Predominant Soil/Site Type: Enter 1, 2, or 3			1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock																																																																											
Project Length	1.5		miles																																																																											
Total Project Area	28.0	acres																																																																												
Maximum Area Disturbed/Day	6.7	acres																																																																												
Water Trucks Used?	1	1. Yes 2. No																																																																												
Soil Imported	2830.0	yd ³ /day																																																																												
Soil Exported		yd ³ /day																																																																												
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																												
<p>The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.</p> <p>Note: The program's estimates of construction period phase length can be overridden in cells C34 through C37.</p>																																																																														
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="6"></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="6"></th> </tr> <tr> <th></th> <th>Construction Months</th> <th>Months</th> <th colspan="6"></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.03</td> <td colspan="6"></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.30</td> <td>0.11</td> <td colspan="6"></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.08</td> <td colspan="6"></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.04</td> <td colspan="6"></td> </tr> <tr> <td>Totals</td> <td>0.30</td> <td>0.25</td> <td colspan="6"></td> </tr> </tbody> </table>								Construction Periods	Program								User Override of	Calculated								Construction Months	Months							Grubbing/Land Clearing	0.00	0.03							Grading/Excavation	0.30	0.11							Drainage/Utilities/Sub-Grade	0.00	0.08							Paving	0.00	0.04							Totals	0.30	0.25						
Construction Periods	Program																																																																													
	User Override of	Calculated																																																																												
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Paving	0.00	0.04																																																																												
Totals	0.30	0.25																																																																												
Please note: You have entered a different number of months than the project length shown in cell C13.																																																																														

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	40.00	30						
Round trips/day		142						
Vehicle miles traveled/day (calculated)			5660					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.0	102.9	8.7	2.1	1.2	20942.7		
Tons per construction period	0.01	0.34	0.03	0.01	0.00	69.11		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	1.95		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.1	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.83	5.03	10.71	0.41	0.38	928.00
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.20	3.92	11.68	0.66	0.60	754.90
		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
	1	Other Construction Equipment		0.52	2.71	5.51	0.29	0.27	493.10
		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
1.00		Rollers		0.39	1.70	3.48	0.26	0.24	314.47
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.92	7.59	11.76	0.41	0.37	1620.82
		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	3.9	20.9	43.1	2.0	1.9	4111.3
		Grading	tons per phase	0.0	0.1	0.1	0.0	0.0	13.6

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	106		8	
Bore/Drill Rigs	206		8	
Cement and Mortar Mixers	10		8	
Concrete/Industrial Saws	64		8	
Cranes	226		8	
Crawler Tractors	208	9.00	8	
Crushing/Proc. Equipment	142		8	
Excavators	163		8	
Forklifts	89		8	
Generator Sets	66		8	
Graders	175	9.00	8	
Off-Highway Tractors	123		8	
Off-Highway Trucks	400		8	
Other Construction Equipment	172	9.00	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	9.00	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	425.00	98	9.00	8
Trenchers		81		8
Welders		45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (Retaining Wall - Concrete)				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	4.0	19.6	146.3	70.6	3.6	67.0	16.3	2.4	13.9	28,259.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	4.0	19.6	146.3	70.6	3.6	67.0	16.3	2.4	13.9	28,259.0
Total (tons/construction project)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	31.1

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 1580

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 -> ARCF ARS Reach F-Year 2 (Retaining Wall - Concrete)				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	1.8	8.9	66.5	32.1	1.6	30.5	7.4	1.1	6.3	12,845.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	1.8	8.9	66.5	32.1	1.6	30.5	7.4	1.1	6.3	12,845.0
Total (megagrams/construction project)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	28.2

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 1208

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (Retaining Wall - Concrete)																																																																				
Construction Start Year	2016	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	0.1	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported	1580.0	yd ³ /day																																																																			
Soil Exported		yd ³ /day																																																																			
Average Truck Capacity	9.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.01</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.10</td> <td>0.05</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.03</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.10</td> <td>0.10</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.01						Grading/Excavation	0.10	0.05						Drainage/Utilities/Sub-Grade	0.00	0.03						Paving	0.00	0.02						Totals	0.10	0.10					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
Construction Months	Months																																																																				
Grubbing/Land Clearing	0.00	0.01																																																																			
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Drainage/Utilities/Sub-Grade	0.00	0.03																																																																			
Paving	0.00	0.02																																																																			
Totals	0.10	0.10																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	40.00	30						
Round trips/day		176						
Vehicle miles traveled/day (calculated)			7022.222222					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.4	127.6	10.8	2.6	1.5	25983.1		
Tons per construction period	0.00	0.14	0.01	0.00	0.00	28.58		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.65		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.0	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0		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
1.00	3	Excavators		0.51	3.49	5.58	0.27	0.25	716.08
		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
0.00	2	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
1		Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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	1.5	8.5	15.8	0.9	0.8	1683.9
		Grading	tons per phase	0.0	0.0	0.0	0.0	0.0	1.9

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0

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	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	10.00	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	10.00	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	10.00	8
Trenchers	81	8	
Welders	45	8	

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Retaining Wall - Form & S											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total	PM10 (lbs/day)	Exhaust	Fugitive Dust	Total	PM2.5 (lbs/day)	Exhaust	Fugitive Dust
				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	1.1	5.2	13.1	67.7	0.7	67.0	14.6	0.6	13.9	1,559.8	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
Maximum (pounds/day)	1.1	5.2	13.1	67.7	0.7	67.0	14.6	0.6	13.9	1,559.8	
Total (tons/construction project)	0.0	0.1	0.2	0.5	0.0	0.5	0.1	0.0	0.1	25.7	

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (G&E Retaining Wall - Form & S											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total	PM10 (kgs/day)	Exhaust	Fugitive Dust	Total	PM2.5 (kgs/day)	Exhaust	Fugitive Dust
				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	0.5	2.4	6.0	30.8	0.3	30.5	6.6	0.3	6.3	6.3	709.0
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	0.5	2.4	6.0	30.8	0.3	30.5	6.6	0.3	6.3	6.3	709.0
Total (megagrams/construction project)	0.0	0.1	0.2	0.5	0.0	0.5	0.1	0.0	0.1	0.1	23.3

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (G&E Retaining Wall - Form & Steel)																																																																				
Construction Start Year	2016	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	1.5	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported		yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.15</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>1.50</td> <td>0.68</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.45</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.23</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>1.50</td> <td>1.50</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.15						Grading/Excavation	1.50	0.68						Drainage/Utilities/Sub-Grade	0.00	0.45						Paving	0.00	0.23						Totals	1.50	1.50					
Construction Periods	Program																																																																				
	User Override of	Calculated																																																																			
Construction Months	Months																																																																				
Grubbing/Land Clearing	0.00	0.15																																																																			
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Drainage/Utilities/Sub-Grade	0.00	0.45																																																																			
Paving	0.00	0.23																																																																			
Totals	1.50	1.50																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	40.00	30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.05	0.00	0.00	0.00	9.77		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.5	13.9	0.1		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	0	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
0.00	3	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
0.00	2	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
1.00	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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	1.0	5.0	10.2	0.6	0.6	967.8
		Grading	tons per phase	0.0	0.1	0.2	0.0	0.0	16.0

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	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	10.00	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	10.00	8
Trenchers	81		8
Welders	45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E to Spoils)				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	18.3	89.6	335.9	77.8	10.8	67.0	22.9	9.0	13.9	47,017.6
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	18.3	89.6	335.9	77.8	10.8	67.0	22.9	9.0	13.9	47,017.6
Total (tons/construction project)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	25.9

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 4090

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 -> ARCF ARS Reach F-Year 2 (G&E to Spoils)				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	8.3	40.7	152.7	35.4	4.9	30.5	10.4	4.1	6.3	21,371.7
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	8.3	40.7	152.7	35.4	4.9	30.5	10.4	4.1	6.3	21,371.7
Total (megagrams/construction project)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	23.5

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 3127

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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (G&E to Spoils)																																																																				
Construction Start Year	2016	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	0.1	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported	4090.0	yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.01</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.05</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.02</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.01</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>0.05</td> <td>0.05</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.01						Grading/Excavation	0.05	0.02						Drainage/Utilities/Sub-Grade	0.00	0.02						Paving	0.00	0.01						Totals	0.05	0.05					
Construction Periods	Program																																																																				
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Drainage/Utilities/Sub-Grade	0.00	0.02																																																																			
Paving	0.00	0.01																																																																			
Totals	0.05	0.05																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	40.00	30						
Round trips/day	205.00	205						
Vehicle miles traveled/day (calculated)			8200					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	2.8	149.0	12.7	3.0	1.8	30341.0		
Tons per construction period	0.00	0.08	0.01	0.00	0.00	16.69		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.33		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.0	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
2.00		Crawler Tractors		2.59	15.64	33.31	1.28	1.18	2887.12
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.87	6.09	18.17	1.02	0.94	1174.29
		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
	1	Other Construction Equipment		0.81	4.22	8.57	0.45	0.41	767.04
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
4.00	1	Scrapers		10.19	50.78	123.87	4.99	4.59	11256.15
0.00	3	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
		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
	Grading/Excavation	pounds per day		15.4	76.7	183.9	7.7	7.1	16084.6
	Grading	tons per phase		0.0	0.0	0.1	0.0	0.0	8.8

	Default							
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	0.00	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
0.00	1	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
0.00	2	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
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
	Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	14.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	14.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	14.00	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	14.00	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

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E to Stockpile)				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	11.2	55.5	139.6	72.7	5.7	67.0	19.1	5.2	13.9	13,161.5
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	11.2	55.5	139.6	72.7	5.7	67.0	19.1	5.2	13.9	13,161.5
Total (tons/construction project)	0.2	0.9	2.1	0.6	0.1	0.5	0.2	0.1	0.1	202.7

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 2920

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 -> ARCF ARS Reach F-Year 2 (G&E to Stockpile)				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	5.1	25.2	63.4	33.0	2.6	30.5	8.7	2.4	6.3	5,982.5
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	5.1	25.2	63.4	33.0	2.6	30.5	8.7	2.4	6.3	5,982.5
Total (megagrams/construction project)	0.2	0.8	1.9	0.5	0.1	0.4	0.2	0.1	0.1	183.8

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 1
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 2232

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 7.1.2																								
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	ARCF ARS Reach F-Year 2 (G&E to Stockpile)																									
Construction Start Year	2016	Enter a Year between 2009 and 2025 (inclusive)																								
Project Type	1	1 New Road Construction																								
		2 Road Widening				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.																				
		3 Bridge/Overpass Construction																								
Project Construction Time	1.4	months																								
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel																								
		2. Weathered Rock-Earth																								
		3. Blasted Rock																								
Project Length	1.5	miles																								
Total Project Area	28.0	acres																								
Maximum Area Disturbed/Day	6.7	acres																								
Water Trucks Used?	1	1. Yes 2. No																								
Soil Imported		yd ³ /day																								
Soil Exported	2920.0	yd ³ /day																								
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																								
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.																										
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>Construction Months</td> <td>Months</td> </tr> <tr> <td>Grading/Excavation</td> <td>0.00</td> <td>0.14</td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>1.40</td> <td>0.63</td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.42</td> </tr> <tr> <td>Totals</td> <td>1.40</td> <td>0.21</td> </tr> </tbody> </table>							Construction Periods	Program		User Override of	Calculated	Grubbing/Land Clearing	Construction Months	Months	Grading/Excavation	0.00	0.14	Drainage/Utilities/Sub-Grade	1.40	0.63	Paving	0.00	0.42	Totals	1.40	0.21
Construction Periods	Program																									
	User Override of	Calculated																								
Grubbing/Land Clearing	Construction Months	Months																								
Grading/Excavation	0.00	0.14																								
Drainage/Utilities/Sub-Grade	1.40	0.63																								
Paving	0.00	0.42																								
Totals	1.40	0.21																								

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip	2.00	30						
Round trips/day	146.00	146						
Vehicle miles traveled/day (calculated)			292					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.1	5.3	0.5	0.1	0.1	1080.4		
Tons per construction period	0.00	0.08	0.01	0.00	0.00	16.64		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust		2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.06	2.91	0.25	0.06	0.03	592.02		
Tons per const. Period - Grading/Excavation	0.00	0.04	0.00	0.00	0.00	9.12		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0	0.0	
Fugitive Dust - Grading/Excavation		6.7	67.0	0.5	13.9	0.1		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
2.00		Crawler Tractors		1.85	11.17	23.79	0.92	0.84	2062.23
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00	2	Graders		1.33	4.35	12.98	0.73	0.67	838.78
		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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
4.00	1	Scrapers		7.28	36.27	88.48	3.57	3.28	8040.11
0.00	3	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
		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
	Grading/Excavation	pounds per day		11.0	54.8	131.4	5.5	5.1	11489.0
	Grading	tons per phase		0.2	0.8	2.0	0.1	0.1	176.9

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	10.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	10.00	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	10.00	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

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (G&E Surfacing)				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	14.5	64.3	331.0	77.5	10.5	67.0	22.1	8.2	13.9	55,317.2
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	14.5	64.3	331.0	77.5	10.5	67.0	22.1	8.2	13.9	55,317.2
Total (tons/construction project)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	30.4

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/day)-> 8228

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 -> ARCF ARS Reach F-Year 2 (G&E Surfacing)				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	6.6	29.2	150.4	35.2	4.8	30.5	10.1	3.7	6.3	25,144.2
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	6.6	29.2	150.4	35.2	4.8	30.5	10.1	3.7	6.3	25,144.2
Total (megagrams/construction project)	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	27.6

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/day)-> 6291

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 7.1.2					
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	ARCF ARS Reach F-Year 2 (G&E Surfacing)						
Construction Start Year	2016	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	0.1	months					
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel					
		2. Weathered Rock-Earth					
	3. Blasted Rock						
Project Length	1.5	miles					
Total Project Area	28.0	acres					
Maximum Area Disturbed/Day	6.7	acres					
Water Trucks Used?	1	1. Yes 2. No					
Soil Imported	8228.0	yd ³ /day					
Soil Exported		yd ³ /day					
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)					
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.							
		Program					
		User Override of		Calculated			
Construction Periods		Construction Months		Months			
Grubbing/Land Clearing	0.00		0.01				
Grading/Excavation	0.05		0.05				
Drainage/Utilities/Sub-Grade	0.00		0.03				
Paving	0.00		0.02				
Totals	0.05		0.10				
Please note: You have entered a different number of months than the project length shown in cell C13.							



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.

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		411						
Vehicle miles traveled/day (calculated)			12342					
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	4.3	224.3	19.1	4.5	2.7	45666.9		
Tons per construction period	0.00	0.12	0.01	0.00	0.00	25.12		
Worker commute default values can be overridden in cells C60 through C65.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust	3.00	2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.08	4.36	0.37	0.09	0.05	888.03		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.49		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	67.0	0.0	13.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		1.02	6.15	13.08	0.50	0.46	1134.22
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
	3	Excavators		1.23	8.37	13.40	0.66	0.61	1718.59
		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
3.00	2	Graders		4.40	14.36	42.82	2.41	2.21	2767.98
		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
	1	Other Construction Equipment		0.64	3.31	6.73	0.35	0.33	602.67
		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
3.00		Rollers		1.44	6.23	12.75	0.94	0.86	1153.07
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
3.00		Tractors/Loaders/Backhoes		1.48	6.49	13.49	1.04	0.96	1385.69
		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		10.2	44.9	102.3	5.9	5.4	8762.2
	Grading	tons per phase		0.0	0.0	0.1	0.0	0.0	4.8

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
	2	Trenchers		0.00	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	11.00	8
Crushing/Proc. Equipment	142		8
Excavators	163		8
Forklifts	89		8
Generator Sets	66		8
Graders	175	11.00	8
Off-Highway Tractors	123		8
Off-Highway Trucks	400		8
Other Construction Equipment	172	11.00	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	11.00	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	11.00	8
Trenchers	81		8
Welders	45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (Utilities #1)			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	2.1	11.3	24.7	101.7	1.2	100.5	22.0	1.1	20.9	2,399.7
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	2.1	11.3	24.7	101.7	1.2	100.5	22.0	1.1	20.9	2,399.7
Total (tons/construction project)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	4.0

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (Utilities #1)			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	1.0	5.1	11.2	46.2	0.6	45.7	10.0	0.5	9.5	1,090.8
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	1.0	5.1	11.2	46.2	0.6	45.7	10.0	0.5	9.5	1,090.8
Total (megagrams/construction project)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	3.6

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 0
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2																																																													
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	ARCF ARS Reach F-Year 2 (Utilities #1)																																																														
Construction Start Year	2016	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		0.2	months																																																												
Predominant Soil/Site Type: Enter 1, 2, or 3			1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock																																																												
Project Length	1.5		miles																																																												
Total Project Area	28.0	acres																																																													
Maximum Area Disturbed/Day	6.7	acres																																																													
Water Trucks Used?	1	1. Yes 2. No																																																													
Soil Imported		yd ³ /day																																																													
Soil Exported		yd ³ /day																																																													
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																													
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.																																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 25%;">Construction Periods</th> <th colspan="2" style="width: 50%;">Program</th> <th colspan="5" style="width: 25%;"></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="4"></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="4"></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.02</td> <td colspan="4"></td> </tr> <tr> <td>Grading/Excavation</td> <td>0.15</td> <td>0.09</td> <td colspan="4"></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.06</td> <td colspan="4"></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.03</td> <td colspan="4"></td> </tr> <tr> <td>Totals</td> <td>0.15</td> <td>0.20</td> <td colspan="4"></td> </tr> </tbody> </table>									Construction Periods	Program							User Override of	Calculated					Construction Months	Months					Grubbing/Land Clearing	0.00	0.02					Grading/Excavation	0.15	0.09					Drainage/Utilities/Sub-Grade	0.00	0.06					Paving	0.00	0.03					Totals	0.15	0.20				
Construction Periods	Program																																																														
	User Override of	Calculated																																																													
Construction Months	Months																																																														
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Paving	0.00	0.03																																																													
Totals	0.15	0.20																																																													
Please note: You have entered a different number of months than the project length shown in cell C13.																																																															

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust	1.00	2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.03	1.45	0.12	0.03	0.02	296.01		
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.49		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	100.5	0.1	20.9	0.0		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles			ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles	Program-estimate	Type		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
	0	Cranes		0.00	0.00	0.00	0.00	0.00	0.00
1.00		Crawler Tractors		0.92	5.59	11.90	0.46	0.42	1031.11
		Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
0.00	2	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
	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
1.00		Rollers		0.13	0.57	1.16	0.09	0.08	104.82
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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		2.1	11.1	23.3	1.2	1.1	2103.7
	Grading	tons per phase		0.0	0.0	0.0	0.0	0.0	3.5

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
	2	Trenchers		0.00	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	106	8	
Bore/Drill Rigs	206	8	
Cement and Mortar Mixers	10	8	
Concrete/Industrial Saws	64	8	
Cranes	226	8	
Crawler Tractors	208	10.00	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	10.00	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	3.00	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	10.00	8
Trenchers	81		8
Welders	45		8

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> ARCF ARS Reach F-Year 2 (Utilities #2)											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust		
				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	1.1	5.1	11.7	101.2	0.7	100.5	21.5	0.6	20.9	1,263.8	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
Maximum (pounds/day)	1.1	5.1	11.7	101.2	0.7	100.5	21.5	0.6	20.9	1,263.8	
Total (tons/construction project)	0.0	0.1	0.3	1.2	0.0	1.2	0.3	0.0	0.2	33.4	

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (acres) -> 28
 Maximum Area Disturbed/Day (acres) -> 7
 Total Soil Imported/Exported (yd³/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 -> ARCF ARS Reach F-Year 2 (Utilities #2)											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust		
				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	0.5	2.3	5.3	46.0	0.3	45.7	9.8	0.3	9.5	574.5	
Drainage/Utilities/Sub-Grade	-	-	-	-	-	-	-	-	-	-	
Paving	-	-	-	-	-	-	-	-	-	-	
Maximum (kilograms/day)	0.5	2.3	5.3	46.0	0.3	45.7	9.8	0.3	9.5	574.5	
Total (megagrams/construction project)	0.0	0.1	0.3	1.1	0.0	1.1	0.2	0.0	0.2	30.3	

Notes:
 Project Start Year -> 2016
 Project Length (months) -> 2
 Total Project Area (hectares) -> 11
 Maximum Area Disturbed/Day (hectares) -> 3
 Total Soil Imported/Exported (meters³/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 7.1.2																																																																			
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	ARCF ARS Reach F-Year 2 (Utilities #2)																																																																				
Construction Start Year	2016	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	2.4	months																																																																			
Predominant Soil/Site Type: Enter 1, 2, or 3		1. Sand Gravel																																																																			
		2. Weathered Rock-Earth																																																																			
	3. Blasted Rock																																																																				
Project Length	1.5	miles																																																																			
Total Project Area	28.0	acres																																																																			
Maximum Area Disturbed/Day	6.7	acres																																																																			
Water Trucks Used?	1	1. Yes 2. No																																																																			
Soil Imported		yd ³ /day																																																																			
Soil Exported		yd ³ /day																																																																			
Average Truck Capacity	20.0	yd ³ (assume 20 if unknown)																																																																			
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.																																																																					
<table border="1"> <thead> <tr> <th rowspan="2">Construction Periods</th> <th colspan="2">Program</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>User Override of</th> <th>Calculated</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> <tr> <th>Construction Months</th> <th>Months</th> <th colspan="2"></th> <th colspan="2"></th> <th></th> </tr> </thead> <tbody> <tr> <td>Grubbing/Land Clearing</td> <td>0.00</td> <td>0.24</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Grading/Excavation</td> <td>2.40</td> <td>1.08</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Drainage/Utilities/Sub-Grade</td> <td>0.00</td> <td>0.72</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Paving</td> <td>0.00</td> <td>0.36</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> <tr> <td>Totals</td> <td>2.40</td> <td>2.40</td> <td colspan="2"></td> <td colspan="2"></td> <td></td> </tr> </tbody> </table>								Construction Periods	Program							User Override of	Calculated						Construction Months	Months						Grubbing/Land Clearing	0.00	0.24						Grading/Excavation	2.40	1.08						Drainage/Utilities/Sub-Grade	0.00	0.72						Paving	0.00	0.36						Totals	2.40	2.40					
Construction Periods	Program																																																																				
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Totals	2.40	2.40																																																																			

Hauling emission default values can be overridden in cells C45 through C46.								
Soil Hauling Emissions	User Override of							
User Input	Soil Hauling Defaults	Default Values						
Miles/round trip		30						
Round trips/day		0						
Vehicle miles traveled/day (calculated)				0				
Hauling Emissions	ROG	NOx	CO	PM10	PM2.5	CO2		
Emission rate (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00		
Pounds per day	0.0	0.0	0.0	0.0	0.0	0.0		
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.								
	User Override of Worker							
Worker Commute Emissions	Commute Default Values	Default Values						
Miles/ one-way trip		20						
One-way trips/day		2						
No. of employees: Grubbing/Land Clearing	0.00	10						
No. of employees: Grading/Excavation		15						
No. of employees: Drainage/Utilities/Sub-Grade	0.00	11						
No. of employees: Paving	0.00	13						
	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)	0.147	0.194	1.744	0.047	0.020	443.650		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.000	0.000	0.000	0.000	0.000	0.000		
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)	0.505	0.323	4.200	0.004	0.003	95.592		
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.000	0.000	0.000	0.000		
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	0.000	0.000	0.000	0.000	0.000	0.000		

Water truck default values can be overriden in cells C91 through C93 and E91 through E93.								
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				
Grubbing/Land Clearing - Exhaust	0.00	2		80				
Grading/Excavation - Exhaust	1.00	2		80				
Drainage/Utilities/Subgrade	0.00	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)	0.16	8.25	0.70	0.17	0.10	1679.86		
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	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		
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.00		
Pound per day - Grading/Excavation	0.03	1.45	0.12	0.03	0.02	296.01		
Tons per const. Period - Grading/Excavation	0.00	0.04	0.00	0.00	0.00	7.81		
Pound per day - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.00		
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	
	Acreage Disturbed/Day	Maximum Acreage/Day	pounds/day	tons/per period	pounds/day	tons/per period		
Fugitive Dust - Grubbing/Land Clearing		0	0.0	0.0	0.0	0.0		
Fugitive Dust - Grading/Excavation		6.7	100.5	1.2	20.9	0.2		
Fugitive Dust - Drainage/Utilities/Subgrade		0	0.0	0.0	0.0	0.0		

Off-Road Equipment Emissions								
Default								
Grubbing/Land Clearing	Number of Vehicles	Type	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
		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
0.00	2	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
0.00	3	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		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	0.0	0.0	0.0	0.0	0.0
		Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0

	Default								
Grading/Excavation	Number of Vehicles	Program-estimate	Type	ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	0	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
0.00	3	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
0.00	2	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
1.00	1	Other Construction Equipment		0.58	3.01	6.12	0.32	0.30	547.89
		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
0.00	2	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
1.00		Tractors/Loaders/Backhoes		0.45	1.97	4.09	0.31	0.29	419.90
		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	1.0	5.0	10.2	0.6	0.6	967.8
		Grading	tons per phase	0.0	0.1	0.3	0.0	0.0	25.5

	Default								
Drainage/Utilities/Subgrade	Number of Vehicles	Program-estimate		ROG	CO	NOx	PM10	PM2.5	CO2
Override of Default Number of Vehicles				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
0.00	1	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
0.00	2	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
0.00	1	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00
0.00	3	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
		Tractors/Loaders/Backhoes		0.00	0.00	0.00	0.00	0.00	0.00
	2	Trenchers		0.00	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	0.0	0.0	0.0	0.0	0.0	0.0
		Drainage	tons per phase	0.0	0.0	0.0	0.0	0.0	0.0

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	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	10.00	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	10.00	8
Trenchers	81		8
Welders	45		8