Appendix A

AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ASSESSMENT

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October 21, 2015 QIC-03

Stephan Vance
San Diego Association of Governments
401 B Street, Suite 800
San Diego, CA 92101

Subject: Air Quality and Greenhouse Gas Emissions Impact Assessment for the San Diego River Trail Qualcomm Stadium Segment Project

Dear Mr. Vance:

This letter summarizes the air quality and greenhouse gas (GHG) emissions analysis for the San Diego River Trail (SDRT) Qualcomm Stadium Segment Project (project). The San Diego Association of Governments (SANDAG) proposes to construct an approximately 0.8-mile segment of the SDRT through Qualcomm Stadium in the Mission Valley community of the City of San Diego. The proposed Qualcomm Segment of the SDRT would extend eastward from the terminus of Fenton Parkway along a vegetated slope behind the Fenton Marketplace shopping center and through the southern portion of the Qualcomm Stadium parking lot to connect with Rancho Mission Road. The proposed trail would be a constructed as a Class I bikeway, which is a path that provides a separated right-of-way for the exclusive use of people walking and riding bikes. Most of the trail would occur on existing paved surfaces within the stadium parking lot. A barrier, such as portable concrete barriers (K rails) or chain-link fencing would be installed along the trail within the stadium parking area to separate trail users from other activities at the stadium. Some grading would be required along the vegetated slope behind the shopping center in the western extent of the trail. This slope is covered primarily with ornamental vegetation. The San Diego River is located adjacent to the trail on the south; however, the trail would not encroach into the river corridor, but would be entirely within developed areas north of the river.

Emissions were quantified using the Road Construction Emissions Model (Roadway Model) Version, 7.1.5.1, developed by Sacramento Metropolitan Air Quality Management District (SMAQMD). The Roadway Model contains OFFROAD2011 emission factors and EMFAC2011 emission factors from the California Air Resources Board's (CARB's) models for off-road equipment and on-road vehicles, respectively. For modeling purposes, construction of the project is conservatively assumed to occur over the course of two and a half months, starting

in 2016. The quantity, duration, and the intensity of construction activity have an effect on the amount of construction emissions and their related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). A complete listing of the assumptions used in the analysis and model output is provided as Attachment A of this letter.

Air Quality

Consistency with Air Quality Plans

The project site is located within the San Diego Air Basin (SDAB). The San Diego Air Pollution Control District (SDAPCD) manages air quality in the SDAB. Air quality plans applicable to the SDAB include the San Diego Regional Air Quality Strategy (RAQS) and applicable portions of the State Implementation Plan (SIP). The RAQS and SIP outline the SDAPCD's plans and control measures designed to attain state and federal air quality standards. Projects that propose development consistent with the growth anticipated by the applicable general plan(s) are consistent with the RAQS and applicable portions of the SIP. The project is included in Riding to 2050, the San Diego Regional Bicycle Plan (SANDAG 2010), which supports implementation of both the Regional Comprehensive Plan (RCP) and Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS; 2030 and 2050), and is, therefore, accounted for in the RAQS and SIP. Operation of the project would not generate substantial air quality emissions since the facility would be used for biking and walking. As a result, it would not conflict with or obstruct implementation of applicable air quality plans. Furthermore, the project would help reduce emissions and promote air quality policies by reducing the reliance on the automobile and encouraging alternative modes of transportation.

Conformance to Federal and State Air Quality Standards

Construction activities associated with the project would generate short-term emissions of reactive organic gas (ROG), oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (including both PM_{10}, and $PM_{2.5}$). Emissions would originate from off-road diesel equipment exhaust, employee and material delivery vehicle exhaust, re-entrained paved road dust, fugitive dust from land clearing, and off-gassing from paving activities. Construction was assumed to occur during the calendar year 2016. Table 1 includes the assumed amount of equipment to be used during each activity of project construction. See Attachment A for additional model assumptions.

Table 1
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment Type per Construction Activity	Number of Pieces[1]	Horsepower[2]
Grubbing/Land Clearing		
Crawler Tractors	1	208
Excavators	1	163
Grading/Excavation		
Crawler Tractors	1	208
Excavators	1	163
Rollers	1	81
Rubber Tired Loaders	1	200
Tractors/Loaders/Backhoes	1	98
Water Truck	1	NA
Drainage/Utilities/Subgrade/Retaining Walls		
Air Compressors	1	106
Cement and Mortar Mixers	1	10
Generator Sets	1	66
Grader	1	175
Plate Compactors	1	8
Pumps	1	53
Tractors/Loaders/Backhoes	2	98
Truck Mounted Crane	1	226
Paving/Barrier Placement		
Pavers	1	126
Paving Equipment	1	131
Rollers	1	81
Tractors/Loaders/Backhoes	1	98
Truck Mounted Crane	1	226

Notes:
[1] Amount of equipment was received from Quality Infrastructure Corporation (pers. comm. 2015).
[2] Equipment horsepower contained in Roadway Model.
NA = not available

The project would be required to comply with applicable SDAPCD emissions and fugitive dust standard Best Management Practices (BMPs), such as SDAPCD Rule 55 – Fugitive Dust Control which states that no dust and/or dirt shall leave the property line. Construction is assumed to last approximately 2.5 months and require an average of 15 workers onsite per day with activity occurring 8 hours per day and 5 days per week. An estimate of the maximum daily emissions associated with construction of the project is presented in Table 2. Emissions associated with the project were compared to SDAPCD's "Air Quality Impact Analysis (AQIA) Trigger Levels" as

contained within SDAPCD Regulation II, Rule 20.2. As shown in Table 2, criteria pollutant emissions associated with project construction would be below the applicable AQIA Trigger Levels.

Table 2
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS

Construction Activity	Pollutant Emissions (pounds per day)				
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	1.2	14.8	8.2	6.9	1.9
Grading/Excavation	2.7	27.9	16.5	7.6	2.5
Drainage/Utilities/Sub-Grade/Retaining Wall	4.5	38.5	21.7	8.7	3.5
Paving/Barrier Placement	2.4	23.1	13.6	1.3	1.2
Maximum Daily Emissions	***4.5***	***38.5***	***21.7***	***8.7***	***3.5***
AQIA Trigger Levels	137	250	550	100	55

Source: Roadway Model emissions modeling by HELIX 2015 (output data is provided in Attachment A).

With the exception of the infrequent operation of maintenance vehicles along the bikeway, the proposed bicycle facility would not be used by motorized vehicles and no other operational emissions would be expected. Thus, operation of the proposed facility would not violate applicable air quality standards or substantially contribute to an existing or projected air quality violation.

Cumulatively Considerable Net Increase

The SDAB is currently classified as nonattainment for the federal- and state-designated criteria pollutants of ozone, PM_{10}, and $PM_{2.5}$ (CARB 2015). As discussed above, emissions from project-related construction activities would be minimal, short-term, and localized. Project operation is anticipated to lower cumulative emissions by encouraging alternative modes of transportation such as walking and biking. The project would, therefore, not result in a cumulatively considerable net increase in criteria pollutants.

Sensitive Receptors

Sensitive receptors are facilities and structures where people live or spend considerable amounts of time and within the project area include residences and schools. The nearest school (Juarez Elementary School) is located approximately 0.75 mile to the north from the nearest proposed construction area. Other public schools are located more than one mile from the project site. The nearest residences include multi-family residential development located approximately 100 feet west of the western end of the segment. Several multi-family residential complexes are located on both sides of Friars Road and east of I-805 in the general vicinity of the project site. However, as discussed above, project construction activities would be minimal, and the project would comply with all SDAPCD emissions and fugitive dust standards. Additionally, as

previously discussed, with the exception of the infrequent operation of maintenance vehicles along the bikeway, operation of the project would not generate direct air quality emissions and would, therefore, not impact sensitive receptors.

Odors

Project construction (specifically, the use of diesel construction equipment and vehicles) could generate odors associated with fuel combustion. However, these odors would dissipate into the atmosphere upon release, and would only temporarily remain in proximity to the construction equipment and vehicles. Potential odors would be temporary and localized within the immediate project vicinity, and would not affect a substantial number of people.

Greenhouse Gas Emissions

Global climate change refers to changes in average climatic conditions on Earth, as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as well as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These, known as greenhouse gases (GHGs) allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. GHGs are emitted by both natural processes and human activities. Concentrations of GHGs have increased in the atmosphere since the industrial revolution as a result of human activities. Human activities that generate GHG emissions include combustion of fossil fuels (CO_2 and N_2O); natural gas generated from landfills, fermentation of manure and cattle farming (CH_4); and industrial processes such as nylon and nitric acid production (N_2O).

Regulations

Assembly Bill (AB) 32, the California Global Warming Solutions Act, established a stated goal of reducing GHG emissions to 1990 levels by the year 2020, which would require a reduction of approximately 30 percent from "business as usual" or forecasted emission levels.

SANDAG has adopted the following planning documents to address regional energy savings and climate change:

- The Climate Action Strategy is a guide on climate change policy and identifies a range of potential policy measures for consideration as SANDAG updates long-term planning documents like the RTP and RCP.

- The Regional Energy Strategy serves as the energy policy blueprint through 2030 to support decision-making as the region strives to meet the energy needs of a growing population and economy while enhancing our quality of life.

- The Sustainable Region Program Action Plan is designed to assist local governments in developing energy management plans and implementing cost-saving energy measures.

SANDAG also works with federal and state energy planning/regulating agencies to help the region attain its energy goals.

The County of San Diego uses 900 metric tons (MT) of carbon dioxide equivalents (CO_2e) per year as its interim threshold. If a project would exceed the annual 900 MT screening threshold, then a potentially significant GHG emissions impact would occur and preparation of a detailed quantitative GHG analysis would be required (County 2015). Thus, 900 MT of CO_2e per year is used in this analysis to determine the potential for significant GHG impacts to occur from the project.

GHG emissions associated with the project include those from construction and operations, as discussed below.

Emissions

Construction emissions would be associated with off-road diesel equipment exhaust, and from worker and truck trips to and from the project site. The primary emissions would be CO_2 from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of N_2O and CH_4.

It was assumed that construction would occur during the year 2016. Guidance from the County of San Diego recommends amortizing construction emissions over a 50-year period to account for the annual contribution of GHG emissions over a project's lifetime. As shown in Table 3, amortized construction emissions would be substantially below the 900 MT of CO_2 equivalents (CO_2e) screening level threshold.

Table 3
CONSTRUCTION GHG EMISSIONS (MT/yr)

Construction Activity	CO_2e
Grubbing/Land Clearing	4
Grading/Excavation	35
Drainage/Utilities/Sub-Grade/Retaining Wall	42
Paving/Barrier Placement	6
TOTAL	**87**
Amortized Construction Emissions	2
County of San Diego Threshold	**900**

Source: Roadway Model emissions modeling by HELIX 2015 (output data is provided in Attachment A).

The project could result in operational emissions associated with production of energy consumed by potential lighting installed along the bikeway and the operation of maintenance vehicles along the bikeway; these emissions, however, would be very minor, as any lighting proposed for this project would be minimal and maintenance activities would be infrequent. Additionally, the project would encourage the use of bicycles and walking as alternatives to driving, and, thus, is anticipated to result in a net decrease in GHG emissions over the project's lifetime.

Consistency with Applicable Plans

The project would not constitute a significant source of GHG emissions, and would aid in the reduction of regional GHG emissions through encouraging alternative transportation. As such, the project would be consistent with SANDAG's *Climate Action Strategy*, *Regional Energy Strategy,* and *Sustainable Region Program Action Plan*; all of which obtain goals associated with the reduction of transportation-related GHG emissions through reducing regional vehicle miles traveled and automobile reliance, as well as promoting walking and bicycling as viable transportation alternatives. Additionally, as discussed previously under *Consistency with Air Quality Plans*, the project would also be consistent with the RTP/SCS, which is the regional transportation planning document that includes future transportation projects (this project included) and addresses how the region will reduce GHG emissions to state-mandated levels over time. Implementation of the project would, therefore, not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Summary

The project would result in construction emissions of criteria pollutants and GHGs; however emissions would not exceed applicable AQIA Trigger Levels or the GHG screening level threshold. Operational GHG emissions could result from proposed lighting and maintenance of the facility; however these emissions would be negligible, and would be offset by the project's anticipated net decrease in emissions through encouraging alternative modes of transportation. As such, the project would support regional goals to improve air quality and reduce GHG emissions by reducing the reliance on the automobile. No mitigation measures are recommended.

Sincerely,

Victor Ortiz
Air Quality Specialist

Attachment

Attachment A: Roadway Model Emissions

References

California Air Resources Board (CARB). 2015. *Area Designations: Activities and Maps*. Available: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed July 2015.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January. Available at: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.

Quality Infrastructure Corporation. 2015. Email communication between Bradbury, K. and Belzman, T. of HELIX Environmental Planning, Inc. June 29.

San Diego Association of Governments (SANDAG). 2010. *Riding to 2050, the San Diego Regional Bicycle Plan.*

Attachment A

Road Construction Emissions Model, Version 7.1.5.1

Emission Estimates for -> SDRT Qualcomm Segment Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	1.2	8.2	14.8	6.9	0.6	6.3	1.9	0.6	1.3	1,743.3
Grading/Excavation	2.7	16.5	27.9	7.6	1.4	6.3	2.5	1.2	1.3	3,515.2
Drainage/Utilities/Sub-Grade	4.5	21.7	38.5	8.7	2.4	6.3	3.5	2.2	1.3	4,168.7
Paving	2.4	13.6	23.1	1.3	1.3	-	1.2	1.2	-	2,569.7
Maximum (pounds/day)	4.5	21.7	38.5	8.7	2.4	6.3	3.5	2.2	1.3	4,168.7
Total (tons/construction project)	0.1	0.5	0.8	0.2	0.0	0.1	0.1	0.0	0.0	96.4

Notes:		
	Project Start Year ->	2016
	Project Length (months) ->	3
	Total Project Area (acres) ->	3
	Maximum Area Disturbed/Day (acres) ->	1
	Total Soil Imported/Exported (yd^3/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 -> SDRT Qualcomm Segment Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	0.6	3.7	6.7	3.1	0.3	2.8	0.8	0.3	0.6	792.4
Grading/Excavation	1.2	7.5	12.7	3.5	0.6	2.8	1.1	0.6	0.6	1,597.8
Drainage/Utilities/Sub-Grade	2.1	9.9	17.5	4.0	1.1	2.8	1.6	1.0	0.6	1,894.9
Paving	1.1	6.2	10.5	0.6	0.6	-	0.5	0.5	-	1,168.0
Maximum (kilograms/day)	2.1	9.9	17.5	4.0	1.1	2.8	1.6	1.0	0.6	1,894.9
Total (megagrams/construction project)	0.1	0.4	0.8	0.2	0.0	0.1	0.1	0.0	0.0	87.4

Notes:		
	Project Start Year ->	2016
	Project Length (months) ->	3
	Total Project Area (hectares) ->	1
	Maximum Area Disturbed/Day (hectares) ->	0
	Total Soil Imported/Exported (meters^3/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 sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model

Version 7.1.5.1

Data Entry Worksheet

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

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

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.

Input Type		
Project Name	SDRT Qualcomm Segment	
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	2.50	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.80	miles
Total Project Area	2.50	acres
Maximum Area Disturbed/Day	0.63	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	0.00	yd^3/day
Soil Exported	0.00	yd^3/day
Average Truck Capacity	20	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	User Override of Construction Months	Program Calculated Months
Grubbing/Land Clearing	0.25	0.25
Grading/Excavation	1.00	1.13
Drainage/Utilities/Sub-Grade	1.00	0.75
Paving	0.25	0.38
Totals	2.50	2.50

2005	%	2006	%	2007	%
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

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

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

Soil Hauling Emissions

User Input	User Override of 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	0.00	0.00	0.00	0.00	0.00	0.00
Tons per contruction period	0.00	0.00	0.00	0.00	0.00	0.00

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

Worker Commute Emissions

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

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.147	0.194	1.744	0.047	0.020	443.650
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)	0.147	0.194	1.744	0.047	0.020	443.650
Emission rate - Paving (grams/mile)	0.147	0.194	1.744	0.047	0.020	443.650
Emission rate - Grubbing/Land Clearing (grams/trip)	0.505	0.323	4.200	0.004	0.003	95.592
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)	0.505	0.323	4.200	0.004	0.003	95.592
Emission rate - Paving (grams/trip)	0.505	0.323	4.200	0.004	0.003	95.592
Pounds per day - Grubbing/Land Clearing	0.076	0.093	0.861	0.021	0.009	197.546
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.002	0.000	0.000	0.543
Pounds per day - Grading/Excavation	0.266	0.324	3.013	0.073	0.031	691.411
Tons per const. Period - Grading/Excavation	0.003	0.004	0.033	0.001	0.000	7.606
Pounds per day - Drainage/Utilities/Sub-Grade	0.228	0.278	2.582	0.062	0.026	592.638
Tons per const. Period - Drain/Util/Sub-Grade	0.003	0.003	0.028	0.001	0.000	6.519
Pounds per day - Paving	0.171	0.208	1.937	0.047	0.020	444.479
Tons per const. Period - Paving	0.000	0.001	0.005	0.000	0.000	1.222
tons per construction period	0.006	0.007	0.069	0.002	0.001	15.890

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

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust		1		40
Grading/Excavation - Exhaust		1		40
Drainage/Utilities/Subgrade		1		40

	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.16	8.25	0.70	0.17	0.10	1679.86
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)	0.16	8.25	0.70	0.17	0.10	1679.86
Pounds per day - Grubbing/Land Clearing	0.01	0.73	0.06	0.01	0.01	148.00
Tons per const. Period - Grub/Land Clear	0.00	0.00	0.00	0.00	0.00	0.41
Pound per day - Grading/Excavation	0.01	0.73	0.06	0.01	0.01	148.00
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	1.63
Pound per day - Drainage/Utilities/Subgrade	0.01	0.73	0.06	0.01	0.01	148.00
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.01	0.00	0.00	0.00	1.63

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

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.625	6.3	0.0	1.3	0.0
Fugitive Dust - Grading/Excavation		0.625	6.3	0.1	1.3	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		0.625	6.3	0.1	1.3	0.0

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 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
	1	Crawler Tractors	0.74	4.47	9.52	0.37	0.34	824.89
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	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
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
		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	1.1	7.3	14.0	0.6	0.5	1397.8
	Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.0	3.8

Grading/Excavation	Default 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	Crawler Tractors	0.74	4.47	9.52	0.37	0.34	824.89
		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
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
		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	2	Rollers	0.35	1.51	3.09	0.23	0.21	279.53
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Rubber Tired Loaders	0.52	3.12	6.51	0.22	0.20	662.62
0.00	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Tractors/Loaders/Backhoes	0.36	1.57	3.27	0.25	0.23	335.92
		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	13.5	26.9	1.3	1.2	2675.8
	Grading	tons per phase	0.0	0.1	0.3	0.0	0.0	29.4

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	CO2 pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Air Compressors	0.68	3.42	4.38	0.37	0.34	507.95
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cement and Mortar Mixers	0.07	0.35	0.42	0.02	0.02	57.88
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00
1.00		Cranes	0.75	3.00	8.48	0.38	0.35	601.74
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
	1	Generator Sets	0.51	2.98	3.86	0.27	0.25	487.07
	1	Graders	1.07	3.48	10.38	0.58	0.54	671.02
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Plate Compactors	0.04	0.21	0.25	0.01	0.01	34.45
		Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pumps	0.44	2.47	3.19	0.23	0.22	396.14
		Rollers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1	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	2	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
	2	Tractors/Loaders/Backhoes	0.72	3.15	6.54	0.50	0.46	671.85
		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	4.3	19.1	37.5	2.4	2.2	3428.1
	Drainage	tons per phase	0.0	0.2	0.4	0.0	0.0	37.7

Paving	Default 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
1.00		Cranes	0.75	3.00	8.48	0.38	0.35	601.74
		Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00
	1	Pavers	0.42	2.84	4.49	0.22	0.21	481.68
	1	Paving Equipment	0.32	2.69	3.53	0.18	0.16	426.30
		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	3	Rollers	0.35	1.51	3.09	0.23	0.21	279.53
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Scrapers	0.00	0.00	0.00	0.00	0.00	0.00
0.00	2	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2	Tractors/Loaders/Backhoes	0.36	1.57	3.27	0.25	0.23	335.92
		Trenchers	0.00	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	2.2	11.6	22.9	1.3	1.2	2125.2
	Paving	tons per phase	0.0	0.0	0.1	0.0	0.0	5.8
Total Emissions all Phases (tons per construction period) =>			0.1	0.4	0.8	0.0	0.0	76.8

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

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

0

END OF DATA ENTRY SHEET