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Air Quality Emissions Technical Memorandum for the Runway 3L-21R Reconstruction at Detroit Metropolitan Wayne County Airport

HNTB was tasked to assist the Wayne County Airport Authority (WCAA) in preparing technical analyses to support the development of a Documented Categorical Exclusion (CatEx) by Synergy Consultants, Inc. This technical memo details the methodologies, assumptions and analysis of aircraft and construction emissions related to the reconstruction of Runway 3L-21R and associated taxiways at Detroit Metropolitan Wayne County Airport (DTW).

1 Aircraft Emissions

Aircraft emissions impacts were modeled for the 2017 Existing Condition, 2020 No Action (Runway 3L-21R would stay open), and 2020 Proposed Action (Runway 3L-21R would be closed for reconstruction) using the Aviation Environmental Design Tool version 2d (AEDT 2d).

1.1 Input

Emissions inputs included the type of the aircraft, operation frequency and timing, flight profiles, runway use, track use, weather, terrain, emission coefficients, fuel coefficients, and types of the Auxiliary Power Units (APU) for each aircraft. The type of the aircraft, operation frequency and timing, runway use, track use, and terrain are discussed in the Noise Model Technical Memorandum (1/16/18). Default parameters were used for flight profiles, weather, emission coefficients, fuel coefficients, and types of the APUs. Taxi-in and taxi-out emissions were calculated based on taxi-in and taxi-out times. The taxi distance from the midpoint between the two terminals to each runway end was estimated, which was subsequently weighted by the number of operations on that runway. The weighted taxi distances of the 2020 No Action and 2020 Proposed Action were compared with the 2017 Existing Condition and adjustment factors were developed. Since the Existing Condition taxi times were available from the Federal Aviation Administration (FAA) Aviation System Performance Metrics (ASPM), the adjustment factors were applied to the 2017 Existing Condition taxi times to estimate the taxi times of the 2020 No Action and 2020 Proposed Action. **Table 1** shows the estimated taxi-in and taxi-out times.

Table 1
Taxi-in and Taxi-out Times

Scenario	Average Taxi-in Time (Minutes)	Average Taxi-Out Time (Minutes)
2017 Existing Condition	8.4	20.5
2020 No Action	8.3	20.3
2020 Proposed Action	8.3	19.3

Sources: FAA ASPM and HNTB Analysis, 2018.

1.2 Output

The AEDT output for emissions includes a breakdown of emissions during aircraft taxi, climb and descent at varying altitudes. Attachment 1 provides the detailed AEDT emissions output for each scenario. **Table 2** summarizes the total fuel usage, distance traveled and duration of operations for the 2017 Existing Condition, 2020 No Action and 2020 Proposed Action. As indicated, there is a slight increase in fuel usage from the 2017 Existing Condition to the 2020 No Action and Proposed Action due to the increased number of large and heavy jet operations. For the same reason, there is a slight decrease in distance traveled (especially climbing distance) and duration from the 2017 Existing Condition to the 2020 No Action and Proposed Action due to large and heavy jet aircraft’s superior climb and descend performance than that of piston and regional jet aircraft. The 2020 No Action has slightly higher fuel usage, and duration compared to the 2020 Proposed Action due to the greater average taxi-out time of 20.3 minutes compared to 19.3 minutes, respectively.

Table 2
Fuel Usage, Distance Traveled and Duration of Operations

Scenario	Fuel (short tons)	Distance (miles)	Duration (hours)
2017 Existing Condition	185,659	7,901,414	20,069,440
2020 No Action	188,435	7,833,123	18,754,336
2020 Proposed Action	186,105	7,833,050	18,034,489

Source: AEDT 2d output, January 2018.

Table 3 summarizes the full flight emissions for all operations under the 2017 Existing Condition, 2020 No Action and 2020 Proposed Action. **Attachment 1** provides the complete AEDT emissions output. In general, there is a slight increase in emissions from 2017 Existing Conditions to the 2020 No Action and 2020 Proposed Action, due to the increased number of large and heavy yet operations and greater fuel usage. However, the 2020 No Action emissions are generally higher than the 2020 Proposed Action emissions due to the greater average taxi-out time of 20.3 minutes compared to 19.3 minutes, respectively. These results indicate there would be no impact on aircraft emissions due to the reconstruction of Runway 3L-21R, with emissions likely decreasing during the period of reconstruction.

Table 3
Aircraft Emissions

Scenario	Emissions (short tons)						
	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	VOC	CO ₂
2017 Existing Condition	2,014	2,277	217	64	64	282	585,754
2020 No Action	2,010	2,381	221	66	66	287	594,512
2020 Proposed Action	1,958	2,370	218	66	66	281	587,163
Difference (Project-Related)¹	-52.25	-11.03	-2.73	0.05	0.05	-5.77	-7,349.50

Note: ¹ 2020 Proposed Action minus 2020 No Action emissions.

Source: AEDT 2d output, January 2018.

2 Construction Emissions

The Airport Construction Emissions Inventory Tool (ACEIT) was used to screen the project for purposes of determining if a more sophisticated analysis was needed. If the emissions were less than *de minimis* at a screening level, no further emissions work would be warranted.

ACEIT was used to estimate construction emissions for the Runway 3L-21R Reconstruction Project. The project includes reconstruction of Runway 3L-21R, adjacent taxiways, and the 21R deicing pad, and new taxiway areas. The projects occur between April-November 2019 and 2020. The construction emissions model was created using the 15% Design Construction Schedule and Cost Estimate.

2.1 Scenarios

ACEIT requires project activity to be grouped by project Scenario. A Scenario includes the project year, number of months, season (summer/winter), and average weather temperature inputs (average daily temperature, maximum and minimum daily temperature change). Historical weather data from Weather Underground was utilized for temperature inputs. As required to use ACEIT, there are four Scenarios for this project:

- Scenario 1: 2019 April-September (Summer)
- Scenario 2: 2019 October-November (Winter)
- Scenario 3: 2020 April-September (Summer)
- Scenario 4: 2020 October-November (Winter)

2.2 Project Type

Project types, construction activity types, fuel type and equipment are then selected for each scenario. The following summaries the projects which would occur each year and the associated project types, and construction activities selected in the model. A general assumption was made that all equipment would use diesel fuel, and all default equipment for each selected construction activity type selected for the model

- Scenario 1 and 2 (2019): Runway, deicing pad, service road and taxiway reconstruction projects, and earthen berm construction, including the following ACEIT project types, and associated construction activities were used in the model:

- Runway Rehabilitation: (cold milling, concrete demo, concrete placement, asphalt placement, dust control, excavation, grading, hydroseeding, lighting, markings, sealing random cracks, soil erosion/sediment control, subbase placement, topsoil placement)
- Taxiways: (asphalt placement, concrete placement, drainage, dust control, excavation, grading, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
- Demolition – Concrete (for taxiway and deicing pad rehab): (concrete demolition)
- Demolition – Asphalt (for taxiway rehab): (asphalt demolition)
- Service Road: (asphalt placement, drainage, dust control, excavation, grading, hydroseeding, soil erosion/sediment control, subbase placement, topsoil placement)
- Terminal Apron (for deicing pad rehab): (concrete placement, drainage, dust control, excavation, grading, hydroseeding, lighting, marking, sealing/fuel resistant, soil erosion/sediment control, subbase placement, topsoil placement)
- Noise Barrier (for earthen berm visual barrier): (clearing and grubbing, dust control, excavation, grading, hydroseeding, soil erosion/sediment control)
- Scenario 3 and 4 (2020): Additional taxiway reconstruction projects, including the following ACEIT project types, and associated construction activities were used in the model:
 - Taxiways: (asphalt placement, concrete placement, drainage, dust control, excavation, grading, hydroseeding, lighting, markings, soil erosion/sediment control, subbase placement, topsoil placement)
 - Demolition – Concrete (for taxiway and deicing pad rehab): (concrete demolition)
 - Demolition – Asphalt (for taxiway rehab): (asphalt demolition)

2.3 Overall Size

The ACEIT model requires a minimal set of overall project size and characteristic data to model each scenario. By scenario, each project type requires input of estimated cost (\$ Million(s)) and maximum length and width of the project. Cost estimates for each project were taken from the 15% Design Cost Estimate document. The final costs for each project type were scaled up by roughly 25% to reach the estimated total cost of \$212 million for the project. Project dimensions were estimated based on input from project designers, including runway reconstruction dimensions, calculations using assumed taxiway widths and estimated project quantities, and rough estimates from 15% project design CAD drawings. The overall project size and characteristic data is utilized in ACEIT to estimate default size details (quantities) for construction activities.

2.4 Size Details

Size details can be modified by the user. While the majority of the ACEIT default size details were left unchanged, quantities associated with asphalt placement were modified. For taxiway and runway reconstruction projects, both asphalt placement and concrete placement are selected construction activities to account for the runway/taxiway surface (concrete) and the shoulder surface (asphalt). Based on the overall size inputs, the model assumes the full area (maximum length and width) of the project is constructed as asphalt and concrete. Quantity estimates for taxiway and runway shoulder areas from the 15% Design Cost Estimate were utilized to modify the asphalt placement size details. Fugitive emissions from asphalt drying makes up the majority of ozone (VOC) emissions for a project, and therefore it is

important that these quantities are not significantly overestimated. The remaining size details were left with the ACEIT default sizes.

2.5 Activity Data

ACEIT calculates default activity data for non-road, on-road and fugitive emission activities based on the defined scenarios and project size details. The default areas for fugitive emission calculations are also based on the overall size input. For this reason, the default areas for asphalt drying were modified to match the modified size detail quantities for asphalt placement. Additionally, ACEIT makes the following assumptions for on-road activity:

- # employees based on the higher of two methods: (1) number of equipment and (2) multiplying the project cost in million by 11
- Average employee travels 30 miles round-trip from home to construction site each-day.
- Average on-road material delivery truck travels 40 miles round-trip

2.6 Output

ACEIT outputs a summary of construction emissions by project year, and details the breakdown of emissions by non-road, on-road and fugitive sources. **Table 4** summarizes the construction emissions. The full ACEIT output is included in **Attachment 2**.

Table 4
Estimated Construction Emissions (tons)

Year	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	VOC	CO ₂	CH ₄	N ₂ O
2019	46.14	28.47	0.28	12.21	1.23	64.16	17,606.82	1.21	0.25
2020	19.19	10.96	0.13	6.62	0.46	37.72	7,607.84	0.46	0.11

Source: ACEIT output, EPA, *de minimis* emission levels, <https://www.epa.gov/general-conformity/de-minimis-tables>, HNTB analysis, 2018.

3 General Conformity

DTW is located in Wayne County, Michigan. Wayne County is in attainment for all criteria pollutants, with the exception of sulfur dioxide (partial nonattainment) and carbon monoxide (maintenance). The General Conformity *de minimis* levels for these pollutants are summarized in **Table 5**. While the aircraft emissions were modeled using 2020 operations, the reduction in project related aircraft emissions would occur in 2019, while Runway 3L-21R is closed for reconstruction. As shown in **Table 6**, the *de minimis* thresholds for SO₂ and CO would not be exceeded in either 2019 nor 2020. The decrease in aircraft emissions (related to decreased taxi times during reconstruction) would serve to offset 2019 construction emissions, resulting in emissions savings for sulfur dioxide and carbon monoxide. As such, the General Conformity requirements of the Clean Air Act (CAA) are not applicable and it can be presumed that the emissions would not cause or contribute to a violation of the NAAQS for SO₂ or CO.

Table 5
General Conformity *de minimis* Levels

Pollutant	Tons per year
SO ₂	100
CO	100

Source: EPA, *de minimis* emission levels,
<https://www.epa.gov/general-conformity/de-minimis-tables>,
 January 2018.

Table 6
General Conformity for Aircraft and Construction Emissions (tons)

Year	Emission Type	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	VOC	CO ₂	CH ₄	N ₂ O
2019	Construction	46.14	28.47	0.28	12.21	1.23	64.16	17,606.82	1.21	0.25
	Project Related Aircraft Emissions ¹	-52.25	-11.03	-2.73	0.05	0.05	-5.77	-7,349.50	--	--
	2019 Total	-6.11	17.44	-2.45	12.26	1.28	58.39	10,257.32	1.21	0.25
2020	Construction	19.19	10.96	0.13	6.62	0.46	37.72	7,607.84	0.46	0.11
	2020 Total	19.19	10.96	0.13	6.62	0.46	37.72	7,607.84	0.46	0.11
<i>De minimis Levels</i>		100	--	100	--	--	--	--	--	--
<i>Exceeds de minimis?</i>		No	--	No	--	--	--	--	--	--

Note: ¹ 2020 Proposed Action minus 2020 No Action emissions (Summarized in Table 3).

Source: ACEIT output, EPA, *de minimis* emission levels, <https://www.epa.gov/general-conformity/de-minimis-tables>, HNTB analysis, 2018.

Attachment 1:
AEDT Model Output

Table 1-1
Detailed AEDT Emission Analysis Output (Short Tons) - 2017 Existing Condition

Mode	Fuel	CO	HC	TOG	VOC	NMHC	NOx	CO ₂	H ₂ O	SOx	PM _{2.5}	PM ₁₀
Startup	-	-	54	62	62	62	-	-	-	-	-	-
Climb Taxi	49,658	1,131	107	124	123	124	225	156,671	61,427	58	4	4
Climb Ground	40,673	734	125	144	143	144	352	128,325	50,313	48	4	4
Climb Below 1,000 ft	70,195	1,146	162	187	186	187	697	221,465	86,831	82	6	6
Climb Below Mixing Height	88,404	1,159	163	188	187	188	1,079	278,914	109,356	104	8	8
Climb Below 10,000 ft	129,259	1,197	165	191	190	191	1,871	407,811	159,893	151	51	51
Above 10,000 ft	7	0	0	0	0	0	0	22	9	0	0	0
Descend Below 10,000 ft	56,393	817	80	92	92	92	405	177,920	69,758	66	13	13
Descend Below Mixing Height	48,565	687	68	78	78	78	353	153,222	60,075	57	5	5
Descend Below 1,000 ft	31,401	526	50	58	58	58	202	99,069	38,843	37	3	3
Descend Ground	22,637	473	45	52	51	52	116	71,419	28,002	27	2	2
Descend Taxi	20,260	461	44	50	50	50	92	63,921	25,062	24	2	2
Full Flight	185,659	2,014	245	283	282	283	2,277	585,754	229,660	217	64	64

Sources: HNTB Analysis, 2018.

Table 1-2

Detailed AEDT Emission Analysis Output (Short Tons) - 2020 No Action

Mode	Fuel	CO	HC	TOG	VOC	NMHC	NOx	CO ₂	H ₂ O	SOx	PM _{2.5}	PM ₁₀
Startup	-	-	54	63	62	63	-	-	-	-	-	-
Climb Taxi	49,486	1,117	107	124	123	124	227	156,127	61,214	58	4	4
Climb Ground	40,707	726	126	146	145	146	362	128,431	50,355	48	4	4
Climb Below 1,000 ft	70,603	1,133	163	188	187	188	722	222,754	87,336	83	6	6
Climb Below Mixing Height	88,815	1,147	164	189	188	189	1,118	280,211	109,864	104	8	8
Climb Below 10,000 ft	130,962	1,187	167	193	191	192	1,957	413,186	162,000	153	52	52
Above 10,000 ft	7	0	0	0	0	0	0	22	8	0	0	0
Descend Below 10,000 ft	57,466	823	83	96	96	96	424	181,305	71,085	67	14	14
Descend Below Mixing Height	49,463	696	71	82	82	82	369	156,055	61,185	58	5	5
Descend Below 1,000 ft	31,828	525	51	59	59	59	210	100,416	39,371	37	3	3
Descend Ground	22,699	470	45	52	52	52	119	71,614	28,078	27	2	2
Descend Taxi	20,217	456	44	51	50	51	93	63,785	25,008	24	2	2
Full Flight	188,435	2,010	250	289	287	289	2,381	594,512	233,094	221	66	66

Sources: HNTB Analysis, 2018.

Table 1-3
Detailed AEDT Emission Analysis Output (Short Tons) - 2020 Proposed Action

Mode	Fuel	CO	HC	TOG	VOC	NMHC	NOx	CO ₂	SOx	PM _{2.5}	PM ₁₀
Startup	-	-	54	63	62	63	-	-	-	-	-
Climb Taxi	47,091	1,063	102	118	117	118	216	148,571	55	4	4
Climb Ground	53,752	951	146	169	168	169	476	169,587	63	5	5
Climb Below 1,000 ft	68,171	1,079	158	182	181	182	710	215,078	80	6	6
Climb Below Mixing Height	86,322	1,093	159	183	182	183	1,105	272,346	101	8	8
Climb Below 10,000 ft	128,551	1,133	161	187	186	186	1,946	405,579	151	52	52
Above 10,000 ft	7	0	0	0	0	0	0	22	0	0	0
Descend Below 10,000 ft	57,547	825	83	96	96	96	424	181,562	67	14	14
Descend Below Mixing Height	49,544	698	72	83	82	83	369	156,312	58	5	5
Descend Below 1,000 ft	31,906	527	51	59	59	59	211	100,662	37	3	3
Descend Ground	22,868	474	46	53	52	53	119	72,149	27	2	2
Descend Taxi	20,298	458	44	51	51	51	93	64,041	24	2	2
Full Flight	186,105	1,958	245	283	281	283	2,370	587,163	218	66	66

Sources: HNTB Analysis, 2018.

Attachment 2:
ACEIT Model Output

4	2020 Taxiways	Asphalt Dr	2	0	0	0	0	4.443695
4	2020 Taxiways	Asphalt Stc	2	0.7513	0.0469	0.00865	0.05145	0.02325
4	2020 Taxiways	Concrete N	2	0	0	0	0.26565	0
4	2020 Taxiways	Material M	2	0	0	0	0.0369	0
4	2020 Taxiways	Material M	2	0	0	0	0.10995	0

INPUT DATA AND SPECIFICATIONS

State/County
Michigan
Wayne County

Scenarios

Scenario I	Year	Number of Season	Average D: Max Daily °Min Daily Temp Change (degF)
1	2019	6 Summer	50 < T <= 80 <= Chang10 <= Change in T < 20
2	2019	2 Winter	50 < T <= 80 <= Chang0 <= Change in T < 10
3	2020	6 Summer	50 < T <= 80 <= Chang10 <= Change in T < 20
4	2020	2 Winter	50 < T <= 80 <= Chang0 <= Change in T < 10
5			

Project Final Selections

Scenario I Project Constructi Equipment Fuel Type

1	Demolition Asphalt De Dozer	Diesel
1	Demolition Asphalt De Excavator	Diesel
1	Demolition Asphalt De Pickup Tru	Diesel
1	Demolition Concrete D Excavator	Diesel
1	Demolition Concrete D Excavator	Diesel
1	Demolition Concrete D Pickup Tru	Diesel
1	Noise Barri Clearing an Chain Saw	Diesel
1	Noise Barri Clearing an Chipper/St	Diesel
1	Noise Barri Clearing an Pickup Tru	Diesel
1	Noise Barri Dust Contr Water Tru	Diesel
1	Noise Barri Excavation Dozer	Diesel
1	Noise Barri Excavation Dump Tru	Diesel
1	Noise Barri Excavation Pickup Tru	Diesel
1	Noise Barri Excavation Roller	Diesel
1	Noise Barri Excavation Dozer	Diesel
1	Noise Barri Grading Dozer	Diesel
1	Noise Barri Grading Grader	Diesel
1	Noise Barri Grading Roller	Diesel
1	Noise Barri Hydroseed Hydroseed	Diesel
1	Noise Barri Hydroseed Off-Road T	Diesel
1	Noise Barri Soil Erosior Other Gen	Diesel
1	Noise Barri Soil Erosior Pickup Tru	Diesel
1	Noise Barri Soil Erosior Pumps	Diesel
1	Noise Barri Soil Erosior Tractors/L	Diesel
1	Rehabilitat Cold Millin Cold Plane	Diesel
1	Rehabilitat Cold Millin Dump Tru	Diesel
1	Rehabilitat Cold Millin Pickup Tru	Diesel
1	Rehabilitat Cold Millin Sweepers	Diesel
1	Rehabilitat Cold Millin Water Tru	Diesel
1	Rehabilitat Concrete D Concrete S	Diesel
1	Rehabilitat Concrete D Dump Tru	Diesel
1	Rehabilitat Concrete D Excavator	Diesel
1	Rehabilitat Concrete D Hydraulic H	Diesel
1	Rehabilitat Concrete D Other Gen	Diesel
1	Rehabilitat Concrete D Pickup Tru	Diesel
1	Rehabilitat Concrete P Air Compr	Diesel
1	Rehabilitat Concrete P Concrete S	Diesel
1	Rehabilitat Concrete P Concrete T	Diesel
1	Rehabilitat Concrete P Other Gen	Diesel
1	Rehabilitat Concrete P Pickup Tru	Diesel
1	Rehabilitat Concrete P Rubber Tin	Diesel
1	Rehabilitat Concrete P Slip Form	Diesel
1	Rehabilitat Concrete P Surfacing	Diesel
1	Rehabilitat Dust Contr Water Tru	Diesel
1	Rehabilitat Excavation Dozer	Diesel
1	Rehabilitat Excavation Dump Tru	Diesel
1	Rehabilitat Excavation Excavator	Diesel
1	Rehabilitat Excavation Pickup Tru	Diesel
1	Rehabilitat Excavation Roller	Diesel
1	Rehabilitat Excavation Dozer	Diesel
1	Rehabilitat Grading Dozer	Diesel
1	Rehabilitat Grading Grader	Diesel
1	Rehabilitat Grading Roller	Diesel
1	Rehabilitat Hydroseed Hydroseed	Diesel
1	Rehabilitat Hydroseed Off-Road T	Diesel
1	Rehabilitat Soil Erosior Other Gen	Diesel
1	Rehabilitat Soil Erosior Pickup Tru	Diesel
1	Rehabilitat Soil Erosior Pumps	Diesel
1	Rehabilitat Soil Erosior Tractors/L	Diesel
1	Rehabilitat Subbase Pl Dozer	Diesel
1	Rehabilitat Subbase Pl Dump Tru	Diesel
1	Rehabilitat Subbase Pl Pickup Tru	Diesel
1	Rehabilitat Subbase Pl Roller	Diesel
1	Rehabilitat Topsoil Pla Dozer	Diesel
1	Rehabilitat Topsoil Pla Dump Tru	Diesel
1	Rehabilitat Topsoil Pla Pickup Tru	Diesel
1	Service Ro: Asphalt Pla Asphalt Pa	Diesel
1	Service Ro: Asphalt Pla Dump Tru	Diesel
1	Service Ro: Asphalt Pla Other Gen	Diesel
1	Service Ro: Asphalt Pla Pickup Tru	Diesel
1	Service Ro: Asphalt Pla Roller	Diesel
1	Service Ro: Asphalt Pla Skid Steer	Diesel
1	Service Ro: Asphalt Pla Surfacing	Diesel
1	Service Ro: Drainage - Dump Tru	Diesel
1	Service Ro: Drainage - Loader	Diesel
1	Service Ro: Drainage - Other Gen	Diesel
1	Service Ro: Drainage - Pickup Tru	Diesel
1	Service Ro: Drainage - Tractors/L	Diesel
1	Service Ro: Dust Contr Water Tru	Diesel
1	Service Ro: Excavation Dozer	Diesel
1	Service Ro: Excavation Dump Tru	Diesel
1	Service Ro: Excavation Excavator	Diesel
1	Service Ro: Excavation Pickup Tru	Diesel
1	Service Ro: Excavation Roller	Diesel
1	Service Ro: Excavation Scraper	Diesel
1	Service Ro: Excavation Dozer	Diesel
1	Service Ro: Grading Dozer	Diesel
1	Service Ro: Grading Grader	Diesel
1	Service Ro: Grading Roller	Diesel
1	Service Ro: Hydroseed Hydroseed	Diesel
1	Service Ro: Hydroseed Off-Road T	Diesel
1	Service Ro: Soil Erosior Other Gen	Diesel
1	Service Ro: Soil Erosior Pickup Tru	Diesel
1	Service Ro: Soil Erosior Pumps	Diesel
1	Service Ro: Soil Erosior Tractors/L	Diesel
1	Service Ro: Subbase Pl Dozer	Diesel
1	Service Ro: Subbase Pl Dump Tru	Diesel
1	Service Ro: Subbase Pl Pickup Tru	Diesel
1	Service Ro: Subbase Pl Roller	Diesel
1	Service Ro: Topsoil Pla Dozer	Diesel
1	Service Ro: Topsoil Pla Dump Tru	Diesel
1	Service Ro: Topsoil Pla Pickup Tru	Diesel
1	Taxiways Asphalt Pla Asphalt Pa	Diesel
1	Taxiways Asphalt Pla Dump Tru	Diesel
1	Taxiways Asphalt Pla Other Gen	Diesel
1	Taxiways Asphalt Pla Pickup Tru	Diesel
1	Taxiways Asphalt Pla Roller	Diesel
1	Taxiways Asphalt Pla Skid Steer	Diesel
1	Taxiways Asphalt Pla Surfacing	Diesel
1	Taxiways Concrete P Air Compr	Diesel
1	Taxiways Concrete P Concrete S	Diesel
1	Taxiways Concrete P Concrete T	Diesel
1	Taxiways Concrete P Other Gen	Diesel
1	Taxiways Concrete P Pickup Tru	Diesel
1	Taxiways Concrete P Rubber Tin	Diesel
1	Taxiways Concrete P Slip Form	Diesel
1	Taxiways Concrete P Surfacing	Diesel
1	Taxiways Drainage - Dump Tru	Diesel
1	Taxiways Drainage - Loader	Diesel
1	Taxiways Drainage - Other Gen	Diesel
1	Taxiways Drainage - Pickup Tru	Diesel
1	Taxiways Drainage - Tractors/L	Diesel
1	Taxiways Dust Contr Water Tru	Diesel
1	Taxiways Excavation Dozer	Diesel
1	Taxiways Excavation Dump Tru	Diesel
1	Taxiways Excavation Excavator	Diesel
1	Taxiways Excavation Pickup Tru	Diesel
1	Taxiways Excavation Roller	Diesel
1	Taxiways Excavation Scraper	Diesel
1	Taxiways Excavation Dozer	Diesel
1	Taxiways Grading Dozer	Diesel
1	Taxiways Grading Grader	Diesel
1	Taxiways Grading Roller	Diesel
1	Taxiways Hydroseed Hydroseed	Diesel
1	Taxiways Hydroseed Off-Road T	Diesel
1	Taxiways Lighting Dump Tru	Diesel
1	Taxiways Lighting Loader	Diesel
1	Taxiways Lighting Other Gen	Diesel
1	Taxiways Lighting Pickup Tru	Diesel
1	Taxiways Lighting Skid Steer	Diesel
1	Taxiways Lighting Tractors/L	Diesel
1	Taxiways Markings Flatbed Tru	Diesel
1	Taxiways Markings Other Gen	Diesel
1	Taxiways Markings Pickup Tru	Diesel
1	Taxiways Soil Erosior Other Gen	Diesel
1	Taxiways Soil Erosior Pickup Tru	Diesel
1	Taxiways Soil Erosior Pumps	Diesel
1	Taxiways Soil Erosior Tractors/L	Diesel
1	Taxiways Subbase Pl Dozer	Diesel
1	Taxiways Subbase Pl Dump Tru	Diesel
1	Taxiways Subbase Pl Pickup Tru	Diesel
1	Taxiways Subbase Pl Roller	Diesel

*** GASOLINE DATA USED. DIESEL DATA NOT AVAILABLE ***

1 Taxiways Topsoil Pla Dozer Diesel
1 Taxiways Topsoil Pla Dump Truc Diesel
1 Taxiways Topsoil Pla Pickup Tru Diesel
1 Terminal A Asphalt Pla Asphalt Pa Diesel
1 Terminal A Asphalt Pla Dump Truc Diesel
1 Terminal A Asphalt Pla Other Gen Diesel
1 Terminal A Asphalt Pla Pickup Tru Diesel
1 Terminal A Asphalt Pla Roller Diesel
1 Terminal A Asphalt Pla Skid Steer Diesel
1 Terminal A Asphalt Pla Surfacing E Diesel
1 Terminal A Drainage - Dump Truc Diesel
1 Terminal A Drainage - Loader Diesel
1 Terminal A Drainage - Other Gen Diesel
1 Terminal A Drainage - Pickup Tru Diesel
1 Terminal A Drainage - Tractors/Lc Diesel
1 Terminal A Dust Contr Water Truc Diesel
1 Terminal A Excavation Dozer Diesel
1 Terminal A Excavation Dump Truc Diesel
1 Terminal A Excavation Excavator Diesel
1 Terminal A Excavation Pickup Tru Diesel
1 Terminal A Excavation Roller Diesel
1 Terminal A Excavation Scraper Diesel
1 Terminal A Excavation Dozer Diesel
1 Terminal A Grading Dozer Diesel
1 Terminal A Grading Grader Diesel
1 Terminal A Grading Roller Diesel
1 Terminal A Hydroseed Hydroseed Diesel
1 Terminal A Hydroseed Off-Road T Diesel
1 Terminal A Sealing/Fu Distributi Diesel
1 Terminal A Sealing/Fu Other Gen Diesel
1 Terminal A Sealing/Fu Pickup Tru Diesel
1 Terminal A Soil Erosior Other Gen Diesel
1 Terminal A Soil Erosior Pickup Tru Diesel
1 Terminal A Soil Erosior Pumps Diesel
1 Terminal A Soil Erosior Tractors/Lc Diesel
1 Terminal A Subbase Pl Dozer Diesel
1 Terminal A Subbase Pl Dump Truc Diesel
1 Terminal A Subbase Pl Pickup Tru Diesel
1 Terminal A Subbase Pl Roller Diesel
1 Terminal A Topsoil Pla Dozer Diesel
1 Terminal A Topsoil Pla Dump Truc Diesel
1 Terminal A Topsoil Pla Pickup Tru Diesel
2 Rehabilitat Asphalt Pla Asphalt Pa Diesel
2 Rehabilitat Asphalt Pla Dump Truc Diesel
2 Rehabilitat Asphalt Pla Other Gen Diesel
2 Rehabilitat Asphalt Pla Pickup Tru Diesel
2 Rehabilitat Asphalt Pla Roller Diesel
2 Rehabilitat Asphalt Pla Skid Steer Diesel
2 Rehabilitat Asphalt Pla Surfacing E Diesel
2 Rehabilitat Lighting Dump Truc Diesel
2 Rehabilitat Lighting Loader Diesel
2 Rehabilitat Lighting Other Gen Diesel
2 Rehabilitat Lighting Pickup Tru Diesel
2 Rehabilitat Lighting Skid Steer Diesel
2 Rehabilitat Lighting Tractors/Lc Diesel
2 Rehabilitat Markings Flatbed Tr Diesel
2 Rehabilitat Markings Other Gen Diesel
2 Rehabilitat Markings Pickup Tru Diesel
2 Rehabilitat Sealing Rar Crack Clear Diesel
2 Rehabilitat Sealing Rar Crack Filler Diesel
2 Rehabilitat Sealing Rar Flatbed Tr Diesel
2 Rehabilitat Sealing Rar Other Gen Diesel
2 Rehabilitat Sealing Rar Pickup Tru Diesel
2 Taxiways Asphalt Pla Asphalt Pa Diesel
2 Taxiways Asphalt Pla Dump Truc Diesel
2 Taxiways Asphalt Pla Other Gen Diesel
2 Taxiways Asphalt Pla Pickup Tru Diesel
2 Taxiways Asphalt Pla Roller Diesel
2 Taxiways Asphalt Pla Skid Steer Diesel
2 Taxiways Asphalt Pla Surfacing E Diesel
2 Taxiways Concrete P Air Compr Diesel
2 Taxiways Concrete P Concrete S Diesel
2 Taxiways Concrete P Concrete T Diesel
2 Taxiways Concrete P Other Gen Diesel
2 Taxiways Concrete P Pickup Tru Diesel
2 Taxiways Concrete P Rubber Tin Diesel
2 Taxiways Concrete P Slip Form F Diesel
2 Taxiways Concrete P Surfacing E Diesel
2 Taxiways Drainage - Dump Truc Diesel
2 Taxiways Drainage - Loader Diesel
2 Taxiways Drainage - Other Gen Diesel
2 Taxiways Drainage - Pickup Tru Diesel
2 Taxiways Drainage - Tractors/Lc Diesel
2 Taxiways Lighting Dump Truc Diesel
2 Taxiways Lighting Loader Diesel
2 Taxiways Lighting Other Gen Diesel
2 Taxiways Lighting Pickup Tru Diesel
2 Taxiways Lighting Skid Steer Diesel
2 Taxiways Lighting Tractors/Lc Diesel
2 Taxiways Markings Flatbed Tr Diesel
2 Taxiways Markings Other Gen Diesel
2 Taxiways Markings Pickup Tru Diesel
2 Terminal A Asphalt Pla Asphalt Pa Diesel
2 Terminal A Asphalt Pla Dump Truc Diesel
2 Terminal A Asphalt Pla Pickup Tru Diesel
2 Terminal A Asphalt Pla Roller Diesel
2 Terminal A Asphalt Pla Skid Steer Diesel
2 Terminal A Asphalt Pla Surfacing E Diesel
2 Terminal A Lighting Dump Truc Diesel
2 Terminal A Lighting Loader Diesel
2 Terminal A Lighting Other Gen Diesel
2 Terminal A Lighting Pickup Tru Diesel
2 Terminal A Lighting Skid Steer Diesel
2 Terminal A Lighting Tractors/Lc Diesel
2 Terminal A Markings Flatbed Tr Diesel
2 Terminal A Markings Other Gen Diesel
2 Terminal A Markings Pickup Tru Diesel
3 Demolition Asphalt De Dozer Diesel
3 Demolition Asphalt De Excavator Diesel
3 Demolition Asphalt De Pickup Tru Diesel
3 Demolition Concrete D Excavator Diesel
3 Demolition Concrete D Excavator Diesel
3 Demolition Concrete D Pickup Tru Diesel
3 Taxiways Asphalt Pla Asphalt Pa Diesel
3 Taxiways Asphalt Pla Dump Truc Diesel
3 Taxiways Asphalt Pla Other Gen Diesel
3 Taxiways Asphalt Pla Pickup Tru Diesel
3 Taxiways Asphalt Pla Roller Diesel
3 Taxiways Asphalt Pla Skid Steer Diesel
3 Taxiways Asphalt Pla Surfacing E Diesel
3 Taxiways Concrete P Air Compr Diesel
3 Taxiways Concrete P Concrete S Diesel
3 Taxiways Concrete P Concrete T Diesel
3 Taxiways Concrete P Other Gen Diesel
3 Taxiways Concrete P Pickup Tru Diesel
3 Taxiways Concrete P Rubber Tin Diesel
3 Taxiways Concrete P Slip Form F Diesel
3 Taxiways Concrete P Surfacing E Diesel
3 Taxiways Drainage - Dump Truc Diesel
3 Taxiways Drainage - Loader Diesel
3 Taxiways Drainage - Other Gen Diesel
3 Taxiways Drainage - Pickup Tru Diesel
3 Taxiways Drainage - Tractors/Lc Diesel
3 Taxiways Dust Contr Water Truc Diesel
3 Taxiways Excavation Dozer Diesel
3 Taxiways Excavation Dump Truc Diesel
3 Taxiways Excavation Excavator Diesel
3 Taxiways Excavation Pickup Tru Diesel
3 Taxiways Excavation Roller Diesel
3 Taxiways Excavation Scraper Diesel
3 Taxiways Excavation Dozer Diesel
3 Taxiways Grading Dozer Diesel
3 Taxiways Grading Grader Diesel
3 Taxiways Grading Roller Diesel
3 Taxiways Hydroseed Hydroseed Diesel
3 Taxiways Hydroseed Off-Road T Diesel
3 Taxiways Lighting Dump Truc Diesel
3 Taxiways Lighting Loader Diesel
3 Taxiways Lighting Other Gen Diesel
3 Taxiways Lighting Pickup Tru Diesel
3 Taxiways Lighting Skid Steer Diesel
3 Taxiways Lighting Tractors/Lc Diesel
3 Taxiways Markings Flatbed Tr Diesel
3 Taxiways Markings Other Gen Diesel
3 Taxiways Markings Pickup Tru Diesel
3 Taxiways Soil Erosior Other Gen Diesel
3 Taxiways Soil Erosior Pickup Tru Diesel
3 Taxiways Soil Erosior Pumps Diesel
3 Taxiways Soil Erosior Tractors/Lc Diesel
3 Taxiways Subbase Pl Dozer Diesel
3 Taxiways Subbase Pl Dump Truc Diesel
3 Taxiways Subbase Pl Pickup Tru Diesel
3 Taxiways Subbase Pl Roller Diesel
3 Taxiways Topsoil Pla Dozer Diesel
3 Taxiways Topsoil Pla Dump Truc Diesel
3 Taxiways Topsoil Pla Pickup Tru Diesel
4 Taxiways Asphalt Pla Asphalt Pa Diesel
4 Taxiways Asphalt Pla Dump Truc Diesel
4 Taxiways Asphalt Pla Other Gen Diesel
4 Taxiways Asphalt Pla Pickup Tru Diesel
4 Taxiways Asphalt Pla Roller Diesel
4 Taxiways Asphalt Pla Skid Steer Diesel
4 Taxiways Asphalt Pla Surfacing E Diesel
4 Taxiways Concrete P Air Compr Diesel
4 Taxiways Concrete P Concrete S Diesel
4 Taxiways Concrete P Concrete T Diesel
4 Taxiways Concrete P Other Gen Diesel

4	Taxiways	Concrete P Pickup Tru	Diesel
4	Taxiways	Concrete P Rubber Tin	Diesel
4	Taxiways	Concrete P Slip Form	F Diesel
4	Taxiways	Concrete P Surfacing	E Diesel
4	Taxiways	Drainage - Dump Truc	Diesel
4	Taxiways	Drainage - Loader	Diesel
4	Taxiways	Drainage - Other Gen	Diesel
4	Taxiways	Drainage - Pickup Tru	Diesel
4	Taxiways	Drainage - Tractors/Lx	Diesel
4	Taxiways	Lighting - Dump Truc	Diesel
4	Taxiways	Lighting - Loader	Diesel
4	Taxiways	Lighting - Other Gen	Diesel
4	Taxiways	Lighting - Pickup Tru	Diesel
4	Taxiways	Lighting - Skid Steer	Diesel
4	Taxiways	Lighting - Tractors/Lx	Diesel
4	Taxiways	Markings - Flatbed Tru	Diesel
4	Taxiways	Markings - Other Gen	Diesel
4	Taxiways	Markings - Pickup Tru	Diesel

Overall Size

Scenario ID	Project	Project Siz	User Input	Unit
1	Demolition	What is th	2	\$ Million(s)
1	Demolition	What is th	51242	Feet
1	Demolition	What is th	30	Feet
1	Demolition	What is th	3.99	\$ Million(s)
1	Demolition	What is th	25621	Feet
1	Demolition	What is th	75	Feet
1	Noise Barri	What is th	14.19	\$ Million(s)
1	Noise Barri	What is th	20	Feet
1	Noise Barri	What is th	1300	Feet
1	Noise Barri	What is th	900	Feet
1	Rehabilitat	What is th	50.7	\$ Million(s)
1	Rehabilitat	What is th	7441	Feet
1	Rehabilitat	What is th	150	Feet
1	Service Ro:	What is th	3	\$ Million(s)
1	Service Ro:	What is th	1000	Feet
1	Service Ro:	What is th	20	Feet
1	Taxiways	What is th	49.61	\$ Million(s)
1	Taxiways	What is th	18400	Feet
1	Taxiways	What is th	135	Feet
1	Terminal A	What is th	10	\$ Million(s)
1	Terminal A	What is th	1300	Feet
1	Terminal A	What is th	400	Feet
2	Rehabilitat	What is th	5.66	\$ Million(s)
2	Rehabilitat	What is th	7441	Feet
2	Rehabilitat	What is th	150	Feet
2	Taxiways	What is th	11.13	\$ Million(s)
2	Taxiways	What is th	3070	Feet
2	Taxiways	What is th	135	Feet
2	Terminal A	What is th	4	\$ Million(s)
2	Terminal A	What is th	1300	Feet
2	Terminal A	What is th	400	Feet
3	Demolition	What is th	2.45	\$ Million(s)
3	Demolition	What is th	40544	Feet
3	Demolition	What is th	30	Feet
3	Demolition	What is th	4.9	\$ Million(s)
3	Demolition	What is th	20272	Feet
3	Demolition	What is th	75	Feet
3	Taxiways	What is th	44.65	\$ Million(s)
3	Taxiways	What is th	18200	Feet
3	Taxiways	What is th	135	Feet
4	Taxiways	What is th	5.81	\$ Million(s)
4	Taxiways	What is th	2300	Feet
4	Taxiways	What is th	135	Feet

Size Detail (Estimated based on engineering experience)

ScenarioID	Project	Constructi	Default Act	Unit	User Activity Size
1	Demolition	Asphalt De	1537260	Square Feet	
1	Demolition	Concrete D	1921575	Square Feet	
1	Noise Barri	Clearing an	24	Acres	
1	Noise Barri	Dust Contr	180	Days	
1	Noise Barri	Excavation	54112.5	Cubic Yards	
1	Noise Barri	Excavation	129870	Square Yards	
1	Noise Barri	Grading	130869	Square Yards	
1	Noise Barri	Hydroseed	1179000	Square Feet	
1	Noise Barri	Soil Erosior	24	Acres	
1	Rehabilitat	Cold Millin	123892.7	Square Yards	
1	Rehabilitat	Concrete D	123892.7	Square Feet	
1	Rehabilitat	Concrete D	1116150	Square Feet	
1	Rehabilitat	Concrete P	51621.9	Cubic Yards	
1	Rehabilitat	Dust Contr	180	Days	
1	Rehabilitat	Excavation	10324.4	Cubic Yards	
1	Rehabilitat	Excavation	24778.5	Square Yards	
1	Rehabilitat	Grading	26466	Square Yards	
1	Rehabilitat	Hydroseed	26466	Square Feet	
1	Rehabilitat	Soil Erosior	5.5	Acres	
1	Rehabilitat	Subbase Pl	123892.7	Square Yards	
1	Rehabilitat	Subbase Pl	0	Cubic Yards	
1	Rehabilitat	Topsoil Pla	4411	Cubic Yards	
1	Service Ro:	Asphalt Pla	2220	Square Yards	
1	Service Ro:	Drainage -	2020	Linear Feet	
1	Service Ro:	Dust Contr	180	Days	
1	Service Ro:	Excavation	925	Cubic Yards	
1	Service Ro:	Excavation	2220	Square Yards	
1	Service Ro:	Grading	3363.3	Square Yards	
1	Service Ro:	Hydroseed	30300	Square Feet	
1	Service Ro:	Soil Erosior	0.7	Acres	
1	Service Ro:	Subbase Pl	2220	Square Yards	
1	Service Ro:	Subbase Pl	0	Cubic Yards	
1	Service Ro:	Topsoil Pla	560.6	Cubic Yards	
1	Taxiways	Asphalt Pla	82990	Square Yards	
1	Taxiways	Concrete P	114885	Cubic Yards	
1	Taxiways	Drainage -	36820	Linear Feet	
1	Taxiways	Dust Contr	180	Days	
1	Taxiways	Excavation	114885	Cubic Yards	
1	Taxiways	Excavation	275724	Square Yards	
1	Taxiways	Grading	296309	Square Yards	
1	Taxiways	Hydroseed	2669450	Square Feet	
1	Taxiways	Lighting	37070	Linear Feet	
1	Taxiways	Markings	2484000	Square Feet	
1	Taxiways	Soil Erosior	61.4	Acres	
1	Taxiways	Subbase Pl	275724	Square Yards	
1	Taxiways	Subbase Pl	0	Cubic Yards	
1	Taxiways	Topsoil Pla	49384.8	Cubic Yards	
1	Terminal A	Asphalt Pla	0	Square Yards	
1	Terminal A	Drainage -	2620	Linear Feet	
1	Terminal A	Dust Contr	180	Days	
1	Terminal A	Excavation	24050	Cubic Yards	
1	Terminal A	Excavation	57720	Square Yards	
1	Terminal A	Grading	59618.1	Square Yards	
1	Terminal A	Hydroseed	537100	Square Feet	
1	Terminal A	Sealing/Fu	57720	Square Yards	
1	Terminal A	Soil Erosior	12.4	Acres	
1	Terminal A	Subbase Pl	57720	Square Yards	
1	Terminal A	Subbase Pl	0	Cubic Yards	
1	Terminal A	Topsoil Pla	9936.4	Cubic Yards	
2	Rehabilitat	Asphalt Pla	74506	Square Yards	
2	Rehabilitat	Lighting	15182	Linear Feet	
2	Rehabilitat	Markings	1116150	Square Feet	
2	Rehabilitat	Sealing Rar	7441	Linear Feet	
2	Taxiways	Asphalt Pla	16598	Square Yards	
2	Taxiways	Concrete P	19168.3	Cubic Yards	83812
2	Taxiways	Drainage -	6160	Linear Feet	
2	Taxiways	Lighting	6410	Linear Feet	
2	Taxiways	Markings	414450	Square Feet	
2	Terminal A	Asphalt Pla	57720	Square Yar	0
2	Terminal A	Lighting	3400	Linear Feet	
2	Terminal A	Markings	520000	Square Feet	
3	Demolition	Asphalt De	1216320	Square Feet	
3	Demolition	Concrete D	1520400	Square Feet	
3	Taxiways	Asphalt Pla	93170	Square Yards	
3	Taxiways	Concrete P	113636.3	Cubic Yards	
3	Taxiways	Drainage -	36420	Linear Feet	
3	Taxiways	Dust Contr	180	Days	
3	Taxiways	Excavation	113636.3	Cubic Yards	
3	Taxiways	Excavation	272727	Square Yards	
3	Taxiways	Grading	293090	Square Yards	
3	Taxiways	Hydroseed	2640450	Square Feet	
3	Taxiways	Lighting	36670	Linear Feet	
3	Taxiways	Markings	2457000	Square Feet	
3	Taxiways	Soil Erosior	60.7	Acres	
3	Taxiways	Subbase Pl	272727	Square Yards	
3	Taxiways	Subbase Pl	0	Cubic Yards	
3	Taxiways	Topsoil Pla	48848.3	Cubic Yards	
4	Taxiways	Asphalt Pla	13310	Square Yards	
4	Taxiways	Concrete P	14360.6	Cubic Yards	
4	Taxiways	Drainage -	4620	Linear Feet	
4	Taxiways	Lighting	4870	Linear Feet	
4	Taxiways	Markings	310500	Square Feet	

Activity: Non-Road (Estimated based on engineering experience)

Scenario ID	Project	Constructi	Equipment	Fuel Type	Activity Siz	Activity Ra	Default Act	Activity Un	User Activity Data
1	Demolition	Asphalt De	Dozer	Diesel	1537260.08	Hours pe	1537.26	hours	1216.32
1	Demolition	Asphalt De	Excavator	Diesel	1537260.08	Hours pe	1537.26	hours	1216.32
1	Demolition	Asphalt De	Pickup Tru	Diesel	1537260.08	Hours pe	3074.52	hours	2432.64
1	Demolition	Concrete D	Excavator	Diesel	1921575.08	Hours pe	2562.1	hours	2027.2
1	Demolition	Concrete D	Excavator	Diesel	1921575.08	Hours pe	2562.1	hours	2027.2
1	Demolition	Concrete D	Pickup Tru	Diesel	1921575.08	Hours pe	5124.2	hours	4054.4
1	Noise Barri	Clearing an	Chain Saw	Diesel	27.10	Acre 12 Hours p	288	*** GASOLINE DATA USED. DIESEL DATA NOT AVAILABLE ***	288
1	Noise Barri	Clearing an	Chippier/St	Diesel	27.10	Acre 12 Hours p	325.2	hours	288
1	Noise Barri	Clearing an	Pickup Tru	Diesel	27.10	Acre 16 Hours p	433.6	hours	384
1	Noise Barri	Dust Contr	Water Truc	Diesel	180.00	Day8 Hours pe	1440	hours	

1 Noise BarriExcavation Dozer Diesel	54112.50 C8 Hours pe	721.5 hours	
1 Noise BarriExcavation Dump TrucDiesel	54112.50 C8 Hours pe	721.5 hours	
1 Noise BarriExcavation Pickup TruDiesel	54112.50 C8 Hours pe	721.5 hours	
1 Noise BarriExcavation Roller Diesel	54112.50 C8 Hours pe	333 hours	
1 Noise BarriExcavation Dozer Diesel	129870.00 8 Hours pe	203.72 hours	
1 Noise BarriGrading Dozer Diesel	130869.00 8 Hours pe	130.87 hours	
1 Noise BarriGrading Grader Diesel	130869.00 8 Hours pe	130.87 hours	
1 Noise BarriGrading Roller Diesel	130869.00 8 Hours pe	130.87 hours	
1 Noise BarriHydroseed Diesel	1179000.08 Hours pe	117.9 hours	
1 Noise BarriHydroseed Off-Road T Diesel	1179000.08 Hours pe	117.9 hours	
1 Noise BarriSoil Erosior Other GenDiesel	27.10 Acre 4 Hours pe	108.4 hours	96
1 Noise BarriSoil Erosior Pickup TruDiesel	27.10 Acre 8 Hours pe	216.8 hours	192
1 Noise BarriSoil Erosior Pumps Diesel	27.10 Acre 4 Hours pe	108.4 hours	96
1 Noise BarriSoil Erosior Tractors/LtDiesel	27.10 Acre 4 Hours pe	108.4 hours	96
1 Rehabilitat Cold Millin Cold Plane Diesel	123892.70 8 Hours pe	247.79 hours	
1 Rehabilitat Cold Millin Dump TrucDiesel	123892.70 8 Hours pe	247.79 hours	
1 Rehabilitat Cold Millin Pickup TruDiesel	123892.70 8 Hours pe	247.79 hours	
1 Rehabilitat Cold Millin Sweepers Diesel	123892.70 8 Hours pe	247.79 hours	
1 Rehabilitat Cold Millin Water TrucDiesel	123892.70 8 Hours pe	247.79 hours	
1 Rehabilitat Concrete D Concrete S Diesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete D Dump TrucDiesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete D Excavator Diesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete D Hydraulic H Diesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete D Other GenDiesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete D Pickup TruDiesel	1116150.08 Hours pe	2232.3 hours	
1 Rehabilitat Concrete P Air Compr Diesel	51621.90 C8 Hours pe	412.98 hours	
1 Rehabilitat Concrete P Concrete S Diesel	51621.90 C8 Hours pe	412.98 hours	
1 Rehabilitat Concrete P Concrete T Diesel	51621.90 C8 Hours pe	1720.73 hours	
1 Rehabilitat Concrete P Other GenDiesel	51621.90 C16 Hours p	825.95 hours	
1 Rehabilitat Concrete P Pickup TruDiesel	51621.90 C24 Hours p	1238.93 hours	
1 Rehabilitat Concrete P Rubber Tin Diesel	51621.90 C8 Hours pe	412.98 hours	
1 Rehabilitat Concrete P Slip Form F Diesel	51621.90 C8 Hours pe	412.98 hours	
1 Rehabilitat Concrete P Surfacing E Diesel	51621.90 C8 Hours pe	412.98 hours	
1 Rehabilitat Dust Contr Water TrucDiesel	180.00 Day8 Hours pe	1440 hours	
1 Rehabilitat Excavation Dozer Diesel	10324.40 C8 Hours pe	82.6 hours	
1 Rehabilitat Excavation Dump TrucDiesel	10324.40 C8 Hours pe	275.32 hours	
1 Rehabilitat Excavation Excavator Diesel	10324.40 C8 Hours pe	82.6 hours	
1 Rehabilitat Excavation Pickup TruDiesel	10324.40 C8 Hours pe	82.6 hours	
1 Rehabilitat Excavation Roller Diesel	10324.40 C8 Hours pe	82.6 hours	
1 Rehabilitat Excavation Dozer Diesel	24778.50 S8 Hours pe	38.87 hours	
1 Rehabilitat Grading Dozer Diesel	26466.00 S8 Hours pe	26.47 hours	
1 Rehabilitat Grading Grader Diesel	26466.00 S8 Hours pe	26.47 hours	
1 Rehabilitat Grading Roller Diesel	26466.00 S8 Hours pe	26.47 hours	
1 Rehabilitat Hydroseed Diesel	26466.00 S8 Hours pe	2.65 hours	
1 Rehabilitat Hydroseed Off-Road T Diesel	26466.00 S8 Hours pe	2.65 hours	
1 Rehabilitat Soil Erosior Other GenDiesel	5.50 Acre 4 Hours pe	22 hours	
1 Rehabilitat Soil Erosior Pickup TruDiesel	5.50 Acre 8 Hours pe	44 hours	
1 Rehabilitat Soil Erosior Pumps Diesel	5.50 Acre 4 Hours pe	22 hours	
1 Rehabilitat Soil Erosior Tractors/LtDiesel	5.50 Acre 4 Hours pe	22 hours	
1 Rehabilitat Subbase Pl Dozer Diesel	123892.70 8 Hours pe	260.83 hours	
1 Rehabilitat Subbase Pl Dump TrucDiesel	41297.60 C8 Hours pe	1835.45 hours	0
1 Rehabilitat Subbase Pl Pickup TruDiesel	123892.70 8 Hours pe	260.83 hours	
1 Rehabilitat Subbase Pl Roller Diesel	41297.60 C8 Hours pe	254.14 hours	0
1 Rehabilitat Topsoil Pla Dozer Diesel	4411.00 C8 Hours pe	58.81 hours	
1 Rehabilitat Topsoil Pla Dump TrucDiesel	4411.00 C8 Hours pe	58.81 hours	
1 Rehabilitat Topsoil Pla Pickup TruDiesel	4411.00 C8 Hours pe	58.81 hours	
1 Service Ro: Asphalt Pla Asphalt Pa Diesel	2220.00 S8 Hours pe	2.78 hours	
1 Service Ro: Asphalt Pla Dump TrucDiesel	2220.00 S8 Hours pe	9.99 hours	
1 Service Ro: Asphalt Pla Other GenDiesel	2220.00 S16 Hours p	5.55 hours	
1 Service Ro: Asphalt Pla Pickup TruDiesel	2220.00 S8 Hours pe	2.78 hours	
1 Service Ro: Asphalt Pla Roller Diesel	2220.00 S8 Hours pe	2.78 hours	
1 Service Ro: Asphalt Pla Skid Steer Diesel	2220.00 S8 Hours pe	2.78 hours	
1 Service Ro: Asphalt Pla Surfacing E Diesel	2220.00 S8 Hours pe	3.55 hours	
1 Service Ro: Drainage - Dump TrucDiesel	2020.00 LF 8 Hours pe	17.96 hours	
1 Service Ro: Drainage - Loader Diesel	2020.00 LF 8 Hours pe	17.96 hours	
1 Service Ro: Drainage - Other GenDiesel	2020.00 LF 8 Hours pe	17.96 hours	
1 Service Ro: Drainage - Pickup TruDiesel	2020.00 LF 8 Hours pe	17.96 hours	
1 Service Ro: Drainage - Tractors/LtDiesel	2020.00 LF 8 Hours pe	17.96 hours	
1 Service Ro: Dust Contr Water TrucDiesel	180.00 Day8 Hours pe	1440 hours	
1 Service Ro: Excavation Dozer Diesel	925.00 CY 8 Hours pe	9.25 hours	
1 Service Ro: Excavation Dump TrucDiesel	925.00 CY 8 Hours pe	24.67 hours	
1 Service Ro: Excavation Excavator Diesel	925.00 CY 8 Hours pe	7.4 hours	
1 Service Ro: Excavation Pickup TruDiesel	925.00 CY 8 Hours pe	7.4 hours	
1 Service Ro: Excavation Roller Diesel	925.00 CY 8 Hours pe	7.4 hours	
1 Service Ro: Excavation Scraper Diesel	925.00 CY 8 Hours pe	9.25 hours	
1 Service Ro: Excavation Dozer Diesel	2220.00 S8 Hours pe	3.48 hours	
1 Service Ro: Grading Dozer Diesel	3363.30 S8 Hours pe	3.36 hours	
1 Service Ro: Grading Grader Diesel	3363.30 S8 Hours pe	3.36 hours	
1 Service Ro: Grading Roller Diesel	3363.30 S8 Hours pe	3.36 hours	
1 Service Ro: Hydroseed Diesel	30300.00 S8 Hours pe	3.03 hours	
1 Service Ro: Hydroseed Off-Road T Diesel	30300.00 S8 Hours pe	3.03 hours	
1 Service Ro: Soil Erosior Other GenDiesel	0.70 Acre 4 Hours pe	2.8 hours	
1 Service Ro: Soil Erosior Pickup TruDiesel	0.70 Acre 8 Hours pe	5.6 hours	
1 Service Ro: Soil Erosior Pumps Diesel	0.70 Acre 4 Hours pe	2.8 hours	
1 Service Ro: Soil Erosior Tractors/LtDiesel	0.70 Acre 4 Hours pe	2.8 hours	
1 Service Ro: Subbase Pl Dozer Diesel	2220.00 S8 Hours pe	4.67 hours	
1 Service Ro: Subbase Pl Dump TrucDiesel	740.00 CY 8 Hours pe	32.89 hours	0
1 Service Ro: Subbase Pl Pickup TruDiesel	2220.00 S8 Hours pe	4.67 hours	
1 Service Ro: Subbase Pl Roller Diesel	740.00 CY 8 Hours pe	4.55 hours	0
1 Service Ro: Topsoil Pla Dozer Diesel	560.60 CY 8 Hours pe	7.47 hours	
1 Service Ro: Topsoil Pla Dump TrucDiesel	560.60 CY 8 Hours pe	7.47 hours	
1 Service Ro: Topsoil Pla Pickup TruDiesel	560.60 CY 8 Hours pe	7.47 hours	
1 Taxiways Asphalt Pla Asphalt Pa Diesel	275724.00 8 Hours pe	344.66 hours	16.638
1 Taxiways Asphalt Pla Dump TrucDiesel	275724.00 8 Hours pe	1241.3 hours	59.921
1 Taxiways Asphalt Pla Other GenDiesel	275724.00 16 Hours p	689.31 hours	33.275
1 Taxiways Asphalt Pla Pickup TruDiesel	275724.00 8 Hours pe	344.66 hours	16.638
1 Taxiways Asphalt Pla Roller Diesel	275724.00 8 Hours pe	344.66 hours	16.638
1 Taxiways Asphalt Pla Skid Steer Diesel	275724.00 8 Hours pe	344.66 hours	16.638
1 Taxiways Asphalt Pla Surfacing E Diesel	275724.00 8 Hours pe	411.16 hours	21.296
1 Taxiways Concrete P Air Compr Diesel	114885.00 8 Hours pe	919.08 hours	114.885
1 Taxiways Concrete P Concrete S Diesel	114885.00 8 Hours pe	919.08 hours	114.885
1 Taxiways Concrete P Concrete T Diesel	114885.00 8 Hours pe	3829.5 hours	478.687
1 Taxiways Concrete P Other GenDiesel	114885.00 16 Hours p	1838.16 hours	229.77
1 Taxiways Concrete P Pickup TruDiesel	114885.00 24 Hours p	2757.24 hours	344.654
1 Taxiways Concrete P Rubber Tin Diesel	114885.00 8 Hours pe	919.08 hours	114.885
1 Taxiways Concrete P Slip Form F Diesel	114885.00 8 Hours pe	919.08 hours	114.885
1 Taxiways Concrete P Surfacing E Diesel	114885.00 8 Hours pe	919.08 hours	114.885
1 Taxiways Drainage - Dump TrucDiesel	36820.00 L8 Hours pe	327.29 hours	41.067
1 Taxiways Drainage - Loader Diesel	36820.00 L8 Hours pe	327.29 hours	41.067
1 Taxiways Drainage - Other GenDiesel	36820.00 L8 Hours pe	327.29 hours	41.067
1 Taxiways Drainage - Pickup TruDiesel	36820.00 L8 Hours pe	327.29 hours	41.067
1 Taxiways Drainage - Tractors/LtDiesel	36820.00 L8 Hours pe	327.29 hours	41.067
1 Taxiways Dust Contr Water TrucDiesel	180.00 Day8 Hours pe	1440 hours	
1 Taxiways Excavation Dozer Diesel	114885.00 8 Hours pe	1148.85 hours	1136.363
1 Taxiways Excavation Dump TrucDiesel	114885.00 8 Hours pe	3063.6 hours	3030.301
1 Taxiways Excavation Excavator Diesel	114885.00 8 Hours pe	919.08 hours	909.09
1 Taxiways Excavation Pickup TruDiesel	114885.00 8 Hours pe	919.08 hours	909.09
1 Taxiways Excavation Roller Diesel	114885.00 8 Hours pe	919.08 hours	909.09
1 Taxiways Excavation Scraper Diesel	114885.00 8 Hours pe	1148.85 hours	1136.363
1 Taxiways Excavation Dozer Diesel	275724.00 8 Hours pe	432.51 hours	427.807
1 Taxiways Grading Dozer Diesel	296309.00 8 Hours pe	296.31 hours	293.09
1 Taxiways Grading Grader Diesel	296309.00 8 Hours pe	296.31 hours	293.09
1 Taxiways Grading Roller Diesel	296309.00 8 Hours pe	296.31 hours	293.09
1 Taxiways Hydroseed Diesel	2669450.08 Hours pe	266.95 hours	264.045
1 Taxiways Hydroseed Off-Road T Diesel	2669450.08 Hours pe	266.95 hours	264.045
1 Taxiways Lighting Dump TrucDiesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Lighting Loader Diesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Lighting Other GenDiesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Lighting Pickup TruDiesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Lighting Skid Steer Diesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Lighting Tractors/LtDiesel	37070.00 L8 Hours pe	247.13 hours	32.467
1 Taxiways Markings Flatbed Tr Diesel	2484000.08 Hours pe	5677.71 hours	709.714
1 Taxiways Markings Other GenDiesel	2484000.08 Hours pe	5677.71 hours	709.714
1 Taxiways Markings Pickup TruDiesel	2484000.08 Hours pe	5677.71 hours	709.714
1 Taxiways Soil Erosior Other GenDiesel	61.40 Acre 4 Hours pe	245.6 hours	242.8
1 Taxiways Soil Erosior Pickup TruDiesel	61.40 Acre 8 Hours pe	491.2 hours	485.6
1 Taxiways Soil Erosior Pumps Diesel	61.40 Acre 4 Hours pe	245.6 hours	242.8
1 Taxiways Soil Erosior Tractors/LtDiesel	61.40 Acre 4 Hours pe	245.6 hours	242.8
1 Taxiways Subbase Pl Dozer Diesel	275724.00 8 Hours pe	580.47 hours	574.162
1 Taxiways Subbase Pl Dump TrucDiesel	91908.00 C8 Hours pe	4084.8 hours	0
1 Taxiways Subbase Pl Pickup TruDiesel	275724.00 8 Hours pe	580.47 hours	574.162
1 Taxiways Subbase Pl Roller Diesel	91908.00 C8 Hours pe	565.59 hours	0
1 Taxiways Topsoil Pla Dozer Diesel	49384.80 C8 Hours pe	658.46 hours	651.311
1 Taxiways Topsoil Pla Dump TrucDiesel	49384.80 C8 Hours pe	658.46 hours	651.311
1 Taxiways Topsoil Pla Pickup TruDiesel	49384.80 C8 Hours pe	658.46 hours	651.311
1 Terminal A Asphalt Pla Asphalt Pa Diesel	57720.00 S8 Hours pe	72.15 hours	0
1 Terminal A Asphalt Pla Dump TrucDiesel	57720.00 S8 Hours pe	259.85 hours	0
1 Terminal A Asphalt Pla Other GenDiesel	57720.00 S16 Hours p	144.3 hours	0
1 Terminal A Asphalt Pla Pickup TruDiesel	57720.00 S8 Hours pe	72.15 hours	0
1 Terminal A Asphalt Pla Roller Diesel	57720.00 S8 Hours pe	72.15 hours	0
1 Terminal A Asphalt Pla Skid Steer Diesel	57720.00 S8 Hours pe	72.15 hours	0
1 Terminal A Asphalt Pla Surfacing E Diesel	57720.00 S8 Hours pe	92.35 hours	0
1 Terminal A Drainage - Dump TrucDiesel	2620.00 LF 8 Hours pe	23.29 hours	
1 Terminal A Drainage - Loader Diesel	2620.00 LF 8 Hours pe	23.29 hours	
1 Terminal A Drainage - Other GenDiesel	2620.00 LF 8 Hours pe	23.29 hours	
1 Terminal A Drainage - Pickup TruDiesel	2620.00 LF 8 Hours pe	23.29 hours	
1 Terminal A Drainage - Tractors/LtDiesel	2620.00 LF 8 Hours pe	23.29 hours	
1 Terminal A Dust Contr Water TrucDiesel	180.00 Day8 Hours pe	1440 hours	
1 Terminal A Excavation Dozer Diesel	24050.00 C8 Hours pe	240.5 hours	
1 Terminal A Excavation Dump TrucDiesel	24050.00 C8 Hours pe	641.33 hours	
1 Terminal A Excavation Excavator Diesel	24050.00 C8 Hours pe	192.4 hours	
1 Terminal A Excavation Pickup TruDiesel	24050.00 C8 Hours pe	192.4 hours	
1 Terminal A Excavation Roller Diesel	24050.00 C8 Hours pe	192.4 hours	
1 Terminal A Excavation Scraper Diesel	24050.00 C8 Hours pe	240.5 hours	
1 Terminal A Excavation Dozer Diesel	57720.00 S8 Hours pe	90.54 hours	
1 Terminal A Grading Dozer Diesel	59618.10 S8 Hours pe	59.62 hours	
1 Terminal A Grading Grader Diesel	59618.10 S8 Hours pe	59.62 hours	
1 Terminal A Grading Roller Diesel	59618.10 S8 Hours pe	59.62 hours	
1 Terminal A Hydroseed Diesel	537100.00 8 Hours pe	53.71 hours	
1 Terminal A Hydroseed Off-Road T Diesel	537100.00 8 Hours pe	53.71 hours	
1 Terminal A Sealing/Fu Distributin Diesel	57720.00 S8 Hours pe	153.92 hours	
1 Terminal A Sealing/Fu Other GenDiesel	57720.00 S8 Hours pe	153.92 hours	
1 Terminal A Sealing/Fu Pickup TruDiesel	57720.00 S8 Hours pe	153.92 hours	
1 Terminal A Soil Erosior Other GenDiesel	12.40 Acre 4 Hours pe	49.6 hours	
1 Terminal A Soil Erosior Pickup TruDiesel	12.40 Acre 8 Hours pe	99.2 hours	
1 Terminal A Soil Erosior Pumps Diesel	12.40 Acre 4 Hours pe	49.6 hours	
1 Terminal A Soil Erosior Tractors/LtDiesel	12.40 Acre 4 Hours pe	49.6 hours	
1 Terminal A Subbase Pl Dozer Diesel	57720.00 S8 Hours pe	121.52 hours	

1 Service Ro: Asphalt Dn EF = Mass I	0.7 fraction	
1 Service Ro: Asphalt Dn D = Density	1.8 lbs/l	
1 Service Ro: Asphalt Dn VOC = A x J	1483.9 lbs	
1 Service Ro: Asphalt StC T = Mass o	241.7 tons	
1 Service Ro: Asphalt StC PM10 = (0.0	6.628 lbs	
1 Service Ro: Asphalt StC CO = (0.4 +	96.8 lbs	
1 Service Ro: Asphalt StC NOx = (0.0	6.043 lbs	
1 Service Ro: Asphalt StC SOx = (0.0	1.112 lbs	
1 Service Ro: Asphalt StC VOC = (0.0	2.997 lbs	
1 Service Ro: Material Ms = Surface	0.043 fraction	
1 Service Ro: Material MWt. = Mea	32 tons	
1 Service Ro: Material MVMt = Veh	2632.7 miles	
1 Service Ro: Material MPM10 = 1.5	72.1 lbs	
1 Service Ro: Material MSL = Road s	0.1 g/m3	
1 Service Ro: Material MWt. = Mea	32 tons	
1 Service Ro: Material MVMt = Veh	2580 miles	
1 Service Ro: Material MPM10 = 0.0	23.9 lbs	
1 Service Ro: Unstabilize A = Area af	0.459 acres	
1 Service Ro: Unstabilize TPConv = T	0.5 fraction	
1 Service Ro: Unstabilize CE = Contri	0.63 fraction	
1 Service Ro: Unstabilize = year (e.	0.5 years	
1 Service Ro: Unstabilize PM10 = 0.0	0 lbs	
1 Service Ro: Soil Handliu = Wind sj	5 mph	
1 Service Ro: Soil Handliu = Moistu	0.25 fraction	
1 Service Ro: Soil Handliu T = Mass o	550 tons	
1 Service Ro: Soil Handliu PM10 = T x	11.3 lbs	
1 Taxiways Asphalt Dn A = Area of	230763.6 m2	69390
1 Taxiways Asphalt Dn AR = Applic	1.811 1/m2	
1 Taxiways Asphalt Dn VD = Volun	0.35 fraction	
1 Taxiways Asphalt Dn EF = Mass I	0.7 fraction	
1 Taxiways Asphalt Dn D = Density	1.8 lbs/l	
1 Taxiways Asphalt Dn VOC = A x J	184299.6 lbs	55418.39
1 Taxiways Asphalt StC T = Mass o	30021 tons	
1 Taxiways Asphalt StC PM10 = (0.0	823.2 lbs	
1 Taxiways Asphalt StC CO = (0.4 +	12020.4 lbs	
1 Taxiways Asphalt StC NOx = (0.0	750.5 lbs	
1 Taxiways Asphalt StC SOx = (0.0	138.1 lbs	
1 Taxiways Asphalt StC VOC = (0.0	372.3 lbs	
1 Taxiways Material Ms = Surface	0.043 fraction	
1 Taxiways Material MWt. = Mea	32 tons	
1 Taxiways Material MVMt = Veh	66388.1 miles	
1 Taxiways Material MPM10 = 1.5	1818.2 lbs	
1 Taxiways Material MSL = Road s	0.1 g/m3	
1 Taxiways Material MWt. = Mea	32 tons	
1 Taxiways Material MVMt = Veh	61275 miles	
1 Taxiways Material MPM10 = 0.0	568.8 lbs	
1 Taxiways Concrete N.V = Volume	114885 yd3	
1 Taxiways Concrete N.PM10 = 0.0	4250.7 lbs	
1 Taxiways Unstabilize A = Area af	57 acres	
1 Taxiways Unstabilize TPConv = T	0.5 fraction	
1 Taxiways Unstabilize CE = Contri	0.63 fraction	
1 Taxiways Unstabilize = year (e.	0.5 years	
1 Taxiways Unstabilize PM10 = 0.0	0.001 lbs	
1 Taxiways Soil Handliu = Wind sj	5 mph	
1 Taxiways Soil Handliu = Moistu	0.25 fraction	
1 Taxiways Soil Handliu T = Mass o	68310 tons	
1 Taxiways Soil Handliu PM10 = T x	1406.1 lbs	
1 Terminal A Asphalt Dn A = Area of	48308 m2	0
1 Terminal A Asphalt Dn AR = Applic	1.811 1/m2	
1 Terminal A Asphalt Dn VD = Volun	0.35 fraction	
1 Terminal A Asphalt Dn EF = Mass I	0.7 fraction	
1 Terminal A Asphalt Dn D = Density	1.8 lbs/l	
1 Terminal A Asphalt Dn VOC = A x J	38581.2 lbs	0
1 Terminal A Asphalt StC T = Mass o	6284.6 tons	
1 Terminal A Asphalt StC PM10 = (0.0	172.3 lbs	
1 Terminal A Asphalt StC CO = (0.4 +	2516.3 lbs	
1 Terminal A Asphalt StC NOx = (0.0	157.1 lbs	
1 Terminal A Asphalt StC SOx = (0.0	28.9 lbs	
1 Terminal A Asphalt StC VOC = (0.0	77.9 lbs	
1 Terminal A Material Ms = Surface	0.043 fraction	
1 Terminal A Material MWt. = Mea	32 tons	
1 Terminal A Material MVMt = Veh	15191.9 miles	
1 Terminal A Material MPM10 = 1.5	416.1 lbs	
1 Terminal A Material MSL = Road s	0.1 g/m3	
1 Terminal A Material MWt. = Mea	32 tons	
1 Terminal A Material MVMt = Veh	14190 miles	
1 Terminal A Material MPM10 = 0.0	131.7 lbs	
1 Terminal A Unstabilize A = Area af	11.9 acres	
1 Terminal A Unstabilize TPConv = T	0.5 fraction	
1 Terminal A Unstabilize CE = Contri	0.63 fraction	
1 Terminal A Unstabilize = year (e.	0.5 years	
1 Terminal A Unstabilize PM10 = 0.0	0 lbs	
1 Terminal A Soil Handliu = Wind sj	5 mph	
1 Terminal A Soil Handliu = Moistu	0.25 fraction	
1 Terminal A Soil Handliu T = Mass o	14300 tons	
1 Terminal A Soil Handliu PM10 = T x	294.4 lbs	
2 Rehabilitat Asphalt Dn A = Area of	103690.3 m2	62296
2 Rehabilitat Asphalt Dn AR = Applic	1.811 1/m2	
2 Rehabilitat Asphalt Dn VD = Volun	0.35 fraction	
2 Rehabilitat Asphalt Dn EF = Mass I	0.7 fraction	
2 Rehabilitat Asphalt Dn D = Density	1.8 lbs/l	
2 Rehabilitat Asphalt Dn VOC = A x J	82812.4 lbs	49752.76
2 Rehabilitat Asphalt StC T = Mass o	13489.5 tons	
2 Rehabilitat Asphalt StC PM10 = (0.0	369.9 lbs	
2 Rehabilitat Asphalt StC CO = (0.4 +	5401.2 lbs	
2 Rehabilitat Asphalt StC NOx = (0.0	337.2 lbs	
2 Rehabilitat Asphalt StC SOx = (0.0	62.1 lbs	
2 Rehabilitat Asphalt StC VOC = (0.0	167.3 lbs	
2 Rehabilitat Material Ms = Surface	0.043 fraction	
2 Rehabilitat Material MWt. = Mea	32 tons	
2 Rehabilitat Material MVMt = Veh	27895 miles	
2 Rehabilitat Material MPM10 = 1.5	764 lbs	
2 Rehabilitat Material MSL = Road s	0.1 g/m3	
2 Rehabilitat Material MWt. = Mea	32 tons	
2 Rehabilitat Material MVMt = Veh	27735 miles	
2 Rehabilitat Material MPM10 = 0.0	257.5 lbs	
2 Taxiways Asphalt Dn A = Area of	38502.4 m2	13878
2 Taxiways Asphalt Dn AR = Applic	1.811 1/m2	
2 Taxiways Asphalt Dn VD = Volun	0.35 fraction	
2 Taxiways Asphalt Dn EF = Mass I	0.7 fraction	
2 Taxiways Asphalt Dn D = Density	1.8 lbs/l	
2 Taxiways Asphalt Dn VOC = A x J	30750 lbs	11083.68
2 Taxiways Asphalt StC T = Mass o	5008.9 tons	
2 Taxiways Asphalt StC PM10 = (0.0	137.3 lbs	
2 Taxiways Asphalt StC CO = (0.4 +	2005.6 lbs	
2 Taxiways Asphalt StC NOx = (0.0	125.2 lbs	
2 Taxiways Asphalt StC SOx = (0.0	23 lbs	
2 Taxiways Asphalt StC VOC = (0.0	62.1 lbs	
2 Taxiways Material Ms = Surface	0.043 fraction	
2 Taxiways Material MWt. = Mea	32 tons	
2 Taxiways Material MVMt = Veh	10416.9 miles	
2 Taxiways Material MPM10 = 1.5	285.3 lbs	
2 Taxiways Material MSL = Road s	0.1 g/m3	
2 Taxiways Material MWt. = Mea	32 tons	
2 Taxiways Material MVMt = Veh	10320 miles	
2 Taxiways Material MPM10 = 0.0	95.8 lbs	
2 Taxiways Concrete N.V = Volume	19168.3 yd3	
2 Taxiways Concrete N.PM10 = 0.0	709.2 lbs	
2 Terminal A Asphalt Dn A = Area of	48308 m2	0
2 Terminal A Asphalt Dn AR = Applic	1.811 1/m2	
2 Terminal A Asphalt Dn VD = Volun	0.35 fraction	
2 Terminal A Asphalt Dn EF = Mass I	0.7 fraction	
2 Terminal A Asphalt Dn D = Density	1.8 lbs/l	
2 Terminal A Asphalt Dn VOC = A x J	38581.2 lbs	0
2 Terminal A Asphalt StC T = Mass o	6284.6 tons	
2 Terminal A Asphalt StC PM10 = (0.0	172.3 lbs	
2 Terminal A Asphalt StC CO = (0.4 +	2516.3 lbs	
2 Terminal A Asphalt StC NOx = (0.0	157.1 lbs	
2 Terminal A Asphalt StC SOx = (0.0	28.9 lbs	
2 Terminal A Asphalt StC VOC = (0.0	77.9 lbs	
2 Terminal A Material Ms = Surface	0.043 fraction	
2 Terminal A Material MWt. = Mea	32 tons	
2 Terminal A Material MVMt = Veh	13174.3 miles	
2 Terminal A Material MPM10 = 1.5	360.8 lbs	
2 Terminal A Material MSL = Road s	0.1 g/m3	
2 Terminal A Material MWt. = Mea	32 tons	
2 Terminal A Material MVMt = Veh	13115 miles	
2 Terminal A Material MPM10 = 0.0	121.7 lbs	
3 Demolition Soil Handliu = Wind sj	5 mph	
3 Demolition Soil Handliu = Moistu	0.25 fraction	
3 Demolition Soil Handliu T = Mass o	33448.8 tons	
3 Demolition Soil Handliu PM10 = T x	688.5 lbs	
3 Demolition Unstabilize A = Area af	27.9 acres	
3 Demolition Unstabilize TPConv = T	0.5 fraction	
3 Demolition Unstabilize CE = Contri	0.63 fraction	
3 Demolition Unstabilize = year (e.	0.5 years	
3 Demolition Unstabilize PM10 = 0.0	0 lbs	
3 Demolition Material Ms = Surface	0.043 fraction	
3 Demolition Material MWt. = Mea	32 tons	
3 Demolition Material MVMt = Veh	18935.4 miles	
3 Demolition Material MPM10 = 1.5	518.6 lbs	
3 Demolition Material MSL = Road s	0.1 g/m3	
3 Demolition Material MWt. = Mea	32 tons	
3 Demolition Material MVMt = Veh	17415 miles	
3 Demolition Material MPM10 = 0.0	161.7 lbs	
3 Demolition Soil Handliu = Wind sj	5 mph	
3 Demolition Soil Handliu = Moistu	0.25 fraction	
3 Demolition Soil Handliu T = Mass o	41811 tons	
3 Demolition Soil Handliu PM10 = T x	860.7 lbs	
3 Demolition Unstabilize A = Area af	34.9 acres	
3 Demolition Unstabilize TPConv = T	0.5 fraction	
3 Demolition Unstabilize CE = Contri	0.63 fraction	
3 Demolition Unstabilize = year (e.	0.5 years	
3 Demolition Unstabilize PM10 = 0.0	0.001 lbs	
3 Demolition Material Ms = Surface	0.043 fraction	
3 Demolition Material MWt. = Mea	32 tons	
3 Demolition Material MVMt = Veh	8984 miles	
3 Demolition Material MPM10 = 1.5	246.1 lbs	

3 Demolition Material MSL = Road s	0.1 g/m3	
3 Demolition Material MWT = Mea	32 tons	
3 Demolition Material MVM10 = Veh	6450 miles	
3 Demolition Material MPM10 = 0.0	59.9 lbs	
3 Taxiways Asphalt DnA = Area of	228255.3 m2	77901
3 Taxiways Asphalt DnAR = Applic	1.811 l/m2	
3 Taxiways Asphalt DnVD = Volum	0.35 fraction	
3 Taxiways Asphalt DnEF = Mass l	0.7 fraction	
3 Taxiways Asphalt DnD = Density	1.8 lbs/l	
3 Taxiways Asphalt DnVOC = A x l	182296.3 lbs	62215.71
3 Taxiways Asphalt StLT = Mass o	29694.7 tons	
3 Taxiways Asphalt StcPM10 = (0.	814.2 lbs	
3 Taxiways Asphalt StcCO = (0.4 +	11889.8 lbs	
3 Taxiways Asphalt StcNOx = (0.0	742.4 lbs	
3 Taxiways Asphalt StcSOx = (0.0	136.6 lbs	
3 Taxiways Asphalt StcVOC = (0.0	368.2 lbs	
3 Taxiways Material Ms = Surface	0.043 fraction	
3 Taxiways Material MWT = Mea	32 tons	
3 Taxiways Material MVM10 = Veh	66332.5 miles	
3 Taxiways Material MPM10 = 1.5	1816.7 lbs	
3 Taxiways Material MSL = Road s	0.1 g/m3	
3 Taxiways Material MWT = Mea	32 tons	
3 Taxiways Material MVM10 = Veh	61275 miles	
3 Taxiways Material MPM10 = 0.0	568.8 lbs	
3 Taxiways Concrete N.V = Volum	113636.3 yd3	
3 Taxiways Concrete NPM10 = 0.0	4204.5 lbs	
3 Taxiways UnstabilizeA = Area af	56.4 acres	
3 Taxiways UnstabilizeTPConv = T	0.5 fraction	
3 Taxiways UnstabilizeCE = Contr	0.63 fraction	
3 Taxiways UnstabilizeT = year (e.	0.5 years	
3 Taxiways UnstabilizePM10 = 0.0	0.001 lbs	
3 Taxiways Soil Handliu = Wind sj	5 mph	
3 Taxiways Soil Handliu = Moistu	0.25 fraction	
3 Taxiways Soil HandliT = Mass o	67567.5 tons	
3 Taxiways Soil HandliPM10 = T x	1390.9 lbs	
4 Taxiways Asphalt DnA = Area of	28845.5 m2	11128
4 Taxiways Asphalt DnAR = Applic	1.811 l/m2	
4 Taxiways Asphalt DnVD = Volum	0.35 fraction	
4 Taxiways Asphalt DnEF = Mass l	0.7 fraction	
4 Taxiways Asphalt DnD = Density	1.8 lbs/l	
4 Taxiways Asphalt DnVOC = A x l	23037.4 lbs	8887.39
4 Taxiways Asphalt StcT = Mass o	3752.6 tons	
4 Taxiways Asphalt StcPM10 = (0.	102.9 lbs	
4 Taxiways Asphalt StcCO = (0.4 +	1502.6 lbs	
4 Taxiways Asphalt StcNOx = (0.0	93.8 lbs	
4 Taxiways Asphalt StcSOx = (0.0	17.3 lbs	
4 Taxiways Asphalt StcVOC = (0.0	46.5 lbs	
4 Taxiways Material Ms = Surface	0.043 fraction	
4 Taxiways Material MWT = Mea	32 tons	
4 Taxiways Material MVM10 = Veh	8027.9 miles	
4 Taxiways Material MPM10 = 1.5	219.9 lbs	
4 Taxiways Material MSL = Road s	0.1 g/m3	
4 Taxiways Material MWT = Mea	32 tons	
4 Taxiways Material MVM10 = Veh	7955 miles	
4 Taxiways Material MPM10 = 0.0	73.8 lbs	
4 Taxiways Concrete N.V = Volum	14360.6 yd3	
4 Taxiways Concrete NPM10 = 0.0	531.3 lbs	

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ASSUMPTIONS

Emission factors were developed from the following models:

On-Road Vehicles: MOVES 2010b, revised January 2013

Non-Road Equipment: NONROAD2008a, July 2009

In addition to the overall project size dimensions (e.g., Length and width) provided by the user, an additional 10 ft length and 10 ft width is added to account for disturbance areas.

The number of employees is based on the higher of two methods: (1) number of equipment, and (2) multiply the project cost in million by 11.

The average employee travels 30 miles round-trip from home to construction site each day.

The average on-road material delivery round-trip distance per truck is 40 miles per day.

For calculating fugitive, re-entrained PM emissions from on-road and non-road material delivery and handling equipment, a nominal VMT of 5 miles is used for each vehicle per day.

In deriving emission factors from NONROAD, the horsepower for each equipment represents the most popular in each equipment category.

The total length of each modeled scenario is used to define the number of days associated with vehicle/equipment evaporative emissions.

The choice of location and season are assumed to adequately represent differences in fuel characteristics affecting emissions.

Only two seasons (Summer and Winter) are used to represent all seasons.

14 U.S. Counties are used to represent all other counties in the U.S. (all other counties are mapped to the 14).

The default methods assume that all construction equipment use diesel as well as heavy-duty on-road vehicles, while passenger vehicles (including motorcycles) use gasoline.

Fugitive emissions are only modeled for:

- Asphalt drying
- Asphalt storage and batching
- Concrete mixing/batching
- Soil handling
- Unstabilized land and wind erosion
- Material movement (unpaved roads)
- Material movement (paved roads)

On-Road vehicle speeds are not explicitly modeled. The associated emission factors for each modeled vehicle from MOVES represent averages over the driving cycles, the roadway type, and daily temperature variations.

The default equipment hours-of-use data are developed based on the overall size of the project provided by the user and activity rates based on expert engineering judgment.

Under the Construction Activity Type list (Activity Tab), when a choice between asphalt and concrete materials occurs, asphalt is always selected as default. To choose concrete, de-select the asphalt item and select the corresponding concrete item.

Two trips per day were assumed for each on-road material handling trucks.

Only CO2, CH4, and N2O are used to represent greenhouse gas emissions. Other potential greenhouse gases including air conditioning refrigerants were not included.

The following equipment are always modeled using diesel emission factors since gasoline-based emission factors are not available:

- Asphalt Deliveries/Ten Wheelers
- Bulldozer
- Concrete Ready Mix Trucks
- Concrete Ready Trucks Mix for Cores
- Concrete Truck
- Crack Filler (Trailer Mounted)
- Delivery of Tanks (3)
- Distributing Tanker
- Dozer
- Dump Truck
- Dump Truck (12 cy)
- Excavator
- Excavator for U/G Services/Tanks
- Flat Bed or Dump Trucks
- Flatbed Truck
- Grader
- Grout Wheel Truck
- Hoist Equipment with 40 Ton Rig
- Hydraulic Hammer
- Hydroseeder
- Line Painting Truck and Sprayer
- Material Deliveries
- Off-Road Truck
- Pickup Truck
- Scraper
- Seed Truck Spreader
- Small Dozer
- Survey Crew Trucks
- Ten Wheelers
- Ten Wheelers- Material Delivery
- Tool Truck
- Tractor Trailer- Equipment Delivery
- Tractor Trailer- Material Delivery
- Tractor Trailer- Steel Deliveries
- Tractor Trailer- Stone Delivery
- Tractor Trailer- Topsoil & Seed
- Tractor Trailer- Truck Delivery
- Tractor Trailer with Boom Hoist- Curbs Del & Place
- Tractor Trailer with Boom Hoist- Delivery
- Tractor Trailers- Rebar Deliveries
- Tractor Trailers Temp Fac.
- Truck for Topsoil & Seed Del&Spread
- Water Truck
- Excavator with Bucket
- Excavator with Hoe Ram

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