APPENDIX N
Air Quality Emissions Estimates and Conformity Analysis

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Air Quality Appendix

Document Page

Assumed Construction Schedule 1

Table Page

1. Heavy Construction Equipment Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope.....7
2. Worker Vehicle Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope.....10
3. Construction Truck Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope.....13
4. Heavy Construction Equipment Emissions, Remaining 4:1 Side Slope.....16
5. Worker Vehicle Emissions, Remaining 4:1 Side Slope.....17
6. Construction Truck Emissions, Remaining 4:1 Side Slope.....18
7. Heavy Construction Equipment Emissions, River Relocation Top.....19
8. Worker Vehicle Emissions, River Relocation Top.....21
9. Construction Truck Emissions, River Relocation Top.....23
10. Heavy Construction Equipment Emissions, River Relocation Middle.....25
11. Worker Vehicle Emissions, River Relocation Middle.....27
12. Construction Truck Emissions, River Relocation Middle.....29
13. Heavy Construction Emissions, Hampton Pump Station.....32
14. Worker Vehicle Emissions, Hampton Pump Station.....33
15. Construction Truck Emissions, Hampton Pump Station.....34
16. Heavy Construction Equipment Emissions, River Relocation Bottom.....35
17. Worker Vehicle Emissions, River Relocation Bottom.....37
18. Construction Truck Emissions, River Relocation Bottom.....39
19. Heavy Construction Equipment Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction.....41

20. Worker Vehicle Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction 45

21. Construction Truck Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction 48

22. Heavy Construction Equipment Emissions, Interior Drainage Plan Phase II - West Levee 53

23. Worker Vehicle Emissions, Interior Drainage Plan Phase II - West Levee 55

24. Construction Truck Emissions, Interior Drainage Plan Phase II - West Levee 57

25. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - Wetlands 58

26. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Wetlands 59

27. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements – Wetlands 60

28. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities 61

29. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities 62

30. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities 63

31. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - General Elements 64

32. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - General Elements 65

33. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - General Elements 66

34. Fugitive Dust Emissions 67

35. Dredge Emissions 70

36. Heavy Construction Equipment Emissions, Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction 71

37. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction 75

38. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction 79

39. Fugitive Dust Emissions, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction 84

40. Summary of Construction Emissions - By Year, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction 87

41. Summary of Construction Emissions - By Year, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction 94

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Assumed Construction Schedule: Dallas Floodway Project

Assumptions:

- Construction planning and design commences in March 2015. Completion date, including Construction Management, is September 2029.
- Larger elements in the flood risk management and interior drainage plan will be constructed first to allow for flood management so that other elements can be constructed last.
- River modifications and wetlands/swales will be constructed following the flood risk management construction.
- Lakes will be constructed following river modifications.
- 277K levee raise and interior drainage plan pump stations may be constructed simultaneously.
- Ecosystem and recreational elements will be constructed following completion of all flood risk management projects and all interior drainage plan elements.

Assumed Schedule:

Contract 1: 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope

Levee Raise 3:1

Mob/Demob and Contractor Staging Area	May 2017 – June 2017
West Levee – Levee Construction	June 2017 – October 2017
Turf Levee	July 2017 – September 2017
Remove and replace road	September 2017 – October 2017
West Fork Levee – Levee Construction	October 2017 – December 2017
Turf Levee	November 2017
Remove and replace road	November 2017 – December 2017
East Levee – Levee Construction	June 2017 – September 2017
Turf Levee	July 2017 – August 2017
Remove and replace road	August 2017 – September 2017
Elm Fork Levee – Levee Construction	September 2017 – October 2017
Turf Levee	October 2017
Remove and replace road	October 2017 – November 2017
Bridge Mod Subset	November 2017
Turf Levee	November 2017
Remove and replace road	November 2017
Bridge Seal Structure	November 2017 – December 2017

Partial Levee Raise 4:1 Side Slope	**July 2017 – April 2018**
Relocations	**July 2017**
West Levee – Levee Construction	
Levee Construction	June 2017 – February 2018
Turf Levee	July 2017 – September 2017
Remove and Replace Road	September 2017 – October 2017
Rep-Rap Removal and Replacement	June 2017 – February 2018
East Levee – Levee Construction	
Levee Construction	July 2017 – September 2018
Turf Levee	July 2017 – September 2017
Remove and Replace Road	September 2017
Rep-Rap Removal and Replacement	July 2017 – April 2018
AT&SF Bridge Removal	
Mob/Demob and Contractor Staging Area	May 2017 – June 2017
Demolition	June 2017 – October 2017

Contract 2: Remaining 4:1 Side Slope

Relocations	**November 2018**
Mob/Demob and Contractor Staging Area	**October 2018 – November 2018**
West Levee – Levee Construction	
Levee Construction	November 2018 – October 2019
Turf Levee	November 2018 – February 2019
Remove and Replace Road	February 2019 – April 2019
Rep-Rap Removal and Replacement	November 2018 – October 2019
East Levee – Levee Construction	
Levee Construction	November 2018 – January 2020
Turf Levee	November 2018 – February 2019
Remove and Replace Road	February 2019 – March 2019
Rep-Rap Removal and Replacement	November 2018 – December 2019

Contract 3: River Relocation Top

Utility Relocations	
Storm Drain – Woodall Rogers Outfall	May 2018 – August 2018
City Owned Utility	May 2018 – June 2018
Franchised Owned Utility	June 2018 – September 2018

Bridge Pier Modifications

Westmoreland Bridge	August 2018

Channels

North Westmoreland Bridge to West Fork	September 2018 – February 2020
Inwood/Hampton Bridge to North Westmoreland	February 2020 – July 2021
River Terraces	February 2020
Slurry Cutoff Wall	February 2020 – May 2021

Contract 4: River Relocation Middle

Utility Relocations

Storm Drain – Dallas Branch Outfall	August 2021 – January 2022
City Owned Utility	August 2021 – December 2021
Franchised Owned Utility	December 2021 – April 2022

Bridge Pier Modifications

Continental Street Bridge	May 2022 – April 2023
Commerce Street Bridge	December 2024 – September 2025

Channels

Sylvan Bridge to Inwood/Hampton	January 2022 – August 2023
River Terraces	August 2023 – September 2023
Commerce Bridge to Sylvan Bridge	August 2023 – February 2025
Slurry Cutoff Wall	January 2022 – April 2023

Contract 5: Hampton Pump Station

East Levee Pumping Station

Hampton Pump Station	February 2020 – September 2021
Nobles Sump Improvement	September 2021 – October 2021

Contract 6: River Relocation Bottom

Utility Relocations

Storm Drain – Belleview Outfall	October 2025 – December 2025
City Owned Utility	October 2025 – March 2026
Franchised Owned Utility	March 2026 – July 2026
Able Pump Station Relocations	July 2026 – March 2027

Bridge Pier Modifications

Houston Street Bridge	February 2026 – January 2027
Jefferson Street Bridge	January 2027 – August 2027
IH-35 SB Bridge	August 2027 – October 2028
IH-35 NB Bridge	October 2028 – September 2029

Channels

Corinth Bridge to Commerce Bridge	December 2025 – October 2028
Slurry Cutoff Wall	December 2025 – March 2027

Contract 7: West Dallas Lake

Relocations

City Owned Utility	December 2022 – August 2023
Franchised Owned Utility	August 2023 – October 2023

Bridge Pier Modifications

Westmoreland Bridge	October 2023 – September 2024

West Dallas Lake

Site Preparation	September 2024 – May 2025
Lake	May 2025 – July 2026
Landscape	June 2025 – February 2026
Deep Water Well	May 2025 – June 2025

Contract 7: West Dallas Lake

Relocations

City Owned Utility	December 2022 – August 2023
Franchised Owned Utility	August 2023 – October 2023

Bridge Pier Modifications

Westmoreland Bridge	October 2023 – September 2024

West Dallas Lake

Site Preparation	September 2024 – May 2025
Lake	May 2025 – July 2026
Landscape	June 2025 – February 2026
Deep Water Well	May 2025 – June 2025

Urban Lake

Site Preparation	December 2017
Lake	December 2017 – August 2018
Landscape	June 2025 – February 2026

Natural Lake

Site Preparation	May 2017 – September 2017
Lake	May 2017 – December 2017
Landscape	June 2025 – February 2026

Eagle Ford Sump **March 2016 – March 2017**

Charlie Pump Station

Mob/Demob/Fence	December 2017
Road Surfacing	December 2017
Levee Construction	December 2017 – April 2018
Pumping Plant	December 2017 – March 2018

Delta Pump Station

Mob/Demob/Fence	March 2019
Site Work	March 2019
Pumping Plant	March 2019 – April 2019
Facility Renovations	April 2019 – May 2019

Trinity-Portland Pump Station

Mob/Demob/Fence	May 2019
Road Surfacing	May 2019
Levee Construction	June 2019 – September 2019
Pumping Plant	June 2019 – July 2020

Wetlands

Marshlands
January 2019 – December 2019
Hampton and Biofiltration Swales/Wetlands
January 2020 – December 2020
Corinth Wetlands
July 2021 – December 2021
Cypress Wetlands
July 2021 – December 2021

Recreation

Play Fields
January 2022 – December 2024

General Elements

Parking
January 2019 – December 2020
Lighting
July 2019 – June 2021
Vehicular Access and Roads
January 2019 – December 2020
Trails
January 2020 – December 2022
Equestrian Trail
January 2020 – December 2022
Sidewalks
January 2020 – December 2022
Boardwalks
January 2020 – December 2022
Boat Docks
January 2021 – December 2021
Restroom Trailers
January 2019 – December 2019
Stair Access to Floodway
January 2021 – June 2021
Wetland Garden
January 2023 – June 2023
Observation Decks/Blinds
January 2024 – June 2024
Pedestrian Bridges
January 2020 – December 2022

Table 1. Heavy Construction Equipment Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope

				Emission Factors												Emissions											Emission, tons (total)								
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 1: 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope																																			
Mob/Demob and Contractor Staging Area																																			
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	1	8	30	1.04	5.86	7.63	0.01	0.42	0.37	991.37	0.09	0.72	0.016	0.088	0.114	0.000	0.006	0.006	15	0.001	0.011
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	1	8	30	0.30	1.71	1.64	0.00	0.09	0.08	204.15	0.03	0.16	0.005	0.026	0.025	0.000	0.001	0.001	3	0.000	0.002
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	30	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.015	0.044	0.118	0.000	0.004	0.003	20	0.001	0.011
Subtotal																**2.34**	**10.53**	**17.12**	**0.03**	**0.77**	**0.69**	**2527.89**	**0.21**	**1.63**	**0.04**	**0.16**	**0.26**	**0.00**	**0.01**	**0.01**	**37.92**	**0.00**	**0.02**
West Levee - Levee Construction																																			
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																			
Equipment																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	10	8	49	15.68	47.59	113.32	0.21	4.04	3.60	21786.71	1.41	10.77	0.384	1.166	2.776	0.005	0.099	0.088	534	0.035	0.264
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	49	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.082	0.522	0.581	0.001	0.032	0.028	88	0.007	0.055
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	49	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.230	0.977	1.878	0.002	0.077	0.069	208	0.021	0.178
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	49	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.067	0.314	0.431	0.001	0.036	0.032	46	0.006	0.041
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	49	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.049	0.145	0.385	0.001	0.013	0.011	65	0.004	0.037
Subtotal																**33.17**	**127.46**	**246.97**	**0.39**	**10.47**	**9.31**	**38406.09**	**2.99**	**23.46**	**0.81**	**3.12**	**6.05**	**0.01**	**0.26**	**0.23**	**940.95**	**0.07**	**0.57**
Turf Levee																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	66	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.155	0.658	1.265	0.001	0.052	0.046	140	0.014	0.120
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	66	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.045	0.211	0.290	0.000	0.024	0.021	31	0.004	0.028
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	66	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.066	0.195	0.518	0.001	0.017	0.015	88	0.006	0.049
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.27**	**1.06**	**2.07**	**0.00**	**0.09**	**0.08**	**258.93**	**0.02**	**0.20**
Remove and Replace Road																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	30	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.070	0.299	0.575	0.001	0.024	0.021	64	0.006	0.055
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	30	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.021	0.096	0.132	0.000	0.011	0.010	14	0.002	0.013
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	30	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.030	0.089	0.236	0.000	0.008	0.007	40	0.003	0.022
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.12**	**0.48**	**0.94**	**0.00**	**0.04**	**0.04**	**117.70**	**0.01**	**0.09**
West Fork Levee - Levee Construction																																			
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																			
Equipment																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	24	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.150	0.457	1.088	0.002	0.039	0.035	209	0.014	0.103
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	24	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.040	0.255	0.284	0.000	0.016	0.014	43	0.004	0.027
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.112	0.488	0.939	0.001	0.038	0.034	102	0.010	0.087
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	24	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.033	0.154	0.211	0.000	0.017	0.016	23	0.003	0.020
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	24	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.024	0.071	0.189	0.000	0.006	0.006	32	0.002	0.018
Subtotal																**30.03**	**117.95**	**224.30**	**0.35**	**9.66**	**8.60**	**34048.75**	**2.71**	**21.31**	**0.36**	**1.42**	**2.69**	**0.00**	**0.12**	**0.10**	**408.58**	**0.03**	**0.26**
Turf Levee																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	18	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.042	0.179	0.345	0.000	0.014	0.013	38	0.004	0.033
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	18	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.012	0.058	0.079	0.000	0.007	0.006	8	0.001	0.008
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	18	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.018	0.053	0.141	0.000	0.005	0.004	24	0.002	0.013
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.07**	**0.29**	**0.57**	**0.00**	**0.03**	**0.02**	**70.62**	**0.01**	**0.05**
Remove and Replace Road																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	18	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.042	0.179	0.345	0.000	0.014	0.013	38	0.004	0.033
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	18	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.012	0.058	0.079	0.000	0.007	0.006	8	0.001	0.008
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	18	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.018	0.053	0.141	0.000	0.005	0.004	24	0.002	0.013
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.07**	**0.29**	**0.57**	**0.00**	**0.03**	**0.02**	**70.62**	**0.01**	**0.05**
East Levee - Levee Construction																																			
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																			
Equipment																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	23	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.144	0.438	1.043	0.002	0.037	0.033	200	0.013	0.099
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	23	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.039	0.245	0.273	0.000	0.015	0.013	41	0.003	0.026
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	23	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.108	0.458	0.881	0.001	0.036	0.032	97	0.010	0.084
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	23	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.032	0.147	0.202	0.000	0.017	0.015	22	0.003	0.019
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	23	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.023	0.068	0.181	0.000	0.006	0.005	31	0.002	0.017
Subtotal																**30.03**	**117.95**	**224.30**	**0.35**	**9.66**	**8.60**	**34048.75**	**2.71**	**21.31**	**0.35**	**1.36**	**2.58**	**0.00**	**0.11**	**0.10**	**391.56**	**0.03**	**0.25**
Turf Levee																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	48	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	48	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.033	0.154	0.211	0.000	0.017	0.016	23	0.003	0.020
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	48	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.048	0.142	0.377	0.001	0.013	0.011	64	0.004	0.036
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.19**	**0.77**	**1.51**	**0.00**	**0.07**	**0.06**	**188.32**	**0.02**	**0.14**
Remove and Replace Road																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	38	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.089	0.379	0.728	0.001	0.030	0.027	81	0.008	0.069
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	38	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.026	0.122	0.167	0.000	0.014	0.012	18	0.002	0.016
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	38	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.038	0.113	0.298	0.001	0.010	0.009	51	0.003	0.028
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.15**	**0.61**	**1.19**	**0.00**	**0.05**	**0.05**	**149.08**	**0.01**	**0.11**
Elm Fork Levee - Levee Construction																																			
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																			
Equipment																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	48	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.301	0.914	2.176	0.004	0.078	0.069	418	0.027	0.207
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	48	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.081	0.511	0.569	0.001	0.031	0.028	86	0.007	0.054
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	48	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.225	0.957	1.839	0.002	0.076	0.067	203	0.020	0.175
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	48	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.066	0.307	0.422	0.001	0.035	0.031	45	0.006	0.040
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	48	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.048	0.142	0.377	0.001	0.013	0.011	64	0.004	0.036
Subtotal																**30.03**	**117.95**	**224.30**	**0.35**	**9.66**	**8.60**	**34048.75**	**2.71**	**21.31**	**0.72**	**2.83**	**5.38**	**0.01**	**0.23**	**0.21**	**817.17**	**0.07**	**0.51**
Turf Levee																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	24	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.056	0.239	0.460	0.000	0.019	0.017	51	0.005	0.044
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	24	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.016	0.077	0.106	0.000	0.009	0.008	11	0.001	0.010
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	24	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.024	0.071	0.189	0.000	0.006	0.006	32	0.002	0.018
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.10**	**0.39**	**0.75**	**0.00**	**0.03**	**0.03**	**94.16**	**0.01**	**0.07**
Remove and Replace Road																																			
Equipment																																			
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	24	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.056	0.239	0.460	0.000	0.019	0.017	51	0.005	0.044
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	24	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.016	0.077	0.106	0.000	0.009	0.008	11	0.001	0.010
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	24	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.024	0.071	0.189	0.000	0.006	0.006	32	0.002	0.018
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.10**	**0.39**	**0.75**	**0.00**	**0.03**	**0.03**	**94.16**	**0.01**	**0.07**

Bridge Mod Subset																																		
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																		
Equipment																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	6	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.019	0.057	0.136	0.000	0.005	0.004	26	0.002	0.013
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	6	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.010	0.064	0.071	0.000	0.004	0.003	11	0.001	0.007
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	6	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.028	0.120	0.230	0.000	0.009	0.008	25	0.003	0.022
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	6	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.008	0.038	0.053	0.000	0.004	0.004	6	0.001	0.005
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	6	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**23.76**	**98.91**	**178.98**	**0.26**	**8.04**	**7.16**	**25334.06**	**2.14**	**17.00**	**0.07**	**0.30**	**0.54**	**0.00**	**0.02**	**0.02**	**76.00**	**0.01**	**0.05**
Turf Levee																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	6	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.014	0.060	0.115	0.000	0.005	0.004	13	0.001	0.011
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	6	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.004	0.019	0.026	0.000	0.002	0.002	3	0.000	0.003
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	6	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.02**	**0.10**	**0.19**	**0.00**	**0.01**	**0.01**	**23.54**	**0.00**	**0.02**
Remove and Replace Road																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	3	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.007	0.030	0.057	0.000	0.002	0.002	6	0.001	0.005
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	3	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.002	0.010	0.013	0.000	0.001	0.001	1	0.000	0.001
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	3	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.003	0.009	0.024	0.000	0.001	0.001	4	0.000	0.002
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.01**	**0.05**	**0.09**	**0.00**	**0.00**	**0.00**	**11.77**	**0.00**	**0.01**
Bridge Seal Structure																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	1	8	30	0.51	2.80	3.40	0.00	0.27	0.24	413.82	0.05	0.32	0.008	0.042	0.051	0.000	0.004	0.004	6	0.001	0.005
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	1	8	30	0.35	1.76	1.73	0.00	0.11	0.10	204.15	0.03	0.16	0.005	0.026	0.026	0.000	0.002	0.001	3	0.000	0.002
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	1	8	30	0.61	2.57	3.75	0.00	0.33	0.30	375.60	0.05	0.36	0.009	0.039	0.056	0.000	0.005	0.004	6	0.001	0.005
Paver	DIESEL	89	0.62	0.1311	0.5011	0.7948	0.0008	0.0682	0.0607	69.2	0.0118	0.0755	1	8	30	1.05	4.01	6.36	0.01	0.55	0.49	553.57	0.09	0.60	0.016	0.060	0.095	0.000	0.008	0.007	8	0.001	0.009
Subtotal																**2.52**	**11.14**	**15.23**	**0.02**	**1.26**	**1.12**	**1547.15**	**0.23**	**1.45**	**0.04**	**0.17**	**0.23**	**0.00**	**0.02**	**0.02**	**23.21**	**0.00**	**0.02**
Partial Levee Raise 4:1 Side Slope																																		
Relocations																																		
Equipment																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	6	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.038	0.114	0.272	0.001	0.010	0.009	52	0.003	0.026
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	6	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.010	0.064	0.071	0.000	0.004	0.003	11	0.001	0.007
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	6	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.028	0.120	0.230	0.000	0.009	0.008	25	0.003	0.022
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	6	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.008	0.038	0.053	0.000	0.004	0.004	6	0.001	0.005
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	6	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**30.03**	**117.95**	**224.30**	**0.35**	**9.66**	**8.60**	**34048.75**	**2.71**	**21.31**	**0.09**	**0.35**	**0.67**	**0.00**	**0.03**	**0.03**	**102.15**	**0.01**	**0.06**
West Levee - Levee Construction																																		
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																		
Equipment																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	10	8	277	15.68	47.59	113.32	0.21	4.04	3.60	21786.71	1.41	10.77	2.171	6.591	15.694	0.030	0.559	0.498	3017	0.196	1.491
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	277	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.466	2.949	3.283	0.006	0.179	0.160	497	0.042	0.312
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	277	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.298	5.521	10.615	0.012	0.437	0.389	1174	0.117	1.008
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	277	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.380	1.773	2.437	0.003	0.201	0.179	261	0.034	0.231
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	277	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.277	0.820	2.176	0.004	0.073	0.065	369	0.025	0.207
Subtotal																**33.17**	**127.46**	**246.97**	**0.39**	**10.47**	**9.31**	**38406.09**	**2.99**	**23.46**	**4.59**	**17.65**	**34.20**	**0.05**	**1.45**	**1.29**	**5319.24**	**0.41**	**3.25**
Turf Levee																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	47	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.110	0.468	0.901	0.001	0.037	0.033	100	0.010	0.086
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	47	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.032	0.150	0.207	0.000	0.017	0.015	22	0.003	0.020
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	47	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.047	0.139	0.369	0.001	0.012	0.011	63	0.004	0.035
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.19**	**0.76**	**1.48**	**0.00**	**0.07**	**0.06**	**184.39**	**0.02**	**0.14**
Remove and Replace Road																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	26	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.061	0.259	0.498	0.001	0.020	0.018	55	0.006	0.047
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	26	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.018	0.083	0.114	0.000	0.009	0.008	12	0.002	0.011
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	26	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.026	0.077	0.204	0.000	0.007	0.006	35	0.002	0.019
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.10**	**0.42**	**0.82**	**0.00**	**0.04**	**0.03**	**102.00**	**0.01**	**0.08**
Rip-Rap Removal																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	23	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.054	0.229	0.441	0.000	0.018	0.016	49	0.005	0.042
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	23	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.016	0.074	0.101	0.000	0.008	0.007	11	0.001	0.010
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	23	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.023	0.068	0.181	0.000	0.006	0.005	31	0.002	0.017
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.09**	**0.37**	**0.72**	**0.00**	**0.03**	**0.03**	**90.23**	**0.01**	**0.07**
Rip-Rap Replacement																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	1	8	3	2.35	9.97	19.16	0.02	0.79	0.70	2118.98	0.21	1.82	0.004	0.015	0.029	0.000	0.001	0.001	3	0.000	0.003
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	3	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.001	0.005	0.007	0.000	0.001	0.000	1	0.000	0.001
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	3	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.002	0.004	0.012	0.000	0.000	0.000	2	0.000	0.001
Subtotal																**4.03**	**16.13**	**31.41**	**0.04**	**1.41**	**1.26**	**3923.25**	**0.36**	**2.98**	**0.01**	**0.02**	**0.05**	**0.00**	**0.00**	**0.00**	**5.88**	**0.00**	**0.00**
East Levee - Levee Construction																																		
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																		
Equipment																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	10	8	311	15.68	47.59	113.32	0.21	4.04	3.60	21786.71	1.41	10.77	2.438	7.401	17.621	0.033	0.628	0.559	3388	0.220	1.674
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	311	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.523	3.311	3.686	0.006	0.201	0.179	558	0.047	0.350
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	311	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.459	6.198	11.918	0.013	0.490	0.436	1318	0.132	1.132
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	311	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.426	1.990	2.736	0.003	0.226	0.201	294	0.038	0.260
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	311	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.311	0.921	2.443	0.005	0.082	0.073	414	0.028	0.232
Subtotal																**33.17**	**127.46**	**246.97**	**0.39**	**10.47**	**9.31**	**38406.09**	**2.99**	**23.46**	**5.16**	**19.82**	**38.40**	**0.06**	**1.63**	**1.45**	**5972.15**	**0.47**	**3.65**
Turf Levee																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	50	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.117	0.498	0.958	0.001	0.039	0.035	106	0.011	0.091
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	50	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.034	0.160	0.220	0.000	0.018	0.016	24	0.003	0.021
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	50	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.050	0.148	0.393	0.001	0.013	0.012	67	0.005	0.037
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.20**	**0.81**	**1.57**	**0.00**	**0.07**	**0.06**	**196.16**	**0.02**	**0.15**
Remove and Replace Road																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	13	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.030	0.130	0.249	0.000	0.010	0.009	28	0.003	0.024
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	13	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.009	0.042	0.057	0.000	0.005	0.004	6	0.001	0.005
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	13	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.013	0.038	0.102	0.000	0.003	0.003	17	0.001	0.010
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.05**	**0.21**	**0.41**	**0.00**	**0.02**	**0.02**	**51.00**	**0.00**	**0.04**

Rip-Rap Removal																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	62	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.145	0.618	1.188	0.001	0.049	0.043	131	0.013	0.113
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	62	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.042	0.198	0.273	0.000	0.023	0.020	29	0.004	0.026
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	62	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.062	0.184	0.487	0.001	0.016	0.014	83	0.006	0.046
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.25**	**1.00**	**1.95**	**0.00**	**0.09**	**0.08**	**243.24**	**0.02**	**0.19**
Rip-Rap Replacement																																		
Equipment																																		
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	1	8	11	2.35	9.97	19.16	0.02	0.79	0.70	2118.98	0.21	1.82	0.013	0.055	0.105	0.000	0.004	0.004	12	0.001	0.010
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	11	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.004	0.018	0.024	0.000	0.002	0.002	3	0.000	0.002
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	11	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.006	0.016	0.043	0.000	0.001	0.001	7	0.000	0.004
Subtotal																**4.03**	**16.13**	**31.41**	**0.04**	**1.41**	**1.26**	**3923.25**	**0.36**	**2.98**	**0.02**	**0.09**	**0.17**	**0.00**	**0.01**	**0.01**	**21.58**	**0.00**	**0.02**
AT&SF Bridge Removal																																		
Mob/Demob and Contractor Staging Area																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	23	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.024	0.135	0.175	0.000	0.010	0.009	23	0.002	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	23	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.007	0.039	0.038	0.000	0.002	0.002	5	0.001	0.004
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	23	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.023	0.068	0.181	0.000	0.006	0.005	31	0.002	0.017
Subtotal																**4.69**	**21.06**	**34.25**	**0.06**	**1.55**	**1.38**	**5055.78**	**0.42**	**3.25**	**0.05**	**0.24**	**0.39**	**0.00**	**0.02**	**0.02**	**58.14**	**0.00**	**0.04**
Demolition																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	1	8	101	0.74	2.17	6.63	0.01	0.23	0.20	897.27	0.07	0.63	0.037	0.110	0.335	0.001	0.012	0.010	45	0.003	0.032
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	101	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.633	1.923	4.578	0.009	0.163	0.145	880	0.057	0.435
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	101	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.085	0.538	0.599	0.001	0.033	0.029	91	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	101	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.474	2.013	3.870	0.004	0.159	0.142	428	0.043	0.368
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	101	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.069	0.323	0.444	0.001	0.037	0.033	48	0.006	0.042
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	101	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.101	0.299	0.793	0.002	0.026	0.024	135	0.009	0.075
Subtotal																**27.72**	**103.07**	**210.28**	**0.33**	**8.51**	**7.58**	**32206.65**	**2.50**	**19.98**	**1.40**	**5.21**	**10.62**	**0.02**	**0.43**	**0.38**	**1626.44**	**0.13**	**1.01**
TOTAL 2017																									**12.94**	**50.10**	**97.22**	**0.15**	**4.16**	**3.70**	**14549.84**	**1.17**	**9.24**
TOTAL 2018																									**2.77**	**10.63**	**20.60**	**0.03**	**0.87**	**0.78**	**3197.06**	**0.25**	**1.96**

Table 2. Worker Vehicle Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slop

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Mob/Demob and Contractor Staging Area	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
West Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.003771
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
West Fork Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
East Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Elm Fork Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Bridge Mod Subset																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Bridge Seal Structure	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Partial Levee Raise 4:1 Side Slope																					
Relocations	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
West Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Removal	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Replacement	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00

East Levee - Levee Constructior																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Removal	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Replacement	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
AT&SF Bridge Removal																					
Mob/Demob and Contractor Staging Area	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Demolition	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00

Assume startup after 8 hours
Assume 45 minutes run time total
Assume each crew consists of 10 workers

		Emissions, lbs/day										
		CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Paved Road Fugitive Dust		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3												
Assume k = 0.016 PM10		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
Assume 6 miles in addition for track-out for PM10		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
Emission Factors		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
PM10, LDT	9.81231E-05											
PM10, MDT	0.008944829	11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
PM10, HDT	0.017495628	11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
Unpaved Road Fugitive Dust		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
k = 1.5 for PM10, 0.15 for PM2.5		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
s = 8.5, a = 0.9, b = 0.45		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
Assume 61% control efficiency for watering 3x daily												
Emission Factors		5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
PM10, LDT	0.357378738	5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
PM10, MDT	0.829735596	5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
PM10, HDT	1.007230136	5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
PM2.5, LDT	0.035737874											
PM2.5, MDT	0.08297356	5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
PM2.5, HDT	0.100723014											
Assume 0.25 miles each way of unpaved road travel		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
		11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01

Total Emissions, tons											
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
30	0.17	0.03	0.00963	2.97E-04	0.00175	0.00100	0.00253	0.00053	24	0.00025	0.00020
49	0.28	0.04	0.01573	4.85E-04	0.00286	0.00163	0.00413	0.00087	39	0.00041	0.00033
66	0.38	0.06	0.02119	6.53E-04	0.00385	0.00220	0.00557	0.00117	53	0.00056	0.00044
30	0.17	0.03	0.00963	2.97E-04	0.00175	0.00100	0.00253	0.00053	24	0.00025	0.00020
24	0.14	0.02	0.00770	2.38E-04	0.00140	0.00080	0.00203	0.00043	19	0.00020	0.00016
18	0.10	0.02	0.00578	1.78E-04	0.00105	0.00060	0.00152	0.00032	14	0.00015	0.00012
18	0.10	0.02	0.00578	1.78E-04	0.00105	0.00060	0.00152	0.00032	14	0.00015	0.00012
23	0.13	0.02	0.00738	2.28E-04	0.00134	0.00077	0.00194	0.00041	18	0.00019	0.00015
48	0.28	0.04	0.01541	4.75E-04	0.00280	0.00160	0.00405	0.00085	38	0.00041	0.00032
38	0.22	0.03	0.01220	3.76E-04	0.00221	0.00126	0.00321	0.00067	30	0.00032	0.00025
48	0.28	0.04	0.01541	4.75E-04	0.00280	0.00160	0.00405	0.00085	38	0.00041	0.00032
24	0.14	0.02	0.00770	2.38E-04	0.00140	0.00080	0.00203	0.00043	19	0.00020	0.00016
24	0.14	0.02	0.00770	2.38E-04	0.00140	0.00080	0.00203	0.00043	19	0.00020	0.00016
6	0.02	0.00	0.00096	2.97E-05	0.00017	0.00010	0.00025	0.00005	2	0.00003	0.00002
6	0.02	0.00	0.00096	2.97E-05	0.00017	0.00010	0.00025	0.00005	2	0.00003	0.00002
3	0.01	0.00	0.00048	1.48E-05	0.00009	0.00005	0.00013	0.00003	1	0.00001	0.00001
30	0.09	0.01	0.00482	1.48E-04	0.00087	0.00050	0.00127	0.00027	12	0.00013	0.00010
6	0.02	0.00	0.00096	2.97E-05	0.00017	0.00010	0.00025	0.00005	2	0.00003	0.00002
277	1.60	0.25	0.08892	2.74E-03	0.01614	0.00922	0.02337	0.00491	221	0.00234	0.00184
47	0.27	0.04	0.01509	4.65E-04	0.00274	0.00156	0.00397	0.00083	38	0.00040	0.00031
26	0.15	0.02	0.00835	2.57E-04	0.00152	0.00087	0.00219	0.00046	21	0.00022	0.00017
23	0.13	0.02	0.00738	2.28E-04	0.00134	0.00077	0.00194	0.00041	18	0.00019	0.00015
3	0.01	0.00	0.00048	1.48E-05	0.00009	0.00005	0.00013	0.00003	1	0.00001	0.00001
311	1.80	0.28	0.09983	3.08E-03	0.01812	0.01035	0.02624	0.00551	248	0.00263	0.00207
50	0.29	0.05	0.01605	4.95E-04	0.00291	0.00166	0.00422	0.00089	40	0.00042	0.00033
13	0.08	0.01	0.00417	1.29E-04	0.00076	0.00043	0.00110	0.00023	10	0.00011	0.00009

Table 3. Construction Truck Emissions, 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Mob/Demob and Contractor Staging Area	Heavy Duty Truck, Diesel	10	35	6	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
West Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	5	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	5	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
West Fork Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	8	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
East Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	8	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Elm Fork Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	8	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Bridge Mod Subset																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Bridge Seal Structure	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Partial Levee Raise 4:1 Side Slope																	
Relocations	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
West Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Rip-Rap Removal	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Rip-Rap Replacement	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
East Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Rip-Rap Removal	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Rip-Rap Replacement	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
AT&SF Bridge Removal																	
Mob/Demob and Contractor Staging Area	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Demolition	Heavy Duty Truck, Diesel	8	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
0.21	0.79	0.04	0.00	0.05	0.04	2.10	0.44	2.52	0.25	288.13	0.01	0.00
2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
1.42	5.28	0.27	0.01	0.32	0.28	7.52	1.58	1.26	0.13	1920.88	0.04	0.00
1.42	5.28	0.27	0.01	0.32	0.28	7.52	1.58	1.26	0.13	1920.88	0.04	0.00
2.28	8.44	0.43	0.02	0.51	0.45	12.04	2.53	2.01	0.20	3073.41	0.06	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
2.28	8.44	0.43	0.02	0.51	0.45	12.04	2.53	2.01	0.20	3073.41	0.06	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
2.28	8.44	0.43	0.02	0.51	0.45	12.04	2.53	2.01	0.20	3073.41	0.06	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
2.28	8.44	0.43	0.02	0.51	0.45	12.04	2.53	2.01	0.20	3073.41	0.06	0.00
45.18	**167.51**	**8.56**	**0.43**	**10.04**	**8.83**	**239.83**	**50.36**	**42.30**	**4.23**	**60987.99**	**1.21**	**0.05**

	Total Emissions, tons												
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
30	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.04	0.00	4.32	0.00	0.00
49	0.07	0.26	0.01	0.00	0.02	0.01	0.37	0.08	0.06	0.01	94.12	0.00	0.00
66	0.05	0.17	0.01	0.00	0.01	0.01	0.25	0.05	0.04	0.00	63.39	0.00	0.00
30	0.02	0.08	0.00	0.00	0.00	0.00	0.11	0.02	0.02	0.00	28.81	0.00	0.00
24	0.03	0.10	0.01	0.00	0.01	0.01	0.14	0.03	0.02	0.00	36.88	0.00	0.00
18	0.01	0.04	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	13.83	0.00	0.00
18	0.01	0.04	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	13.83	0.00	0.00
23	0.03	0.10	0.00	0.00	0.01	0.01	0.14	0.03	0.02	0.00	35.34	0.00	0.00
48	0.03	0.10	0.01	0.00	0.01	0.01	0.14	0.03	0.02	0.00	36.88	0.00	0.00
38	0.02	0.08	0.00	0.00	0.00	0.00	0.11	0.02	0.02	0.00	29.20	0.00	0.00
48	0.05	0.20	0.01	0.00	0.01	0.01	0.29	0.06	0.05	0.00	73.76	0.00	0.00
24	0.01	0.05	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
24	0.01	0.05	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
6	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	4.61	0.00	0.00
6	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	4.61	0.00	0.00
3	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.31	0.00	0.00
30	0.02	0.06	0.00	0.00	0.00	0.00	0.09	0.02	0.02	0.00	23.05	0.00	0.00
6	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	11.53	0.00	0.00
277	0.39	1.46	0.07	0.00	0.09	0.08	2.08	0.44	0.35	0.03	532.08	0.01	0.00
47	0.03	0.10	0.01	0.00	0.01	0.01	0.14	0.03	0.02	0.00	36.11	0.00	0.00
26	0.01	0.05	0.00	0.00	0.00	0.00	0.08	0.02	0.01	0.00	19.98	0.00	0.00
23	0.01	0.05	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	17.67	0.00	0.00
3	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.31	0.00	0.00
311	0.44	1.64	0.08	0.00	0.10	0.09	2.34	0.49	0.39	0.04	597.39	0.01	0.00
50	0.03	0.11	0.01	0.00	0.01	0.01	0.15	0.03	0.03	0.00	38.42	0.00	0.00
13	0.01	0.03	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	9.99	0.00	0.00
62	0.04	0.13	0.01	0.00	0.01	0.01	0.19	0.04	0.03	0.00	47.64	0.00	0.00
11	0.01	0.02	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	8.45	0.00	0.00
23	0.01	0.05	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	17.67	0.00	0.00
101	0.11	0.43	0.02	0.00	0.03	0.02	0.61	0.13	0.10	0.01	155.21	0.00	0.00
Total 2017	**1.24**	**4.58**	**0.23**	**0.01**	**0.27**	**0.24**	**6.55**	**1.38**	**1.13**	**0.11**	**1668.46**	**0.03**	**0.00**
Total 2018	**0.2428251**	**0.9003437**	**0.0460112**	**0.0023188**	**0.0539846**	**0.047467**	**1.2838731**	**0.2696134**	**0.2148636**	**0.0214864**	**327.8118959**	**0.0065211**	**0.0002934**

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3
Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Table 4. Heavy Construction Equipment Emissions, Remaining 4:1 Side Slope

				Emission Factors												Emissions											Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 2: Remaining 4:1 Side Slope																																	
Relocations: Mob/Demob and Contractor Staging Area/Silt Fence																																	
Equipment																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	100	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.627	1.904	4.533	0.009	0.162	0.144	871	0.057	0.431
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	100	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.168	1.065	1.185	0.002	0.065	0.058	180	0.015	0.113
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	100	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.469	1.993	3.832	0.004	0.158	0.140	424	0.042	0.364
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	100	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.137	0.640	0.880	0.001	0.073	0.065	94	0.012	0.084
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	100	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.100	0.296	0.785	0.001	0.026	0.023	133	0.009	0.075
Subtotal																**30.03**	**117.95**	**224.30**	**0.35**	**9.66**	**8.60**	**34048.75**	**2.71**	**21.31**	**1.50**	**5.90**	**11.22**	**0.02**	**0.48**	**0.43**	**1702.44**	**0.14**	**1.07**
West Levee - Levee Construction																																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																	
Equipment																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	10	8	269	15.68	47.59	113.32	0.21	4.04	3.60	21786.71	1.41	10.77	2.109	6.401	15.241	0.029	0.543	0.484	2930	0.190	1.448
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	269	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.453	2.864	3.188	0.005	0.174	0.155	483	0.041	0.303
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	269	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.262	5.361	10.308	0.011	0.424	0.377	1140	0.114	0.979
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	269	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.369	1.721	2.366	0.003	0.196	0.174	254	0.033	0.225
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	269	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.269	0.797	2.113	0.004	0.071	0.063	358	0.024	0.201
Subtotal																**33.17**	**127.46**	**246.97**	**0.39**	**10.47**	**9.31**	**38406.09**	**2.99**	**23.46**	**4.46**	**17.14**	**33.22**	**0.05**	**1.41**	**1.25**	**5165.62**	**0.40**	**3.16**
Turf Levee																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	71	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.167	0.708	1.360	0.001	0.056	0.050	150	0.015	0.129
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	71	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.049	0.227	0.312	0.000	0.026	0.023	34	0.004	0.030
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	71	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.071	0.210	0.558	0.001	0.019	0.017	95	0.006	0.053
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.29**	**1.14**	**2.23**	**0.00**	**0.10**	**0.09**	**278.55**	**0.03**	**0.21**
Remove and Replace Road																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	41	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.096	0.409	0.786	0.001	0.032	0.029	87	0.009	0.075
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.117	0.180	0.000	0.015	0.013	19	0.003	0.017
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.17**	**0.66**	**1.29**	**0.00**	**0.06**	**0.05**	**160.85**	**0.01**	**0.12**
Rip-Rap Removal																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	34	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.080	0.339	0.651	0.001	0.027	0.024	72	0.007	0.062
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	34	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.023	0.109	0.150	0.000	0.012	0.011	16	0.002	0.014
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	34	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.034	0.101	0.267	0.001	0.009	0.008	45	0.003	0.025
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.14**	**0.55**	**1.07**	**0.00**	**0.05**	**0.04**	**133.39**	**0.01**	**0.10**
Rip-Rap Replacement																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	1	8	5	2.35	9.97	19.16	0.02	0.79	0.70	2118.98	0.21	1.82	0.006	0.025	0.048	0.000	0.002	0.002	5	0.001	0.005
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	5	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.002	0.008	0.011	0.000	0.001	0.001	1	0.000	0.001
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	5	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.003	0.007	0.020	0.000	0.001	0.001	3	0.000	0.002
Subtotal																**4.03**	**16.13**	**31.41**	**0.04**	**1.41**	**1.26**	**3923.25**	**0.36**	**2.98**	**0.01**	**0.04**	**0.08**	**0.00**	**0.00**	**0.00**	**9.81**	**0.00**	**0.01**
East Levee - Levee Construction																																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes																																	
Equipment																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	10	8	338	15.68	47.59	113.32	0.21	4.04	3.60	21786.71	1.41	10.77	2.649	8.043	19.150	0.036	0.683	0.608	3682	0.239	1.819
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	338	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.569	3.598	4.006	0.007	0.219	0.195	607	0.051	0.381
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	338	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.585	6.736	12.953	0.014	0.533	0.474	1432	0.143	1.230
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	338	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.463	2.163	2.973	0.004	0.246	0.219	319	0.042	0.282
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	338	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.338	1.001	2.655	0.005	0.089	0.079	450	0.031	0.252
Subtotal																**33.17**	**127.46**	**246.97**	**0.39**	**10.47**	**9.31**	**38406.09**	**2.99**	**23.46**	**5.61**	**21.54**	**41.74**	**0.07**	**1.77**	**1.57**	**6490.63**	**0.51**	**3.97**
Turf Levee																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	75	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.176	0.747	1.437	0.002	0.059	0.053	159	0.016	0.137
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	75	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.051	0.240	0.330	0.000	0.027	0.024	35	0.005	0.031
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	75	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.075	0.222	0.589	0.001	0.020	0.017	100	0.007	0.056
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.30**	**1.21**	**2.36**	**0.00**	**0.11**	**0.09**	**294.24**	**0.03**	**0.22**
Remove and Replace Road																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	19	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.045	0.189	0.364	0.000	0.015	0.013	40	0.004	0.035
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	19	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.013	0.061	0.084	0.000	0.007	0.006	9	0.001	0.008
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	19	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.019	0.056	0.149	0.000	0.005	0.004	25	0.002	0.014
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.08**	**0.31**	**0.60**	**0.00**	**0.03**	**0.02**	**74.54**	**0.01**	**0.06**
Rip-Rap Removal																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	62	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.145	0.618	1.188	0.001	0.049	0.043	131	0.013	0.113
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	62	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.042	0.198	0.273	0.000	0.023	0.020	29	0.004	0.026
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	62	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.062	0.184	0.487	0.001	0.016	0.014	83	0.006	0.046
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.25**	**1.00**	**1.95**	**0.00**	**0.09**	**0.08**	**243.24**	**0.02**	**0.19**
Rip-Rap Replacement																																	
Equipment																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	1	8	11	2.35	9.97	19.16	0.02	0.79	0.70	2118.98	0.21	1.82	0.013	0.055	0.105	0.000	0.004	0.004	12	0.001	0.010
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	11	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.004	0.018	0.024	0.000	0.002	0.002	3	0.000	0.002
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	11	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.006	0.016	0.043	0.000	0.001	0.001	7	0.000	0.004
Subtotal																**4.03**	**16.13**	**31.41**	**0.04**	**1.41**	**1.26**	**3923.25**	**0.36**	**2.98**	**0.02**	**0.09**	**0.17**	**0.00**	**0.01**	**0.01**	**21.58**	**0.00**	**0.02**
TOTAL 2018																									**3.73**	**14.57**	**28.04**	**0.04**	**1.21**	**1.08**	**4156.29**	**0.34**	**2.66**
TOTAL 2019																									**9.09**	**35.02**	**67.87**	**0.11**	**2.89**	**2.57**	**10418.61**	**0.82**	**6.45**

Table 5. Worker Vehicle Emissions, Remaining 4:1 Side Slope

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Contract 2: Remaining 4:1 Side Slope																					
Relocations: Mob/Demob and Contractor Staging Area/Silt Fence	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
West Levee - Levee Construction																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Removal	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Replacement	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
East Levee - Levee Construction																					
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Turf Levee	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Remove and Replace Road	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Removal	Light-Duty Truck, catalyst	20	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Rip-Rap Replacement	Light-Duty Truck, catalyst	10	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00

Assume startup after 8 hours
Assume 45 minutes run time total
Assume each crew consists of 10 workers

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3
Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45

Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
11.57	1.82	0.64	0.02	0.12	0.07	0.17	0.04	1597.33	0.02	0.01
5.78	0.91	0.32	0.01	0.06	0.03	0.08	0.02	798.67	0.01	0.01

Total Emissions, tons											
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
100	0.29	0.05	0.01605	4.95E-04	0.00291	0.00166	0.00422	0.00089	40	0.00042	0.00033
269	1.56	0.24	0.08635	2.66E-03	0.01568	0.00895	0.02270	0.00477	215	0.00227	0.00179
71	0.41	0.06	0.02279	7.03E-04	0.00414	0.00236	0.00599	0.00126	57	0.00060	0.00047
41	0.24	0.04	0.01316	4.06E-04	0.00239	0.00136	0.00346	0.00073	33	0.00035	0.00027
34	0.20	0.03	0.01091	3.37E-04	0.00198	0.00113	0.00287	0.00060	27	0.00029	0.00023
5	0.01	0.00	0.00080	2.47E-05	0.00015	0.00008	0.00021	0.00004	2	0.00002	0.00002
338	1.96	0.31	0.10850	3.35E-03	0.01970	0.01125	0.02852	0.00599	270	0.00286	0.00225
75	0.43	0.07	0.02408	7.42E-04	0.00437	0.00250	0.00633	0.00133	60	0.00063	0.00050
19	0.11	0.02	0.00610	1.88E-04	0.00111	0.00063	0.00160	0.00034	15	0.00016	0.00013

Table 6. Construction Truck Emissions, Remaining 4:1 Side Slope

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Contract 2: Remaining 4:1 Side Slope																	
Relocations: Mob/Demob and Contractor Staging Area/Silt Fence	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
West Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Rip-Rap Removal	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Rip-Rap Replacement	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
East Levee - Levee Construction																	
Excavate from Borrow Pit, Additional Haul of Soil, Spread and Compact, Scarify Slopes	Heavy Duty Truck, Diesel	10	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Turf Levee	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Remove and Replace Road	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Rip-Rap Removal	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Rip-Rap Replacement	Heavy Duty Truck, Diesel	4	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.30110696	0.009	0.0053	2178.231743	0.043331	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

		Emissions, lbs/day												
		CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Paved Road Fugitive Dust		2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3														
Assume k = 0.016 PM10		2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
Assume 6 miles in addition for track-out for PM10		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
Emission Factors		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
PM10, LDT	9.81231E-05	1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
PM10, MDT	0.008944829	1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
PM10, HDT	0.017495628													
		2.85	10.55	0.54	0.03	0.63	0.56	15.05	3.16	2.52	0.25	3841.76	0.08	0.00
		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
Unpaved Road Fugitive Dust		1.14	4.22	0.22	0.01	0.25	0.22	6.02	1.26	1.01	0.10	1536.71	0.03	0.00
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle		**17.64**	**65.42**	**3.34**	**0.17**	**3.92**	**3.45**	**93.29**	**19.59**	**15.61**	**1.56**	**23818.93**	**0.47**	**0.02**

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors
PM10, LDT 0.357378738
PM10, MDT 0.829735596
PM10, HDT 1.007230136
PM2.5, LDT 0.035737874
PM2.5, MDT 0.08297356
PM2.5, HDT 0.100723014
Assume 0.25 miles each way of unpaved road travel

	Total Emissions, tons													
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
100	0.14	0.53	0.03	0.00	0.03	0.03	0.75	0.16	0.13	0.01	192.09	0.00	0.00
269	0.38	1.42	0.07	0.00	0.09	0.07	2.02	0.42	0.34	0.03	516.72	0.01	0.00
71	0.04	0.15	0.01	0.00	0.01	0.01	0.21	0.04	0.04	0.00	54.55	0.00	0.00
41	0.02	0.09	0.00	0.00	0.01	0.00	0.12	0.03	0.02	0.00	31.50	0.00	0.00
34	0.02	0.07	0.00	0.00	0.00	0.00	0.10	0.02	0.02	0.00	26.12	0.00	0.00
5	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	3.84	0.00	0.00
338	0.48	1.78	0.09	0.00	0.11	0.09	2.54	0.53	0.43	0.04	649.26	0.01	0.00
75	0.04	0.16	0.01	0.00	0.01	0.01	0.23	0.05	0.04	0.00	57.63	0.00	0.00
19	0.01	0.04	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	14.60	0.00	0.00
62	0.04	0.13	0.01	0.00	0.01	0.01	0.19	0.04	0.03	0.00	47.64	0.00	0.00
11	0.01	0.02	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	8.45	0.00	0.00
Total 2018	**0.3711693**	**1.3762164**	**0.0703303**	**0.0035444**	**0.0825179**	**0.072555**	**1.96245857**	**0.4121163**	**0.32842879**	**0.03284288**	**501.0754186**	**0.009968**	**0.000448**
Total 2019	**0.2174978**	**0.8064354**	**0.0412121**	**0.002077**	**0.0483539**	**0.042516**	**1.14996159**	**0.24149193**	**0.19245272**	**0.01924527**	**293.6202029**	**0.005841**	**0.000263**

Table 7. Heavy Construction Equipment Emissions, River Relocation Top

				Emission Factors												Emissions												Emission, tons (total)					
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
River Relocation Top - Contract 3																																	
Utility Relocations - Storm Drain, Wodall Rogers Outfall																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	95	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.298	0.904	2.153	0.004	0.077	0.068	414	0.027	0.205
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	95	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.080	0.506	0.563	0.001	0.031	0.027	85	0.007	0.053
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	95	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.446	1.893	3.641	0.004	0.150	0.133	403	0.040	0.346
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.82**	**3.30**	**6.36**	**0.01**	**0.26**	**0.23**	**901.84**	**0.07**	**0.60**
Utility Relocations - City owned Utility																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	27	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.085	0.257	0.612	0.001	0.022	0.019	118	0.008	0.058
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	27	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.023	0.144	0.160	0.000	0.009	0.008	24	0.002	0.015
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	27	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.127	0.538	1.035	0.001	0.043	0.038	114	0.011	0.098
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.23**	**0.94**	**1.81**	**0.00**	**0.07**	**0.07**	**256.31**	**0.02**	**0.17**
Utility Relocations - Franchised Owned Utility																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	81	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.254	0.771	1.836	0.003	0.065	0.058	353	0.023	0.174
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	81	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.068	0.431	0.480	0.001	0.026	0.023	73	0.006	0.046
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	81	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.380	1.614	3.104	0.003	0.128	0.114	343	0.034	0.295
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.70**	**2.82**	**5.42**	**0.01**	**0.22**	**0.20**	**768.94**	**0.06**	**0.51**
Bridge Pier Modifications																																	
Equipment																																	
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	1	8	6	0.74	2.17	6.63	0.01	0.23	0.20	897.27	0.07	0.63	0.002	0.007	0.020	0.000	0.001	0.001	3	0.000	0.002
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	6	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.005	0.032	0.036	0.000	0.002	0.002	5	0.000	0.003
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	6	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.028	0.120	0.230	0.000	0.009	0.008	25	0.003	0.022
Subtotal																**11.80**	**52.68**	**95.12**	**0.11**	**4.03**	**3.59**	**11168.74**	**1.07**	**9.04**	**0.04**	**0.16**	**0.29**	**0.00**	**0.01**	**0.01**	**33.51**	**0.00**	**0.03**
Channels - North Westmoreland Bridge to West Fork																																	
Erosion/Sediment Control and Clearing																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Downstream Tie In																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	5	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.046	0.155	0.528	0.000	0.016	0.014	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	5	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.008	0.024	0.057	0.000	0.002	0.002	11	0.001	0.005
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	5	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.013	0.015	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	5	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.012	0.050	0.096	0.000	0.004	0.004	11	0.001	0.009
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.07**	**0.24**	**0.70**	**0.00**	**0.02**	**0.02**	**23.73**	**0.00**	**0.02**
Excavate New Channel																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				6	8	404	110.24	372.80	1267.30	1.16	38.53	34.29	0.00	0.00	0.00	22.269	75.306	255.995	0.234	7.783	6.927	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	12	8	404	18.81	57.11	135.98	0.26	4.85	4.31	26144.05	1.70	12.92	3.800	11.536	27.468	0.052	0.979	0.871	5281	0.343	2.609
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	6	8	404	5.05	31.94	35.56	0.06	1.94	1.73	5386.64	0.46	3.38	1.020	6.451	7.183	0.012	0.392	0.349	1088	0.092	0.682
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	12	8	404	28.14	119.58	229.93	0.25	9.46	8.42	25427.77	2.54	21.84	5.685	24.155	46.445	0.050	1.910	1.700	5136	0.513	4.412
Subtotal																**162.24**	**581.43**	**1668.77**	**1.73**	**54.78**	**48.75**	**56958.45**	**4.69**	**38.14**	**32.77**	**117.45**	**337.09**	**0.35**	**11.07**	**9.85**	**11505.61**	**0.95**	**7.70**
Upstream Tie In																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	4	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.037	0.124	0.422	0.000	0.013	0.011	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	4	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.006	0.019	0.045	0.000	0.002	0.001	9	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	4	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.011	0.012	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	4	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.009	0.040	0.077	0.000	0.003	0.003	8	0.001	0.007
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.05**	**0.19**	**0.56**	**0.00**	**0.02**	**0.02**	**18.99**	**0.00**	**0.01**
Backfill Existing Channel																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	6	8	139	9.41	28.56	67.99	0.13	2.42	2.16	13072.03	0.85	6.46	0.654	1.985	4.725	0.009	0.168	0.150	909	0.059	0.449
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	3	8	139	2.52	15.97	17.78	0.03	0.97	0.86	2693.32	0.23	1.69	0.175	1.109	1.236	0.002	0.068	0.060	187	0.016	0.117
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	6	8	139	14.07	59.79	114.96	0.12	4.73	4.21	12713.88	1.27	10.92	0.978	4.155	7.990	0.009	0.329	0.293	884	0.088	0.759
Subtotal																**26.00**	**104.31**	**200.73**	**0.28**	**8.12**	**7.23**	**28479.23**	**2.35**	**19.07**	**1.81**	**7.25**	**13.95**	**0.02**	**0.56**	**0.50**	**1979.31**	**0.16**	**1.33**
River Bank and Outfall Treatments																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	24	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.075	0.228	0.544	0.001	0.019	0.017	105	0.007	0.052
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	24	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.020	0.128	0.142	0.000	0.008	0.007	22	0.002	0.014
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.21**	**0.83**	**1.61**	**0.00**	**0.06**	**0.06**	**227.83**	**0.02**	**0.15**
Riprap and Toe																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	44	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.138	0.419	0.997	0.002	0.036	0.032	192	0.012	0.095
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	44	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.037	0.234	0.261	0.000	0.014	0.013	40	0.003	0.025
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	44	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.206	0.877	1.686	0.002	0.069	0.062	186	0.019	0.160
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.38**	**1.53**	**2.94**	**0.00**	**0.12**	**0.11**	**417.70**	**0.03**	**0.28**
Channels - Inwood/Hampton Bridge to Westmoreland																																	
Erosion/Sediment Control and Clearing																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	12	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.038	0.114	0.272	0.001	0.010	0.009	52	0.003	0.026
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	12	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.010	0.064	0.071	0.000	0.004	0.003	11	0.001	0.007
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	12	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.056	0.239	0.460	0.000	0.019	0.017	51	0.005	0.044
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.10**	**0.42**	**0.80**	**0.00**	**0.03**	**0.03**	**113.92**	**0.01**	**0.08**
Downstream Tie In																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	5	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.046	0.155	0.528	0.000	0.016	0.014	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	5	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.008	0.024	0.057	0.000	0.002	0.002	11	0.001	0.005
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	5	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.013	0.015	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	5	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.012	0.050	0.096	0.000	0.004	0.004	11	0.001	0.009
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.07**	**0.24**	**0.70**	**0.00**	**0.02**	**0.02**	**23.73**	**0.00**	**0.02**
Excavate New Channel																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				6	8	442	110.24	372.80	1267.30	1.16	38.53	34.29	0.00	0.00	0.00	24.363	82.389	280.074	0.256	8.515	7.578	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	12	8	442	18.81	57.11	135.98	0.26	4.85	4.31	26144.05	1.70	12.92	4.158	12.621	30.052	0.057	1.071	0.953	5778	0.375	2.855
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	6	8	442	5.05	31.94	35.56	0.06	1.94	1.73	5386.64	0.46	3.38	1.116	7.058	7.859	0.013	0.429	0.382	1190	0.101	0.747
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	12	8	442	28.14	119.58	229.93	0.25	9.46	8.42	25427.77	2.54	21.84	6.220	26.427	50.814	0.055	2.090	1.860	5620	0.561	4.827
Subtotal																**162.24**	**581.43**	**1668.77**	**1.73**	**54.78**	**48.75**	**56958.45**	**4.69**	**38.14**	**35.86**	**128.50**	**368.80**	**0.38**	**12.11**	**10.77**	**12587.82**	**1.04**	**8.43**
Upstream Tie In																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	4	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.037	0.124	0.422	0.000	0.013	0.011	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	4	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.006	0.019	0.045	0.000	0.002	0.001	9	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	4	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.011	0.012	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	4	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.009	0.040	0.077	0.000	0.003	0.003	8	0.001	0.007
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.05**	**0.19**	**0.56**	**0.00**	**0.02**	**0.02**	**18.99**	**0.00**	**0.01**
Backfill Existing Channel																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	6	8	272	9.41	28.56	67.99	0.13	2.42	2.16	13072.03	0.85	6.46	1.279	3.884	9.247	0.017	0.330	0.293	1778	0.115	0.878
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	3	8	272	2.52	15.97	17.78	0.03	0.97	0.86	2693.32	0.23	1.69	0.343	2.172	2.418	0.004	0.132	0.118	366	0.031	0.230
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	6	8	272	14.07	59.79	114.96	0.12	4.73	4.21	12713.88	1.27	10.92	1.914	8.131	15.635	0.017	0.643	0.572	1729	0.173	1.485
Subtotal																**26.00**	**104.31**	**200.73**	**0.28**	**8.12**	**7.23**	**28479.23**	**2.35**	**19.07**	**3.54**	**14.19**	**27.30**	**0.04**	**1.10**	**0.98**	**3873.17**	**0.32**	**2.59**

Reshape Existing Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				4	8	178	73.49	248.53	844.87	0.77	25.69	22.86	0.00	0.00	0.00	6.541	22.120	75.193	0.069	2.286	2.035	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	178	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	1.116	3.389	8.068	0.015	0.288	0.256	1551	0.101	0.766
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	178	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.300	1.895	2.110	0.004	0.115	0.103	320	0.027	0.200
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	8	8	178	18.76	79.72	153.28	0.17	6.31	5.61	16951.84	1.69	14.56	1.670	7.095	13.642	0.015	0.561	0.499	1509	0.151	1.296
Subtotal																**108.16**	**387.62**	**1112.51**	**1.15**	**36.52**	**32.50**	**37972.30**	**3.13**	**25.43**	**9.63**	**34.50**	**99.01**	**0.10**	**3.25**	**2.89**	**3379.53**	**0.28**	**2.26**
River Bank and Outfall Treatments																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	24	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.075	0.228	0.544	0.001	0.019	0.017	105	0.007	0.052
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	24	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.020	0.128	0.142	0.000	0.008	0.007	22	0.002	0.014
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.21**	**0.83**	**1.61**	**0.00**	**0.06**	**0.06**	**227.83**	**0.02**	**0.15**
Riprap and Toe																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	11	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.034	0.105	0.249	0.000	0.009	0.008	48	0.003	0.024
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	11	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.009	0.059	0.065	0.000	0.004	0.003	10	0.001	0.006
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	11	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.052	0.219	0.422	0.000	0.017	0.015	47	0.005	0.040
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.10**	**0.38**	**0.74**	**0.00**	**0.03**	**0.03**	**104.42**	**0.01**	**0.07**
River Terraces																																		
Equipment																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	12	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.110	0.373	1.267	0.001	0.039	0.034	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	12	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.019	0.057	0.136	0.000	0.005	0.004	26	0.002	0.013
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	12	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.005	0.032	0.036	0.000	0.002	0.002	5	0.000	0.003
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	12	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.028	0.120	0.230	0.000	0.009	0.008	25	0.003	0.022
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.16**	**0.58**	**1.67**	**0.00**	**0.05**	**0.05**	**56.96**	**0.00**	**0.04**
Slurry Cutoff Wall																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	8	8	400	5.48	25.60	35.18	0.04	2.91	2.59	3775.28	0.49	3.34	1.097	5.119	7.037	0.009	0.582	0.518	755	0.099	0.669
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	400	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	1.476	8.909	9.908	0.016	0.751	0.668	1324	0.133	0.941
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	8	8	400	2.42	13.69	13.13	0.02	0.73	0.65	1633.23	0.22	1.25	0.484	2.737	2.627	0.004	0.145	0.129	327	0.044	0.250
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	16	8	400	16.02	47.38	125.67	0.24	4.19	3.73	21317.81	1.45	11.94	3.204	9.477	25.133	0.048	0.839	0.747	4264	0.289	2.388
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	8	8	400	8.01	23.69	62.83	0.12	2.10	1.87	10658.91	0.72	5.97	1.602	4.738	12.567	0.024	0.419	0.373	2132	0.145	1.194
Subtotal																**39.32**	**154.90**	**286.36**	**0.50**	**13.68**	**12.18**	**44006.41**	**3.55**	**27.20**	**7.86**	**30.98**	**57.27**	**0.10**	**2.74**	**2.44**	**8801.28**	**0.71**	**5.44**
Total 2018																									**4.134**	**15.870**	**36.303**	**0.045**	**1.336**	**1.189**	**3252.608**	**0.268**	**2.183**
Total 2019																									**27.282**	**98.616**	**275.524**	**0.291**	**9.161**	**8.153**	**11051.573**	**0.910**	**7.400**
Total 2020																									**27.843**	**102.248**	**266.895**	**0.308**	**9.425**	**8.389**	**14871.826**	**1.214**	**9.646**
Total 2021																									**27.463**	**100.531**	**267.709**	**0.298**	**9.224**	**8.210**	**13674.635**	**1.122**	**9.016**
Total 2022																									**2.682**	**9.701**	**27.052**	**0.029**	**0.900**	**0.801**	**1096.374**	**0.090**	**0.734**

Table 8. Worker Vehicle Emissions, River Relocation Top

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Wodall Rogers Outfall	Light-Duty Truck, catalyst	20	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Utility Relocations - City owned Utility	Light-Duty Truck, catalyst	20	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Utility Relocations - Franchised Owned Utility	Light-Duty Truck, catalyst	20	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Bridge Pier Modifications	Light-Duty Truck, catalyst	6	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Channels - North Westmoreland Bridge to West Fork																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Downstream Tie In	Light-Duty Truck, catalyst	10	35	80	3.143846	0.478425	0.122708	0.075	0.041	0.068	0.018	0.005307	0.0123	0.008	0.0125	0.011328	0.002	0.0053	430.7476	0.004543	0.00
Excavate New Channel	Light-Duty Truck, catalyst	60	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Upstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Backfill Existing Channel	Light-Duty Truck, catalyst	30	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
River Bank and Outfall Treatments	Light-Duty Truck, catalyst	20	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Riprap and Toe	Light-Duty Truck, catalyst	20	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Channels - Inwood/Hampton Bridge to Westmoreland																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Downstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Excavate New Channel	Light-Duty Truck, catalyst	30	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Upstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Backfill Existing Channel	Light-Duty Truck, catalyst	30	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Reshape Existing Channel	Light-Duty Truck, catalyst	40	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
River Bank and Outfall Treatments	Light-Duty Truck, catalyst	20	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Riprap and Toe	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
River Terraces	Light-Duty Truck, catalyst	20	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Slurry Cutoff Wall	Light-Duty Truck, catalyst	40	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00

Assume startup after 8 hours
Assume 45 minutes run time total
Assume 10 workers per crew

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

	Emissions, lbs/day										
	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Paved Road Fugitive Dust	11.09	1.69	0.60	0.02	0.12	0.07	0.17	0.04	1519.43	0.02	0.01
	11.09	1.69	0.60	0.02	0.12	0.07	0.17	0.04	1519.43	0.02	0.01
	11.09	1.69	0.60	0.02	0.12	0.07	0.17	0.04	1519.43	0.02	0.01
	3.33	0.51	0.18	0.01	0.03	0.02	0.05	0.01	455.83	0.00	0.00
Assume k = 0.016 PM10	11.09	1.69	0.60	0.02	0.12	0.07	0.17	0.04	1519.43	0.02	0.01
Assume 6 miles in addition for track-out for PM10	5.54	0.84	0.30	0.01	0.06	0.03	0.08	0.02	759.71	0.01	0.01
Emission Factors	31.94	4.70	1.70	0.06	0.34	0.20	0.51	0.11	4609.89	0.05	0.03
PM10, LDT	4.97	0.71	0.26	0.01	0.06	0.03	0.08	0.02	754.81	0.01	0.01
PM10, MDT	15.97	2.35	0.85	0.03	0.17	0.10	0.25	0.05	2304.95	0.02	0.02
PM10, HDT	9.94	1.42	0.53	0.02	0.11	0.06	0.17	0.04	1509.62	0.01	0.01
	9.94	1.42	0.53	0.02	0.11	0.06	0.17	0.04	1509.62	0.01	0.01
Unpaved Road Fugitive Dust	9.94	1.42	0.53	0.02	0.11	0.06	0.17	0.04	1509.62	0.01	0.01
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle	4.97	0.71	0.26	0.01	0.06	0.03	0.08	0.02	754.81	0.01	0.01
	14.91	2.13	0.79	0.03	0.17	0.10	0.25	0.05	2264.44	0.02	0.02
	4.98	0.69	0.25	0.01	0.06	0.03	0.08	0.02	742.27	0.01	0.00
	14.94	2.06	0.76	0.03	0.17	0.10	0.25	0.05	2226.82	0.02	0.01
k = 1.5 for PM10, 0.15 for PM2.5	19.92	2.75	1.02	0.04	0.23	0.13	0.34	0.07	2969.09	0.03	0.02
s = 8.5, a = 0.9, b = 0.45	9.70	1.30	0.49	0.02	0.11	0.06	0.17	0.04	1461.94	0.01	0.01
Assume 61% control efficiency for watering 3x daily	9.96	1.37	0.51	0.02	0.11	0.06	0.17	0.04	1484.55	0.01	0.01
Emission Factors	9.94	1.42	0.53	0.02	0.11	0.06	0.17	0.04	1509.62	0.01	0.01
PM10, LDT	19.88	2.84	1.05	0.04	0.23	0.13	0.34	0.07	3019.25	0.03	0.02

		Total Emissions, tons										
	Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Utility Relocations - Storm Drain, Wodall Rogers Outfall	95	0.53	0.08	0.02861	8.89E-04	0.00550	0.00312	0.00802	0.00168	72	0.00076	0.00058
Utility Relocations - City owned Utility	27	0.15	0.02	0.00813	2.53E-04	0.00156	0.00089	0.00228	0.00048	21	0.00022	0.00016
Utility Relocations - Franchised Owned Utility	81	0.45	0.07	0.02439	7.58E-04	0.00469	0.00266	0.00684	0.00144	62	0.00065	0.00049
Bridge Pier Modifications	6	0.01	0.00	0.00054	1.68E-05	0.00010	0.00006	0.00015	0.00003	1	0.00001	0.00001
Channels - North Westmoreland Bridge to West Fork												
Erosion/Sediment Control and Clearing	73	0.40	0.06	0.02198	6.83E-04	0.00422	0.00240	0.00616	0.00129	55	0.00058	0.00044
Downstream Tie In	5	0.01	0.00	0.00075	2.34E-05	0.00014	0.00008	0.00021	0.00004	2	0.00002	0.00002
Excavate New Channel	404	6.45	0.95	0.34391	1.15E-02	0.06968	0.03944	0.10228	0.02148	931	0.00916	0.00653
Upstream Tie In	4	0.01	0.00	0.00053	1.87E-05	0.00011	0.00006	0.00017	0.00004	2	0.00001	0.00001
Backfill Existing Channel	139	1.11	0.16	0.05916	1.98E-03	0.01199	0.00678	0.01759	0.00369	160	0.00158	0.00112
River Bank and Outfall Treatments	24	0.12	0.02	0.00632	2.24E-04	0.00137	0.00078	0.00203	0.00043	18	0.00017	0.00012
Riprap and Toe	44	0.22	0.03	0.01158	4.11E-04	0.00252	0.00142	0.00371	0.00078	33	0.00030	0.00022
Channels - Inwood/Hampton Bridge to Westmoreland												
Erosion/Sediment Control and Clearing	12	0.06	0.01	0.00316	1.12E-04	0.00069	0.00039	0.00101	0.00021	9	0.00008	0.00006
Downstream Tie In	5	0.01	0.00	0.00066	2.34E-05	0.00014	0.00008	0.00021	0.00004	2	0.00002	0.00001
Excavate New Channel	442	3.30	0.47	0.17456	6.19E-03	0.03797	0.02144	0.05595	0.01175	500	0.00457	0.00336
Upstream Tie In	4	0.01	0.00	0.00051	1.84E-05	0.00011	0.00006	0.00017	0.00004	1	0.00001	0.00001
Backfill Existing Channel	272	2.03	0.28	0.10372	3.75E-03	0.02326	0.01309	0.03443	0.00723	303	0.00284	0.00195
Reshape Existing Channel	178	1.77	0.24	0.09050	3.27E-03	0.02030	0.01142	0.03004	0.00631	264	0.00248	0.00171
River Bank and Outfall Treatments	24	0.12	0.02	0.00582	2.17E-04	0.00136	0.00077	0.00203	0.00043	18	0.00016	0.00011
Riprap and Toe	11	0.05	0.01	0.00280	1.01E-04	0.00063	0.00035	0.00093	0.00019	8	0.00008	0.00005
River Terraces	12	0.06	0.01	0.00316	1.12E-04	0.00069	0.00039	0.00101	0.00021	9	0.00008	0.00006
Slurry Cutoff Wall	400	3.98	0.57	0.21062	7.47E-03	0.04581	0.02587	0.06751	0.01418	604	0.00552	0.00406
	Total 2018	**1.88**	**0.28**	**0.10**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**259.51**	**0.00**	**0.00**
	Total 2019	**6.19**	**0.91**	**0.33**	**0.01**	**0.07**	**0.04**	**0.10**	**0.02**	**894.21**	**0.01**	**0.01**
	Total 2020	**6.62**	**0.95**	**0.35**	**0.01**	**0.08**	**0.04**	**0.11**	**0.02**	**994.76**	**0.01**	**0.01**
	Total 2021	**5.60**	**0.78**	**0.29**	**0.01**	**0.06**	**0.04**	**0.09**	**0.02**	**841.82**	**0.01**	**0.01**
	Total 2022	**0.57**	**0.08**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**85.72**	**0.00**	**0.00**

Table 9. Construction Truck Emissions, River Relocation Top

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Wodall Rogers Outfall	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Utility Relocations - City owned Utility	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Utility Relocations - Franchised Owned Utility	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Bridge Pier Modifications	Heavy Duty Truck, Diesel	2	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Channels - North Westmoreland Bridge to West Fork	Heavy Duty Truck, Diesel		35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Downstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Excavate New Channel	Heavy Duty Truck, Diesel	12	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Upstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Backfill Existing Channel	Heavy Duty Truck, Diesel	6	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
River Bank and Outfall Treatments	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Riprap and Toe	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Channels - Inwood/Hampton Bridge to Westmoreland	Heavy Duty Truck, Diesel		35	80													
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Downstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Excavate New Channel	Heavy Duty Truck, Diesel	12	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Upstream Tie In	Heavy Duty Truck, Diesel	2	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
Backfill Existing Channel	Heavy Duty Truck, Diesel	6	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Reshape Existing Channel	Heavy Duty Truck, Diesel	8	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
River Bank and Outfall Treatments	Heavy Duty Truck, Diesel	4	35	80	0.8718074	3.3167243	0.168176	0.014974	0.1467441	0.036	0.0125	0.1421508	0.009	0.0053	2178.446793	0.0488703	0.00
Riprap and Toe	Heavy Duty Truck, Diesel	4	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
River Terraces	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Slurry Cutoff Wall	Heavy Duty Truck, Diesel	16	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
0.50	1.87	0.09	0.01	0.11	0.10	3.01	0.63	0.50	0.05	744.82	0.02	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
0.44	1.65	0.08	0.01	0.10	0.08	3.01	0.63	0.50	0.05	768.49	0.02	0.00
2.65	9.91	0.51	0.03	0.59	0.50	18.06	3.79	3.02	0.30	4610.95	0.10	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
1.32	4.96	0.25	0.02	0.30	0.25	9.03	1.90	1.51	0.15	2305.48	0.05	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
2.26	8.53	0.43	0.03	0.52	0.44	18.06	3.79	3.02	0.30	4610.52	0.10	0.00
0.35	1.30	0.07	0.01	0.08	0.06	3.01	0.63	0.50	0.05	768.45	0.02	0.00
1.13	4.27	0.22	0.02	0.26	0.22	9.03	1.90	1.51	0.15	2305.26	0.05	0.00
1.38	5.22	0.27	0.02	0.31	0.25	12.04	2.53	2.01	0.20	3073.81	0.07	0.00
0.62	2.34	0.12	0.01	0.14	0.11	6.02	1.26	1.01	0.10	1536.86	0.03	0.00
0.69	2.61	0.13	0.01	0.15	0.13	6.02	1.26	1.01	0.10	1536.91	0.03	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
3.01	11.38	0.58	0.04	0.70	0.58	24.07	5.06	4.03	0.40	6147.36	0.13	0.01

	Total Emissions, tons												
Construction Days/Total Deliveries	**CO**	**NOx**	**VOCs**	**SOx**	**PM10**	**PM2.5**	**Paved Road Fugitive Dust PM10**	**Paved Road Fugitive Dust PM2.5**	**Unpaved Road Fugitive Dust PM10**	**Unpaved Road Fugitive Dust PM2.5**	**CO2**	**CH4**	**N2O**
95	0.05	0.18	0.01	0.00	0.01	0.01	0.29	0.06	0.05	0.00	70.76	0.00	0.00
27	0.01	0.05	0.00	0.00	0.00	0.00	0.08	0.02	0.01	0.00	20.11	0.00	0.00
81	0.04	0.15	0.01	0.00	0.01	0.01	0.24	0.05	0.04	0.00	60.33	0.00	0.00
6	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	2.23	0.00	0.00
73	0.04	0.14	0.01	0.00	0.01	0.01	0.22	0.05	0.04	0.00	54.37	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.92	0.00	0.00
404	0.53	2.00	0.10	0.01	0.12	0.10	3.65	0.77	0.61	0.06	931.41	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54	0.00	0.00
139	0.09	0.34	0.02	0.00	0.02	0.02	0.63	0.13	0.11	0.01	160.23	0.00	0.00
24	0.01	0.03	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
44	0.02	0.06	0.00	0.00	0.00	0.00	0.13	0.03	0.02	0.00	33.81	0.00	0.00
12	0.00	0.02	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	9.22	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.92	0.00	0.00
442	0.50	1.89	0.10	0.01	0.12	0.10	3.99	0.84	0.67	0.07	1018.92	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54	0.00	0.00
272	0.15	0.58	0.03	0.00	0.04	0.03	1.23	0.26	0.21	0.02	313.52	0.01	0.00
178	0.12	0.46	0.02	0.00	0.03	0.02	1.07	0.22	0.18	0.02	273.57	0.01	0.00
24	0.01	0.03	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
11	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	8.45	0.00	0.00
12	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	4.61	0.00	0.00
400	0.60	2.28	0.12	0.01	0.14	0.12	4.81	1.01	0.81	0.08	1229.47	0.03	0.00
Total 2018	**0.17**	**0.63**	**0.03**	**0.00**	**0.04**	**0.03**	**1.03**	**0.22**	**0.17**	**0.02**	**256.30**	**0.01**	**0.00**
Total 2019	**0.51**	**1.92**	**0.10**	**0.01**	**0.11**	**0.10**	**3.50**	**0.74**	**0.59**	**0.06**	**894.69**	**0.02**	**0.00**
Total 2020	**0.86**	**3.25**	**0.17**	**0.01**	**0.20**	**0.17**	**6.77**	**1.42**	**1.13**	**0.11**	**1727.90**	**0.04**	**0.00**
Total 2021	**0.61**	**2.31**	**0.12**	**0.01**	**0.14**	**0.12**	**4.96**	**1.04**	**0.83**	**0.08**	**1267.19**	**0.03**	**0.00**
Total 2022	**0.04**	**0.15**	**0.01**	**0.00**	**0.01**	**0.01**	**0.35**	**0.07**	**0.06**	**0.01**	**89.02**	**0.00**	**0.00**

Table 10. Heavy Construction Equipment Emissions, River Relocation Middle

				Emission Factors													Emissions											Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
River Relocation Middle - Contract 4																																		
Utility Relocations - Storm Drain, Dallas Branch Outfall																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	118	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.370	1.123	2.674	0.005	0.095	0.085	514	0.033	0.254
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	118	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.099	0.628	0.699	0.001	0.038	0.034	106	0.009	0.066
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	118	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.553	2.352	4.522	0.005	0.186	0.166	500	0.050	0.430
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**1.02**	**4.10**	**7.90**	**0.01**	**0.32**	**0.28**	**1120.18**	**0.09**	**0.75**
Utility Relocations - City owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	106	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.332	1.009	2.402	0.005	0.086	0.076	462	0.030	0.228
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	106	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.089	0.564	0.628	0.001	0.034	0.031	95	0.008	0.060
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	106	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.497	2.113	4.062	0.004	0.167	0.149	449	0.045	0.386
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.92**	**3.69**	**7.09**	**0.01**	**0.29**	**0.26**	**1006.27**	**0.08**	**0.67**
Utility Relocations - Franchised Owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	104	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.326	0.990	2.357	0.004	0.084	0.075	453	0.029	0.224
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	104	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.087	0.554	0.616	0.001	0.034	0.030	93	0.008	0.059
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	104	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.488	2.073	3.985	0.004	0.164	0.146	441	0.044	0.379
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.90**	**3.62**	**6.96**	**0.01**	**0.28**	**0.25**	**987.28**	**0.08**	**0.66**
Bridge Pier Modifications - Continental Street Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	300	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.222	0.651	1.988	0.003	0.069	0.061	269	0.020	0.189
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	300	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.252	1.597	1.778	0.003	0.097	0.086	269	0.023	0.169
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	300	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.407	5.979	11.496	0.012	0.473	0.421	1271	0.127	1.092
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.88**	**8.23**	**15.26**	**0.02**	**0.64**	**0.57**	**1809.90**	**0.17**	**1.45**
Bridge Pier Modifications - Commerce Street Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	300	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.222	0.651	1.988	0.003	0.069	0.061	269	0.020	0.189
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	300	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.252	1.597	1.778	0.003	0.097	0.086	269	0.023	0.169
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	300	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.407	5.979	11.496	0.012	0.473	0.421	1271	0.127	1.092
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.88**	**8.23**	**15.26**	**0.02**	**0.64**	**0.57**	**1809.90**	**0.17**	**1.45**
Channels - Sylvan Bridge to Inwood/Hampton																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	45	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.141	0.428	1.020	0.002	0.036	0.032	196	0.013	0.097
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	45	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.038	0.240	0.267	0.000	0.015	0.013	40	0.003	0.025
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	45	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.211	0.897	1.724	0.002	0.071	0.063	191	0.019	0.164
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.39**	**1.56**	**3.01**	**0.00**	**0.12**	**0.11**	**427.19**	**0.04**	**0.29**
Downstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	5	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.046	0.155	0.528	0.000	0.016	0.014	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	5	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.008	0.024	0.057	0.000	0.002	0.002	11	0.001	0.005
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	5	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.013	0.015	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	5	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.012	0.050	0.096	0.000	0.004	0.004	11	0.001	0.009
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.07**	**0.24**	**0.70**	**0.00**	**0.02**	**0.02**	**23.73**	**0.00**	**0.02**
Excavate New Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				6	8	450	110.24	372.80	1267.30	1.16	38.53	34.29	0.00	0.00	0.00	24.804	83.880	285.143	0.261	8.669	7.716	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	12	8	450	18.81	57.11	135.98	0.26	4.85	4.31	26144.05	1.70	12.92	4.233	12.850	30.595	0.058	1.091	0.971	5882	0.382	2.907
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	6	8	450	5.05	31.94	35.56	0.06	1.94	1.73	5386.64	0.46	3.38	1.136	7.186	8.001	0.014	0.437	0.389	1212	0.102	0.760
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	12	8	450	28.14	119.58	229.93	0.25	9.46	8.42	25427.77	2.54	21.84	6.332	26.906	51.734	0.056	2.128	1.894	5721	0.571	4.915
Subtotal																**162.24**	**581.43**	**1668.77**	**1.73**	**54.78**	**48.75**	**56958.45**	**4.69**	**38.14**	**36.50**	**130.82**	**375.47**	**0.39**	**12.33**	**10.97**	**12815.65**	**1.06**	**8.58**
Upstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	4	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.037	0.124	0.422	0.000	0.013	0.011	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	4	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.006	0.019	0.045	0.000	0.002	0.001	9	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	4	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.011	0.012	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	4	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.009	0.040	0.077	0.000	0.003	0.003	8	0.001	0.007
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.05**	**0.19**	**0.56**	**0.00**	**0.02**	**0.02**	**18.99**	**0.00**	**0.01**
Backfill Existing Channel																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	6	8	336	9.41	28.56	67.99	0.13	2.42	2.16	13072.03	0.85	6.46	1.580	4.797	11.422	0.022	0.407	0.362	2196	0.143	1.085
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	3	8	336	2.52	15.97	17.78	0.03	0.97	0.86	2693.32	0.23	1.69	0.424	2.683	2.987	0.005	0.163	0.145	452	0.038	0.284
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	6	8	336	14.07	59.79	114.96	0.12	4.73	4.21	12713.88	1.27	10.92	2.364	10.045	19.314	0.021	0.794	0.707	2136	0.213	1.835
Subtotal																**26.00**	**104.31**	**200.73**	**0.28**	**8.12**	**7.23**	**28479.23**	**2.35**	**19.07**	**4.37**	**17.52**	**33.72**	**0.05**	**1.36**	**1.21**	**4784.51**	**0.39**	**3.20**
Rechape Existing Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				4	8	49	73.49	248.53	844.87	0.77	25.69	22.86	0.00	0.00	0.00	1.801	6.089	20.699	0.019	0.629	0.560	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	49	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.307	0.933	2.221	0.004	0.079	0.070	427	0.028	0.211
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	49	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.082	0.522	0.581	0.001	0.032	0.028	88	0.007	0.055
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	8	8	49	18.78	79.72	153.28	0.17	6.31	5.61	16951.84	1.69	14.56	0.460	1.953	3.755	0.004	0.154	0.137	415	0.041	0.357
Subtotal																**108.16**	**387.62**	**1112.51**	**1.15**	**36.52**	**32.50**	**37972.30**	**3.13**	**25.43**	**2.65**	**9.50**	**27.26**	**0.03**	**0.89**	**0.80**	**930.32**	**0.08**	**0.62**
River Bank and Outfall Treatments																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	24	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.075	0.228	0.544	0.001	0.019	0.017	105	0.007	0.052
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	24	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.020	0.128	0.142	0.000	0.008	0.007	22	0.002	0.014
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.21**	**0.83**	**1.61**	**0.00**	**0.06**	**0.06**	**227.83**	**0.02**	**0.15**
Riprap and Toe																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	65	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.204	0.619	1.473	0.003	0.053	0.047	283	0.018	0.140
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	65	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.055	0.346	0.385	0.001	0.021	0.019	58	0.005	0.037
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	65	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.305	1.295	2.491	0.003	0.102	0.091	275	0.028	0.237
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.56**	**2.26**	**4.35**	**0.01**	**0.18**	**0.16**	**617.05**	**0.05**	**0.41**
Channels - Commerce Bridge to Sulvan Bridge																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	38	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.119	0.362	0.861	0.002	0.031	0.027	166	0.011	0.082
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	38	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.032	0.202	0.225	0.000	0.012	0.011	34	0.003	0.021
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	38	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.178	0.757	1.456	0.002	0.060	0.053	161	0.016	0.138
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.33**	**1.32**	**2.54**	**0.00**	**0.10**	**0.09**	**360.74**	**0.03**	**0.24**
Downstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	5	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.046	0.155	0.528	0.000	0.016	0.014	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	5	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.008	0.024	0.057	0.000	0.002	0.002	11	0.001	0.005
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	5	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.013	0.015	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	5	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.012	0.050	0.096	0.000	0.004	0.004	11	0.001	0.009
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.07**	**0.24**	**0.70**	**0.00**	**0.02**	**0.02**	**23.73**	**0.00**	**0.02**

Excavate New Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				6	8	364	110.24	372.80	1267.30	1.16	38.53	34.29	0.00	0.00	0.00	20.064	67.850	230.649	0.211	7.012	6.241	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	12	8	364	18.81	57.11	135.98	0.26	4.85	4.31	26144.05	1.70	12.92	3.424	10.394	24.748	0.047	0.882	0.785	4758	0.309	2.351
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	6	8	364	5.05	31.94	35.56	0.06	1.94	1.73	5386.64	0.46	3.38	0.919	5.812	6.472	0.011	0.354	0.315	980	0.083	0.615
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	12	8	364	28.14	119.58	229.93	0.25	9.46	8.42	25427.77	2.54	21.84	5.122	21.764	41.847	0.045	1.721	1.532	4628	0.462	3.975
Subtotal																**162.24**	**581.43**	**1668.77**	**1.73**	**54.78**	**48.75**	**56958.45**	**4.69**	**38.14**	**29.53**	**105.82**	**303.72**	**0.31**	**9.97**	**8.87**	**10366.44**	**0.85**	**6.94**
Upstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	4	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.037	0.124	0.422	0.000	0.013	0.011	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	4	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.006	0.019	0.045	0.000	0.002	0.001	9	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	4	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.011	0.012	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	4	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.009	0.040	0.077	0.000	0.003	0.003	8	0.001	0.007
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.05**	**0.19**	**0.56**	**0.00**	**0.02**	**0.02**	**18.99**	**0.00**	**0.01**
Storm Drain Crossing and Extension																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	52	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.163	0.495	1.178	0.002	0.042	0.037	227	0.015	0.112
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	52	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.044	0.277	0.308	0.001	0.017	0.015	47	0.004	0.029
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	52	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.244	1.036	1.993	0.002	0.082	0.073	220	0.022	0.189
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.45**	**1.81**	**3.48**	**0.00**	**0.14**	**0.13**	**493.64**	**0.04**	**0.33**
Backfill Existing Channel																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	6	8	193	9.41	28.56	67.99	0.13	2.42	2.16	13072.03	0.85	6.46	0.908	2.756	6.561	0.012	0.234	0.208	1261	0.082	0.623
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	3	8	193	2.52	15.97	17.78	0.03	0.97	0.86	2693.32	0.23	1.69	0.244	1.541	1.716	0.003	0.094	0.083	260	0.022	0.163
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	6	8	193	14.07	59.79	114.96	0.12	4.73	4.21	12713.88	1.27	10.92	1.358	5.770	11.094	0.012	0.456	0.406	1227	0.123	1.054
Subtotal																**26.00**	**104.31**	**200.73**	**0.28**	**8.12**	**7.23**	**28479.23**	**2.35**	**19.07**	**2.51**	**10.07**	**19.37**	**0.03**	**0.78**	**0.70**	**2748.25**	**0.23**	**1.84**
Reshape Existing Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				4	8	36	73.49	248.53	844.87	0.77	25.69	22.86	0.00	0.00	0.00	1.323	4.474	15.208	0.014	0.462	0.411	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	36	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	36	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.061	0.383	0.427	0.001	0.023	0.021	65	0.005	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	8	8	36	18.76	79.72	153.28	0.17	6.31	5.61	16951.84	1.69	14.56	0.338	1.435	2.759	0.003	0.113	0.101	305	0.030	0.262
Subtotal																**108.16**	**387.62**	**1112.51**	**1.15**	**36.52**	**32.50**	**37972.30**	**3.13**	**25.43**	**1.95**	**6.98**	**20.03**	**0.02**	**0.66**	**0.59**	**683.50**	**0.06**	**0.46**
River Bank and Outfall Treatments																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	24	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.075	0.228	0.544	0.001	0.019	0.017	105	0.007	0.052
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	24	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.020	0.128	0.142	0.000	0.008	0.007	22	0.002	0.014
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.21**	**0.83**	**1.61**	**0.00**	**0.06**	**0.06**	**227.83**	**0.02**	**0.15**
Riprap and Toe																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	41	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.129	0.390	0.929	0.002	0.033	0.029	179	0.012	0.088
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	41	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.034	0.218	0.243	0.000	0.013	0.012	37	0.003	0.023
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	41	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.192	0.817	1.571	0.002	0.065	0.058	174	0.017	0.149
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.36**	**1.43**	**2.74**	**0.00**	**0.11**	**0.10**	**389.22**	**0.03**	**0.26**
River Terraces																																		
Equipment																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	12	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.110	0.373	1.267	0.001	0.039	0.034	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	12	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.019	0.057	0.136	0.000	0.005	0.004	26	0.002	0.013
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	12	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.005	0.032	0.036	0.000	0.002	0.002	5	0.000	0.003
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	12	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.028	0.120	0.230	0.000	0.009	0.008	25	0.003	0.022
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.16**	**0.58**	**1.67**	**0.00**	**0.05**	**0.05**	**56.96**	**0.00**	**0.04**
Slurry Cutoff Wall																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	8	8	387	5.48	25.60	35.18	0.04	2.91	2.59	3775.28	0.49	3.34	1.061	4.953	6.808	0.009	0.563	0.501	731	0.096	0.647
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	387	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	1.428	8.619	9.586	0.015	0.727	0.647	1281	0.129	0.911
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	8	8	387	2.42	13.69	13.13	0.02	0.73	0.65	1633.23	0.22	1.25	0.469	2.648	2.541	0.004	0.140	0.125	316	0.042	0.241
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	16	8	387	16.02	47.38	125.67	0.24	4.19	3.73	21317.81	1.45	11.94	3.100	9.169	24.317	0.046	0.812	0.722	4125	0.280	2.310
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	8	8	387	8.01	23.69	62.83	0.12	2.10	1.87	10658.91	0.72	5.97	1.550	4.584	12.158	0.023	0.406	0.361	2062	0.140	1.155
Subtotal																**39.32**	**154.90**	**286.36**	**0.50**	**13.68**	**12.18**	**44006.41**	**3.55**	**27.20**	**7.61**	**29.97**	**55.41**	**0.10**	**2.65**	**2.36**	**8515.24**	**0.69**	**5.26**
Total 2021																									**1.951**	**7.827**	**15.061**	**0.021**	**0.610**	**0.543**	**2136.834**	**0.176**	**1.431**
Total 2022																									**30.276**	**112.792**	**283.943**	**0.334**	**10.209**	**9.086**	**17986.332**	**1.484**	**11.874**
Total 2023																									**26.885**	**98.726**	**260.614**	**0.291**	**8.997**	**8.007**	**13858.570**	**1.138**	**9.170**
Total 2024																									**28.454**	**103.732**	**283.051**	**0.304**	**9.521**	**8.474**	**12769.459**	**1.056**	**8.598**
Total 2025																									**2.820**	**11.438**	**24.855**	**0.029**	**0.946**	**0.842**	**2163.079**	**0.195**	**1.639**

Table 11. Worker Vehicle Emissions, River Relocation Middle

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Dallas Branch Outfall	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Utility Relocations - City owned Utility	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Utility Relocations - Franchised Owned Utility	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Bridge Pier Modifications - Continental Street Bridge	Light-Duty Truck, catalyst	20	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Bridge Pier Modifications - Commerce Street Bridge	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Channels - Sylvan Bridge to Inwood/Hampton																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Downstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Excavate New Channel	Light-Duty Truck, catalyst	60	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Upstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Backfill Existing Channel	Light-Duty Truck, catalyst	30	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Rechape Existing Channel	Light-Duty Truck, catalyst	40	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
River Bank and Outfall Treatments	Light-Duty Truck, catalyst	20	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Riprap and Toe	Light-Duty Truck, catalyst	20	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Channels - Commerce Bridge to Sulvan Bridge																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Downstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Excavate New Channel	Light-Duty Truck, catalyst	60	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Upstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Storm Drain Crossing and Extension	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Backfill Existing Channel	Light-Duty Truck, catalyst	30	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Reshape Existing Channel	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
River Bank and Outfall Treatments	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Riprap and Toe	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
River Terraces	Light-Duty Truck, catalyst	3	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Slurry Cutoff Wall	Light-Duty Truck, catalyst	40	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00

Assume startup after 8 hours
Assume 45 minutes run time total
Assume 10 workers per crew

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

	Emissions, lbs/day										
	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Utility Relocations - Storm Drain, Dallas Branch Outfall	9.96	1.37	0.51	0.02	0.11	0.06	0.17	0.04	1484.55	0.01	0.01
Utility Relocations - City owned Utility	9.96	1.37	0.51	0.02	0.11	0.06	0.17	0.04	1484.55	0.01	0.01
Utility Relocations - Franchised Owned Utility	9.96	1.37	0.51	0.02	0.11	0.06	0.17	0.04	1484.55	0.01	0.01
Bridge Pier Modifications - Continental Street Bridge	9.70	1.30	0.49	0.02	0.11	0.06	0.17	0.04	1461.94	0.01	0.01
Bridge Pier Modifications - Commerce Street Bridge	9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
Channels - Sylvan Bridge to Inwood/Hampton	9.70	1.30	0.49	0.02	0.11	0.06	0.17	0.04	1461.94	0.01	0.01
Erosion/Sediment Control and Clearing	4.85	0.65	0.24	0.01	0.06	0.03	0.08	0.02	730.97	0.01	0.00
Downstream Tie In	29.10	3.89	1.46	0.05	0.34	0.19	0.51	0.11	4385.81	0.04	0.03
Excavate New Channel	4.72	0.61	0.23	0.01	0.06	0.03	0.08	0.02	720.62	0.01	0.00
Upstream Tie In	14.55	1.94	0.73	0.03	0.17	0.10	0.25	0.05	2192.91	0.02	0.01
Backfill Existing Channel	18.89	2.45	0.93	0.04	0.23	0.13	0.34	0.07	2882.48	0.03	0.02
Rechape Existing Channel	9.45	1.23	0.47	0.02	0.11	0.06	0.17	0.04	1441.24	0.01	0.01
River Bank and Outfall Treatments	9.45	1.23	0.47	0.02	0.11	0.06	0.17	0.04	1441.24	0.01	0.01
Riprap and Toe											
Channels - Commerce Bridge to Sulvan Bridge	9.45	1.23	0.47	0.02	0.11	0.06	0.17	0.04	1441.24	0.01	0.01
Erosion/Sediment Control and Clearing	4.72	0.61	0.23	0.01	0.06	0.03	0.08	0.02	720.62	0.01	0.00
Downstream Tie In	28.34	3.68	1.40	0.05	0.34	0.19	0.51	0.11	4323.72	0.04	0.02
Excavate New Channel	4.59	0.58	0.23	0.01	0.06	0.03	0.08	0.02	711.17	0.01	0.00
Upstream Tie In	9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
Storm Drain Crossing and Extension	13.78	1.74	0.68	0.03	0.17	0.09	0.25	0.05	2133.50	0.02	0.01
Backfill Existing Channel	18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
Reshape Existing Channel	9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
River Bank and Outfall Treatments	9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
Riprap and Toe	1.49	0.21	0.08	0.00	0.02	0.01	0.03	0.01	226.44	0.00	0.00
River Terraces	19.40	2.59	0.97	0.04	0.23	0.13	0.34	0.07	2923.88	0.03	0.02
Slurry Cutoff Wall											

	Total Emissions, tons											
	Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Utility Relocations - Storm Drain, Dallas Branch Outfall	118	0.59	0.08	0.03000	1.08E-03	0.00673	0.00379	0.00996	0.00209	88	0.00082	0.00057
Utility Relocations - City owned Utility	106	0.53	0.07	0.02695	9.74E-04	0.00604	0.00340	0.00894	0.00188	79	0.00074	0.00051
Utility Relocations - Franchised Owned Utility	104	0.52	0.07	0.02644	9.56E-04	0.00593	0.00334	0.00878	0.00184	77	0.00072	0.00050
Bridge Pier Modifications - Continental Street Bridge	300	1.46	0.19	0.07278	2.71E-03	0.01706	0.00959	0.02532	0.00532	219	0.00205	0.00132
Bridge Pier Modifications - Commerce Street Bridge	300	1.38	0.17	0.06786	2.64E-03	0.01694	0.00948	0.02532	0.00532	213	0.00189	0.00112
Channels - Sylvan Bridge to Inwood/Hampton	45	0.22	0.03	0.01092	4.07E-04	0.00256	0.00144	0.00380	0.00080	33	0.00031	0.00020
Erosion/Sediment Control and Clearing	5	0.01	0.00	0.00061	2.26E-05	0.00014	0.00008	0.00021	0.00004	2	0.00002	0.00001
Downstream Tie In	450	6.55	0.87	0.32752	1.22E-02	0.07677	0.04314	0.11392	0.02392	987	0.00922	0.00596
Excavate New Channel	4	0.01	0.00	0.00047	1.78E-05	0.00011	0.00006	0.00017	0.00004	1	0.00001	0.00001
Upstream Tie In	336	2.44	0.33	0.12228	4.56E-03	0.02866	0.01611	0.04253	0.00893	368	0.00344	0.00223
Backfill Existing Channel	49	0.46	0.06	0.02287	8.74E-04	0.00556	0.00312	0.00827	0.00174	71	0.00065	0.00040
Rechape Existing Channel	24	0.11	0.01	0.00560	2.14E-04	0.00136	0.00076	0.00203	0.00043	17	0.00016	0.00010
River Bank and Outfall Treatments	65	0.31	0.04	0.01517	5.80E-04	0.00369	0.00207	0.00549	0.00115	47	0.00043	0.00026
Riprap and Toe												
Channels - Commerce Bridge to Sulvan Bridge	38	0.18	0.02	0.00887	3.39E-04	0.00215	0.00121	0.00321	0.00067	27	0.00025	0.00015
Erosion/Sediment Control and Clearing	5	0.01	0.00	0.00058	2.23E-05	0.00014	0.00008	0.00021	0.00004	2	0.00002	0.00001
Downstream Tie In	364	5.16	0.67	0.25487	9.74E-03	0.06191	0.03471	0.09215	0.01935	787	0.00722	0.00442
Excavate New Channel	4	0.01	0.00	0.00045	1.76E-05	0.00011	0.00006	0.00017	0.00004	1	0.00001	0.00001
Upstream Tie In	52	0.24	0.03	0.01176	4.58E-04	0.00294	0.00164	0.00439	0.00092	37	0.00033	0.00019
Storm Drain Crossing and Extension	193	1.33	0.17	0.06548	2.55E-03	0.01635	0.00915	0.02443	0.00513	206	0.00183	0.00108
Backfill Existing Channel	36	0.33	0.04	0.01629	6.34E-04	0.00407	0.00227	0.00608	0.00128	51	0.00045	0.00027
Reshape Existing Channel	24	0.11	0.01	0.00543	2.11E-04	0.00136	0.00076	0.00203	0.00043	17	0.00015	0.00009
River Bank and Outfall Treatments	41	0.19	0.02	0.00927	3.61E-04	0.00232	0.00130	0.00346	0.00073	29	0.00026	0.00015
Riprap and Toe	12	0.01	0.00	0.00047	1.68E-05	0.00010	0.00006	0.00015	0.00003	1	0.00001	0.00001
River Terraces	387	3.75	0.50	0.18778	7.00E-03	0.04401	0.02473	0.06531	0.01372	566	0.00529	0.00342
Slurry Cutoff Wall												
Total 2021		**1.12**	**0.15**	**0.06**	**0.00**	**0.01**	**0.01**	**0.02**	**0.00**	**167.11**	**0.00**	**0.00**
Total 2022		**8.87**	**1.19**	**0.44**	**0.02**	**0.10**	**0.06**	**0.15**	**0.03**	**1335.13**	**0.01**	**0.01**
Total 2023		**8.07**	**1.07**	**0.40**	**0.02**	**0.10**	**0.05**	**0.14**	**0.03**	**1219.99**	**0.01**	**0.01**
Total 2024		**7.22**	**0.93**	**0.36**	**0.01**	**0.09**	**0.05**	**0.13**	**0.03**	**1108.71**	**0.01**	**0.01**
Total 2025		**1.45**	**0.18**	**0.07**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**224.26**	**0.00**	**0.00**

Table 12. Construction Truck Emissions, River Relocation Middle

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Dallas Branch Outfall	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Utility Relocations - City owned Utility	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Utility Relocations - Franchised Owned Utility	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Bridge Pier Modifications - Continental Street Bridge	Heavy Duty Truck, Diesel	2	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Bridge Pier Modifications - Commerce Street Bridge	Heavy Duty Truck, Diesel	2	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Channels - Sylvan Bridge to Inwood/Hampton																	
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.504704	0.0449043	0.00
Downstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Excavate New Channel	Heavy Duty Truck, Diesel	12	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Upstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Backfill Existing Channel	Heavy Duty Truck, Diesel	6	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Rechape Existing Channel	Heavy Duty Truck, Diesel	6	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
River Bank and Outfall Treatments	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Riprap and Toe	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Channels - Commerce Bridge to Sulvan Bridge	Heavy Duty Truck, Diesel																
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	4	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Downstream Tie In	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Excavate New Channel	Heavy Duty Truck, Diesel	12	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Upstream Tie In	Heavy Duty Truck, Diesel	2	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
Storm Drain Crossing and Extension	Heavy Duty Truck, Diesel	2	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
Backfill Existing Channel	Heavy Duty Truck, Diesel	6	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Reshape Existing Channel	Heavy Duty Truck, Diesel	8	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
River Bank and Outfall Treatments	Heavy Duty Truck, Diesel	4	35	80	0.8718074	3.3167243	0.168176	0.014974	0.1467441	0.036	0.0125	0.1421508	0.009	0.0053	2178.446793	0.0488703	0.00
Riprap and Toe	Heavy Duty Truck, Diesel	4	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00
River Terraces	Heavy Duty Truck, Diesel	2	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Slurry Cutoff Wall	Heavy Duty Truck, Diesel	16	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
0.50	1.87	0.09	0.01	0.11	0.10	3.01	0.63	0.50	0.05	744.82	0.02	0.00
0.50	1.87	0.09	0.01	0.11	0.10	3.01	0.63	0.50	0.05	744.82	0.02	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.10	1489.63	0.03	0.00
0.44	1.65	0.08	0.01	0.10	0.08	3.01	0.63	0.50	0.05	768.49	0.02	0.00
2.65	9.91	0.51	0.03	0.59	0.50	18.06	3.79	3.02	0.30	4610.95	0.10	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
1.32	4.96	0.25	0.02	0.30	0.25	9.03	1.90	1.51	0.15	2305.48	0.05	0.00
1.32	4.96	0.25	0.02	0.30	0.25	9.03	1.90	1.51	0.15	2305.48	0.05	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.75	2.84	0.14	0.01	0.17	0.15	6.02	1.26	1.01	0.10	1536.84	0.03	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
2.26	8.53	0.43	0.03	0.52	0.44	18.06	3.79	3.02	0.30	4610.52	0.10	0.00
0.35	1.30	0.07	0.01	0.08	0.06	3.01	0.63	0.50	0.05	768.45	0.02	0.00
0.35	1.30	0.07	0.01	0.08	0.06	3.01	0.63	0.50	0.05	768.45	0.02	0.00
1.13	4.27	0.22	0.02	0.26	0.22	9.03	1.90	1.51	0.15	2305.26	0.05	0.00
1.38	5.22	0.27	0.02	0.31	0.25	12.04	2.53	2.01	0.20	3073.81	0.07	0.00
0.62	2.34	0.12	0.01	0.14	0.11	6.02	1.26	1.01	0.10	1536.86	0.03	0.00
0.69	2.61	0.13	0.01	0.15	0.13	6.02	1.26	1.01	0.10	1536.91	0.03	0.00
0.38	1.42	0.07	0.01	0.09	0.07	3.01	0.63	0.50	0.05	768.42	0.02	0.00
3.01	11.38	0.58	0.04	0.70	0.58	24.07	5.06	4.03	0.40	6147.36	0.13	0.01

Total Emissions, tons													
Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
118	0.06	0.22	0.01	0.00	0.01	0.01	0.36	0.07	0.06	0.01	87.89	0.00	0.00
106	0.05	0.20	0.01	0.00	0.01	0.01	0.32	0.07	0.05	0.01	78.95	0.00	0.00
104	0.05	0.19	0.01	0.00	0.01	0.01	0.31	0.07	0.05	0.01	77.46	0.00	0.00
300	0.08	0.28	0.01	0.00	0.02	0.01	0.45	0.09	0.08	0.01	111.72	0.00	0.00
300	0.08	0.28	0.01	0.00	0.02	0.01	0.45	0.09	0.08	0.01	111.72	0.00	0.00
45	0.02	0.08	0.00	0.00	0.01	0.00	0.14	0.03	0.02	0.00	33.52	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.92	0.00	0.00
450	0.60	2.23	0.11	0.01	0.13	0.11	4.06	0.85	0.68	0.07	1037.46	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54	0.00	0.00
336	0.22	0.83	0.04	0.00	0.05	0.04	1.52	0.32	0.25	0.03	387.32	0.01	0.00
49	0.03	0.12	0.01	0.00	0.01	0.01	0.22	0.05	0.04	0.00	56.48	0.00	0.00
24	0.01	0.03	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
65	0.02	0.09	0.00	0.00	0.01	0.00	0.20	0.04	0.03	0.00	49.95	0.00	0.00
38	0.01	0.05	0.00	0.00	0.00	0.00	0.11	0.02	0.02	0.00	29.20	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.92	0.00	0.00
364	0.41	1.55	0.08	0.01	0.10	0.08	3.29	0.69	0.55	0.05	839.11	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54	0.00	0.00
52	0.01	0.03	0.00	0.00	0.00	0.00	0.08	0.02	0.01	0.00	19.98	0.00	0.00
193	0.11	0.41	0.02	0.00	0.03	0.02	0.87	0.18	0.15	0.01	222.46	0.00	0.00
36	0.02	0.09	0.00	0.00	0.01	0.00	0.22	0.05	0.04	0.00	55.33	0.00	0.00
24	0.01	0.03	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
41	0.01	0.05	0.00	0.00	0.00	0.00	0.12	0.03	0.02	0.00	31.51	0.00	0.00
12	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	4.61	0.00	0.00
387	0.58	2.20	0.11	0.01	0.13	0.11	4.66	0.98	0.78	0.08	1189.51	0.02	0.00
Total 2021	**0.11**	**0.42**	**0.02**	**0.00**	**0.03**	**0.02**	**0.68**	**0.14**	**0.11**	**0.01**	**167.68**	**0.01**	**0.00**
Total 2022	**0.96**	**3.60**	**0.18**	**0.01**	**0.22**	**0.18**	**6.94**	**1.46**	**1.16**	**0.12**	**1765.75**	**0.03**	**0.00**
Total 2023	**0.75**	**2.82**	**0.14**	**0.01**	**0.17**	**0.14**	**5.41**	**1.14**	**0.91**	**0.09**	**1380.58**	**0.03**	**0.00**
Total 2024	**0.54**	**2.03**	**0.10**	**0.01**	**0.12**	**0.10**	**4.22**	**0.89**	**0.71**	**0.07**	**1073.74**	**0.02**	**0.00**
Total 2025	**0.09**	**0.32**	**0.02**	**0.00**	**0.02**	**0.02**	**0.59**	**0.12**	**0.10**	**0.01**	**147.27**	**0.00**	**0.00**

Table 13. Heavy Construction Emissions, Hampton Pump Station

				Emission Factors															Emissions										Emission, tons (total)					
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Hampton Pump Station Construction - Contract 5																																		
Mob/Demob and Silt Fence																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	12	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.003	0.017	0.019	0.000	0.001	0.001	2	0.000	0.002
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	12	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.009	0.029	0.068	0.000	0.002	0.002	13	0.001	0.006
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	12	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	12	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.005	0.032	0.036	0.000	0.002	0.002	5	0.000	0.003
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	1	8	12	0.30	1.71	1.64	0.00	0.09	0.08	204.15	0.03	0.16	0.002	0.010	0.010	0.000	0.001	0.000	1	0.000	0.001
Trencher	DIESEL	69	0.75	0.1144	0.4600	0.7060	0.0008	0.0590	0.0525	64.9	0.0103	0.0671	1	8	12	0.92	3.68	5.65	0.01	0.47	0.42	519.16	0.08	0.54	0.005	0.022	0.034	0.000	0.003	0.003	3	0.000	0.003
Hand-Held Compactor	DIESEL	8	0.5	0.0050	0.0263	0.0314	0.0001	0.0012	0.0011	4.3	0.0005	0.0030	1	8	12	0.04	0.21	0.25	0.00	0.01	0.01	34.51	0.00	0.02	0.000	0.001	0.002	0.000	0.000	0.000	0	0.000	0.000
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	1	8	12	0.55	2.55	3.47	0.00	0.30	0.27	375.60	0.05	0.33	0.003	0.015	0.021	0.000	0.002	0.002	2	0.000	0.002
Paver	DIESEL	89	0.62	0.1235	0.4969	0.7477	0.0008	0.0636	0.0566	69.2	0.0111	0.0710	1	8	12	0.99	3.97	5.98	0.01	0.51	0.45	553.57	0.09	0.57	0.006	0.024	0.036	0.000	0.003	0.003	3	0.001	0.003
Subtotal																**6.67**	**27.95**	**45.20**	**0.07**	**2.61**	**2.32**	**6509.63**	**0.60**	**4.29**	**0.04**	**0.17**	**0.27**	**0.00**	**0.02**	**0.01**	**39.06**	**0.00**	**0.03**
Road Surfacing																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	4	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.001	0.006	0.006	0.000	0.000	0.000	1	0.000	0.001
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	4	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.003	0.010	0.023	0.000	0.001	0.001	4	0.000	0.002
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	4	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.002	0.006	0.016	0.000	0.001	0.000	3	0.000	0.001
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	4	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.004	0.023	0.031	0.000	0.002	0.001	4	0.000	0.003
Subtotal																**5.11**	**22.22**	**37.54**	**0.06**	**1.74**	**1.55**	**5907.60**	**0.46**	**3.57**	**0.01**	**0.04**	**0.08**	**0.00**	**0.00**	**0.00**	**11.82**	**0.00**	**0.01**
Levees																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	2	8	112	0.92	5.57	6.19	0.01	0.47	0.42	827.65	0.08	0.59	0.052	0.312	0.347	0.001	0.026	0.023	46	0.005	0.033
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	112	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.176	0.533	1.269	0.002	0.045	0.040	244	0.016	0.121
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	2	8	112	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.112	0.332	0.880	0.002	0.029	0.026	149	0.010	0.084
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	112	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.094	0.596	0.664	0.001	0.036	0.032	101	0.009	0.063
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	112	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.034	0.192	0.184	0.000	0.010	0.009	23	0.003	0.017
Subtotal																**8.35**	**35.08**	**59.70**	**0.11**	**2.63**	**2.34**	**10053.57**	**0.75**	**5.67**	**0.47**	**1.96**	**3.34**	**0.01**	**0.15**	**0.13**	**563.00**	**0.04**	**0.32**
Pumping Plant																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	416	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.384	2.316	2.576	0.004	0.195	0.174	344	0.035	0.245
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	416	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	1.304	3.960	9.428	0.018	0.336	0.299	1813	0.118	0.896
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	4	8	416	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.833	2.464	6.535	0.012	0.218	0.194	1109	0.075	0.621
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	416	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.700	4.428	4.931	0.008	0.269	0.240	747	0.063	0.468
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	4	8	416	1.21	6.84	6.57	0.01	0.36	0.32	816.61	0.11	0.62	0.252	1.423	1.366	0.002	0.075	0.067	170	0.023	0.130
Trencher	DIESEL	69	0.75	0.1144	0.4600	0.7060	0.0008	0.0590	0.0525	64.9	0.0103	0.0671	4	8	416	3.66	14.72	22.59	0.02	1.89	1.68	2076.64	0.33	2.15	0.762	3.061	4.699	0.005	0.392	0.349	432	0.069	0.446
Hand-Held Compactor	DIESEL	8	0.5	0.0050	0.0263	0.0314	0.0001	0.0012	0.0011	4.3	0.0005	0.0030	4	8	416	0.16	0.84	1.01	0.00	0.04	0.03	138.04	0.01	0.10	0.033	0.175	0.209	0.000	0.008	0.007	29	0.003	0.020
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	416	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.460	2.118	2.884	0.004	0.249	0.222	313	0.041	0.274
Paver	DIESEL	89	0.62	0.1235	0.4969	0.7477	0.0008	0.0636	0.0566	69.2	0.0111	0.0710	4	8	416	3.95	15.90	23.93	0.03	2.04	1.81	2214.28	0.36	2.27	0.822	3.307	4.977	0.005	0.424	0.377	461	0.074	0.473
Subtotal																**26.68**	**111.80**	**180.79**	**0.29**	**10.42**	**9.28**	**26038.51**	**2.41**	**17.18**	**5.55**	**23.25**	**37.61**	**0.06**	**2.17**	**1.93**	**5416.01**	**0.50**	**3.57**
Nobles Branch Sump Improvements																																		
Mob/Demob and Silt Fence																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	6	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.001	0.008	0.009	0.000	0.001	0.001	1	0.000	0.001
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	6	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.005	0.014	0.034	0.000	0.001	0.001	7	0.000	0.003
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	6	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.003	0.009	0.024	0.000	0.001	0.001	4	0.000	0.002
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	6	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.003	0.016	0.018	0.000	0.001	0.001	3	0.000	0.002
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	1	8	6	0.30	1.71	1.64	0.00	0.09	0.08	204.15	0.03	0.16	0.001	0.005	0.005	0.000	0.000	0.000	1	0.000	0.000
Subtotal																**4.17**	**17.54**	**29.85**	**0.05**	**1.32**	**1.17**	**5026.78**	**0.38**	**2.84**	**0.01**	**0.05**	**0.09**	**0.00**	**0.00**	**0.00**	**15.08**	**0.00**	**0.01**
Levees																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	2	8	10	0.92	5.57	6.19	0.01	0.47	0.42	827.65	0.08	0.59	0.005	0.028	0.031	0.000	0.002	0.002	4	0.000	0.003
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	10	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.031	0.095	0.227	0.000	0.008	0.007	44	0.003	0.022
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	2	8	10	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.010	0.030	0.079	0.000	0.003	0.002	13	0.001	0.007
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	10	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.008	0.053	0.059	0.000	0.003	0.003	9	0.001	0.006
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	10	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.003	0.017	0.016	0.000	0.001	0.001	2	0.000	0.002
Subtotal																**11.48**	**44.59**	**82.36**	**0.15**	**3.44**	**3.06**	**14410.91**	**1.04**	**7.82**	**0.06**	**0.22**	**0.41**	**0.00**	**0.02**	**0.02**	**72.05**	**0.01**	**0.04**
East Levee Sump Improvements																																		
Equipment																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	16	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.004	0.022	0.025	0.000	0.002	0.002	3	0.000	0.002
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	16	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.050	0.152	0.363	0.001	0.013	0.012	70	0.005	0.034
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	16	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.008	0.024	0.063	0.000	0.002	0.002	11	0.001	0.006
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	16	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.013	0.085	0.095	0.000	0.005	0.005	14	0.001	0.009
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	16	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.005	0.026	0.035	0.000	0.003	0.003	4	0.000	0.003
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	16	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.008	0.024	0.063	0.000	0.002	0.002	11	0.001	0.006
Subtotal																**11.10**	**41.59**	**80.38**	**0.15**	**3.39**	**3.01**	**14060.69**	**1.00**	**7.64**	**0.09**	**0.33**	**0.64**	**0.00**	**0.03**	**0.02**	**112.49**	**0.01**	**0.06**
TOTAL 2020																									**3.782**	**15.854**	**25.809**	**0.042**	**1.442**	**1.283**	**3799.571**	**0.341**	**2.452**
TOTAL 2021																									**2.444**	**10.183**	**16.629**	**0.027**	**0.941**	**0.837**	**2429.743**	**0.221**	**1.580**

Table 14. Worker Vehicle Emissions, Hampton Pump Statior

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Project 1 - Hampton Pump Station Construction																					
Mob/Demob and Silt Fence	Light-Duty Truck, catalyst	10	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Road Surfacing	Light-Duty Truck, catalyst	10	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Levees	Light-Duty Truck, catalyst	20	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Pumping Plant	Light-Duty Truck, catalyst	40	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.00
Project 2 - Nobles Branch Sump Improvements																					
Mob/Demob and Silt Fence	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Levees	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00
Project 3 - East Levee Sump Improvements	Light-Duty Truck, catalyst	20	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.00

Assume startup after 8 hours
Assume 45 minutes run time total

Emissions, lbs/day											
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
4.97	0.71	0.70	0.01	0.06	0.03	0.03	0.01	754.81	0.01	0.01
4.97	0.71	0.70	0.01	0.06	0.03	0.03	0.01	754.81	0.01	0.01
9.94	1.42	1.40	0.02	0.11	0.06	0.03	0.01	1509.62	0.01	0.01
19.88	2.84	2.80	0.04	0.23	0.13	0.03	0.01	3019.25	0.03	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.96	1.37	1.37	0.02	0.11	0.06	0.03	0.01	1484.55	0.01	0.01
9.96	1.37	1.37	0.02	0.11	0.06	0.03	0.01	1484.55	0.01	0.01
9.96	1.37	1.37	0.02	0.11	0.06	0.03	0.01	1484.55	0.01	0.01

	Total Emissions, tons										
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
12	0.03	0.00	0.00420	5.61E-05	0.00034	0.00019	0.00018	0.00009	5	0.00004	0.00003
4	0.01	0.00	0.00140	1.87E-05	0.00011	0.00006	0.00006	0.00003	2	0.00001	0.00001
112	0.56	0.08	0.07849	1.05E-03	0.00641	0.00362	0.00170	0.00084	85	0.00077	0.00057
416	4.14	0.59	0.58306	7.77E-03	0.04765	0.02690	0.00631	0.00310	628	0.00574	0.00422
6	0.03	0.00	0.00411	5.51E-05	0.00034	0.00019	0.00008	0.00004	4	0.00004	0.00003
10	0.05	0.01	0.00685	9.19E-05	0.00057	0.00032	0.00013	0.00006	7	0.00007	0.00005
16	0.08	0.01	0.01096	1.47E-04	0.00091	0.00051	0.00022	0.00010	12	0.00011	0.00008
TOTAL 2020	**3.03**	**0.43**	**0.43**	**0.01**	**0.03**	**0.02**	**0.01**	**0.00**	**459.99**	**0.00**	**0.00**
TOTAL 2021	**1.862416**	**0.264982**	**0.261995**	**0.003495**	**0.021443**	**0.012103**	**0.003027**	**0.001469**	**282.3424**	**0.002585**	**0.001891**

Table 15. Construction Truck Emissions, Hampton Pump Station

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Project 1 - Hampton Pump Station Construction																	
Mob/Demob and Silt Fence	Heavy Duty Truck, Diesel	2	35	80	1.8289733	6.7606577	0.3441237	0.015105	0.3578864	0.036	0.0125	0.3472714	0.009	0.0053	2117.7905	0.0417419	0.001942
Road Surfacing	Heavy Duty Truck, Diesel	1	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.2317	0.0433313	0.0019496
Levees	Heavy Duty Truck, Diesel	2	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.5047	0.0449043	0.0019678
Pumping Plant	Heavy Duty Truck, Diesel	4	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.6261	0.0461638	0.0018938
Project 2 - Nobles Branch Sump Improvements																	
Mob/Demob and Silt Fence	Heavy Duty Truck, Diesel	1	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.5179	0.0481179	0.00204
Levees	Heavy Duty Truck, Diesel	4	35	80	0.8718074	3.3167243	0.168176	0.014974	0.1467441	0.036	0.0125	0.1421508	0.009	0.0053	2178.4468	0.0488703	0.002041
Project 3 - East Levee Sump Improvements	Heavy Duty Truck, Diesel	4	35	80	1.4206569	5.2923534	0.2691111	0.0148057	0.2676938	0.036	0.0125	0.2597654	0.009	0.0053	2111.5047	0.0449043	0.0019678
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
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
0.65	2.38	0.12	0.01	0.14	0.13	3.01	0.63	0.50	0.04	747.03	0.01	0.00
0.28	1.06	0.05	0.00	0.06	0.06	1.50	0.32	0.25	0.02	384.18	0.01	0.00
0.50	1.87	0.09	0.01	0.11	0.10	3.01	0.63	0.50	0.04	744.82	0.02	0.00
0.88	3.30	0.17	0.01	0.20	0.17	6.02	1.26	1.01	0.08	1536.98	0.03	0.00
0.17	0.65	0.03	0.00	0.04	0.03	1.50	0.32	0.25	0.02	384.23	0.01	0.00
0.62	2.34	0.12	0.01	0.14	0.11	6.02	1.26	1.01	0.08	1536.86	0.03	0.00
1.00	3.73	0.19	0.01	0.22	0.19	6.02	1.26	1.01	0.08	1489.63	0.03	0.00
2.49	**9.26**	**0.47**	**0.03**	**0.55**	**0.48**	**15.05**	**3.16**	**2.52**	**0.21**	**3797.23**	**0.08**	**0.00**

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45

Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014
Assume 0.25 miles each way of unpaved road travel	

Total Emissions, tons													
Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
12	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	4.48	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00
112	0.03	0.10	0.01	0.00	0.01	0.01	0.17	0.04	0.03	0.00	41.71	0.00	0.00
416	0.18	0.69	0.04	0.00	0.04	0.03	1.25	0.26	0.21	0.02	319.69	0.01	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.00
10	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	7.68	0.00	0.00
16	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	11.92	0.00	0.00
TOTAL 2020	**0.14**	**0.53**	**0.03**	**0.00**	**0.03**	**0.03**	**0.93**	**0.19**	**0.15**	**0.01**	**235.01**	**0.00**	**0.00**
TOTAL 2021	**0.087215**	**0.326529**	**0.0166433**	**0.0010615**	**0.0194542**	**0.016582**	**0.5982208**	**0.1256264**	**0.10011571**	**0.00824733**	**152.39213**	**0.0032406**	**0.0001338**

Table 16. Heavy Construction Equipment Emissions, River Relocation Bottom

				Emission Factors													Emissions												Emission, tons (total)					
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
River Relocation Bottom - Contract 6																																		
Utility Relocations - Storm Drain, Belleview Outfall																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	37	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.116	0.352	0.839	0.002	0.030	0.027	161	0.010	0.080
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	37	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.031	0.197	0.219	0.000	0.012	0.011	33	0.003	0.021
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	37	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.174	0.737	1.418	0.002	0.058	0.052	157	0.016	0.135
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.32**	**1.29**	**2.48**	**0.00**	**0.10**	**0.09**	**351.24**	**0.03**	**0.24**
Utility Relocations - City owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	118	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.370	1.123	2.674	0.005	0.095	0.085	514	0.033	0.254
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	118	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.099	0.628	0.699	0.001	0.038	0.034	106	0.009	0.066
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	118	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.553	2.352	4.522	0.005	0.186	0.166	500	0.050	0.430
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**1.02**	**4.10**	**7.90**	**0.01**	**0.32**	**0.28**	**1120.18**	**0.09**	**0.75**
Utility Relocations - Franchised Owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	94	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.295	0.895	2.130	0.004	0.076	0.068	410	0.027	0.202
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	94	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.079	0.500	0.557	0.001	0.030	0.027	84	0.007	0.053
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	94	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.441	1.873	3.602	0.004	0.148	0.132	398	0.040	0.342
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.81**	**3.27**	**6.29**	**0.01**	**0.25**	**0.23**	**892.35**	**0.07**	**0.60**
Able Extend Pump Station Outfalls																																		
Excavators	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	219	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.184	1.166	1.298	0.002	0.071	0.063	197	0.017	0.123
Dump Trucks	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	219	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.687	2.085	4.963	0.009	0.177	0.157	954	0.062	0.472
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	219	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.110	0.324	0.860	0.002	0.029	0.026	146	0.010	0.082
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.57	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	219	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.051	0.305	0.339	0.001	0.026	0.023	45	0.005	0.032
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	219	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.075	0.350	0.482	0.001	0.040	0.035	52	0.007	0.046
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	219	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.219	0.649	1.720	0.003	0.057	0.051	292	0.020	0.163
Subtotal																**12.10**	**44.55**	**88.24**	**0.16**	**3.65**	**3.25**	**15393.05**	**1.09**	**8.38**	**1.33**	**4.88**	**9.66**	**0.02**	**0.40**	**0.36**	**1685.54**	**0.12**	**0.92**
Able Pumping Plant Sump Pond and Enhancements																																		
Excavators	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	219	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.184	1.166	1.298	0.002	0.071	0.063	197	0.017	0.123
Dump Trucks	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	219	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.687	2.085	4.963	0.009	0.177	0.157	954	0.062	0.472
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	1	8	219	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.110	0.324	0.860	0.002	0.029	0.026	146	0.010	0.082
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.57	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	219	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.051	0.305	0.339	0.001	0.026	0.023	45	0.005	0.032
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	219	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.075	0.350	0.482	0.001	0.040	0.035	52	0.007	0.046
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	219	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.219	0.649	1.720	0.003	0.057	0.051	292	0.020	0.163
Subtotal																**12.10**	**44.55**	**88.24**	**0.16**	**3.65**	**3.25**	**15393.05**	**1.09**	**8.38**	**1.33**	**4.88**	**9.66**	**0.02**	**0.40**	**0.36**	**1685.54**	**0.12**	**0.92**
Bridge Pier Modifications - Houston Street Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	300	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.222	0.651	1.988	0.003	0.069	0.061	269	0.020	0.189
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	300	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.252	1.597	1.778	0.003	0.097	0.086	269	0.023	0.169
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	300	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.407	5.979	11.496	0.012	0.473	0.421	1271	0.127	1.092
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.88**	**8.23**	**15.26**	**0.02**	**0.64**	**0.57**	**1809.90**	**0.17**	**1.45**
Bridge Pier Modifications - Jefferson Street Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	180	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.133	0.391	1.193	0.002	0.041	0.037	162	0.012	0.113
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	180	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.151	0.958	1.067	0.002	0.058	0.052	162	0.014	0.101
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	180	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.844	3.587	6.898	0.007	0.284	0.253	763	0.076	0.655
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.13**	**4.94**	**9.16**	**0.01**	**0.38**	**0.34**	**1085.94**	**0.10**	**0.87**
Bridge Pier Modifications - IH-35 SB Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	369	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.273	0.801	2.445	0.004	0.085	0.075	331	0.025	0.232
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	369	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.310	1.964	2.187	0.004	0.119	0.106	331	0.028	0.208
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	369	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.731	7.354	14.147	0.015	0.582	0.518	1564	0.156	1.343
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**2.31**	**10.12**	**18.77**	**0.02**	**0.79**	**0.70**	**2226.18**	**0.21**	**1.78**
Bridge Pier Modifications - IH-35 NB Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	267	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.198	0.579	1.769	0.003	0.061	0.054	240	0.018	0.168
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	267	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.225	1.421	1.582	0.003	0.086	0.077	240	0.020	0.150
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	267	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.252	5.321	10.232	0.011	0.421	0.375	1132	0.113	0.972
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.67**	**7.32**	**13.58**	**0.02**	**0.57**	**0.51**	**1610.81**	**0.15**	**1.29**
Channels - Corinth Bridge to Commerce Bridge																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	102	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.320	0.971	2.312	0.004	0.082	0.073	444	0.029	0.220
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	102	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	102	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.88**	**3.55**	**6.82**	**0.01**	**0.28**	**0.25**	**968.29**	**0.08**	**0.65**
Downstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	5	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.046	0.155	0.528	0.000	0.016	0.014	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	5	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.008	0.024	0.057	0.000	0.002	0.002	11	0.001	0.005
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	5	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.013	0.015	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	5	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.012	0.050	0.096	0.000	0.004	0.004	11	0.001	0.009
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.07**	**0.24**	**0.70**	**0.00**	**0.02**	**0.02**	**23.73**	**0.00**	**0.02**
Excavate New Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				6	8	468	110.24	372.80	1267.30	1.16	38.53	34.29	0.00	0.00	0.00	25.796	87.235	296.549	0.272	9.016	8.024	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	12	8	468	18.81	57.11	135.98	0.26	4.85	4.31	26144.05	1.70	12.92	4.402	13.364	31.819	0.060	1.134	1.010	6118	0.397	3.023
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	6	8	468	5.05	31.94	35.56	0.06	1.94	1.73	5386.64	0.46	3.38	1.181	7.473	8.321	0.014	0.455	0.405	1260	0.107	0.790
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	12	8	468	28.14	119.58	229.93	0.25	9.46	8.42	25427.77	2.54	21.84	6.585	27.982	53.803	0.058	2.213	1.970	5950	0.594	5.111
Subtotal																**162.24**	**581.43**	**1668.77**	**1.73**	**54.78**	**48.75**	**56958.45**	**4.69**	**38.14**	**37.97**	**136.05**	**390.49**	**0.40**	**12.82**	**11.41**	**13328.28**	**1.10**	**8.92**
Upstream Tie In																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	4	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	0.037	0.124	0.422	0.000	0.013	0.011	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	4	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.006	0.019	0.045	0.000	0.002	0.001	9	0.001	0.004
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	4	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.002	0.011	0.012	0.000	0.001	0.001	2	0.000	0.001
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	4	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.009	0.040	0.077	0.000	0.003	0.003	8	0.001	0.007
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**0.05**	**0.19**	**0.56**	**0.00**	**0.02**	**0.02**	**18.99**	**0.00**	**0.01**
Storm Drain Crossing and Extension																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	302	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.947	2.875	6.844	0.013	0.244	0.217	1316	0.085	0.650
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	302	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.254	1.607	1.790	0.003	0.098	0.087	271	0.023	0.170
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	302	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.417	6.019	11.573	0.013	0.476	0.424	1280	0.128	1.099
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**2.62**	**10.50**	**20.21**	**0.03**	**0.82**	**0.73**	**2866.91**	**0.24**	**1.92**
Backfill Existing Channel																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	6	8	193	9.41	28.56	67.99	0.13	2.42	2.16	13072.03	0.85	6.46	0.908	2.756	6.561	0.012	0.234	0.208	1261	0.082	0.623
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	3	8	193	2.52	15.97	17.78	0.03	0.97	0.86	2693.32	0.23	1.69	0.244	1.541	1.716	0.003	0.094	0.083	260	0.022	0.163
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	6	8	193	14.07	59.79	114.96	0.12	4.73	4.21	12713.88	1.27	10.92	1.358	5.770	11.094	0.012	0.456	0.406	1227	0.123	1.054
Subtotal																**26.00**	**104.31**	**200.73**	**0.28**	**8.12**	**7.23**	**28479.23**	**2.35**	**19.07**	**2.51**	**10.07**	**19.37**	**0.03**	**0.78**	**0.70**	**2748.25**	**0.23**	**1.84**

Rechape Existing Channel																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				4	8	104	73.49	248.53	844.87	0.77	25.69	22.86	0.00	0.00	0.00	3.822	12.924	43.933	0.040	1.336	1.189	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	104	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.652	1.980	4.714	0.009	0.168	0.150	906	0.059	0.448
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	104	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.175	1.107	1.233	0.002	0.067	0.060	187	0.016	0.117
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	8	8	104	18.76	79.72	153.28	0.17	6.31	5.61	16951.84	1.69	14.56	0.976	4.145	7.971	0.009	0.328	0.292	881	0.088	0.757
Subtotal																**108.16**	**387.62**	**1112.51**	**1.15**	**36.52**	**32.50**	**37972.30**	**3.13**	**25.43**	**5.62**	**20.16**	**57.85**	**0.06**	**1.90**	**1.69**	**1974.56**	**0.16**	**1.32**
Rough Grading																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	200	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.416	2.342	3.051	0.004	0.168	0.150	397	0.038	0.290
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	200	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	1.254	3.807	9.065	0.017	0.323	0.288	1743	0.113	0.861
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	200	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.337	2.129	2.371	0.004	0.130	0.115	359	0.030	0.225
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	8	8	200	18.76	79.72	153.28	0.17	6.31	5.61	16951.84	1.69	14.56	1.876	7.972	15.328	0.017	0.631	0.561	1695	0.169	1.456
Subtotal																**38.83**	**162.51**	**298.15**	**0.42**	**12.51**	**11.14**	**41937.79**	**3.50**	**28.32**	**3.88**	**16.25**	**29.82**	**0.04**	**1.25**	**1.11**	**4193.78**	**0.35**	**2.83**
River Bank and Outfall Treatments																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	24	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.075	0.228	0.544	0.001	0.019	0.017	105	0.007	0.052
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	24	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.020	0.128	0.142	0.000	0.008	0.007	22	0.002	0.014
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	24	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.113	0.478	0.920	0.001	0.038	0.034	102	0.010	0.087
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.21**	**0.83**	**1.61**	**0.00**	**0.06**	**0.06**	**227.83**	**0.02**	**0.15**
Riprap and Toe																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	42	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.132	0.400	0.952	0.002	0.034	0.030	183	0.012	0.090
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	42	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.035	0.224	0.249	0.000	0.014	0.012	38	0.003	0.024
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	42	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.197	0.837	1.609	0.002	0.066	0.059	178	0.018	0.153
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.36**	**1.46**	**2.81**	**0.00**	**0.11**	**0.10**	**398.71**	**0.03**	**0.27**
Slurry Cutoff Wall																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	8	8	400	5.48	25.60	35.18	0.04	2.91	2.59	3775.28	0.49	3.34	1.097	5.119	7.037	0.009	0.582	0.518	755	0.099	0.669
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	400	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	1.476	8.909	9.908	0.016	0.751	0.668	1324	0.133	0.941
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	8	8	400	2.42	13.69	13.13	0.02	0.73	0.65	1633.23	0.22	1.25	0.484	2.737	2.627	0.004	0.145	0.129	327	0.044	0.250
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	16	8	400	16.02	47.38	125.67	0.24	4.19	3.73	21317.81	1.45	11.94	3.204	9.477	25.133	0.048	0.839	0.747	4264	0.289	2.388
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	8	8	400	8.01	23.69	62.83	0.12	2.10	1.87	10658.91	0.72	5.97	1.602	4.738	12.567	0.024	0.419	0.373	2132	0.145	1.194
Subtotal																**39.32**	**154.90**	**286.36**	**0.50**	**13.68**	**12.18**	**44006.41**	**3.55**	**27.20**	**7.86**	**30.98**	**57.27**	**0.10**	**2.74**	**2.44**	**8801.28**	**0.71**	**5.44**
Total 2025																									**1.397**	**5.568**	**10.567**	**0.016**	**0.454**	**0.404**	**1541.488**	**0.126**	**1.004**
Total 2026																									**31.293**	**117.423**	**285.232**	**0.350**	**10.468**	**9.317**	**21063.237**	**1.717**	**13.702**
Total 2027																									**35.461**	**131.873**	**339.313**	**0.383**	**11.838**	**10.536**	**19638.568**	**1.626**	**13.194**
Total 2028																									**4.249**	**18.124**	**33.415**	**0.044**	**1.401**	**1.247**	**4373.828**	**0.383**	**3.174**
Total 2029																									**1.395**	**6.101**	**11.319**	**0.014**	**0.474**	**0.422**	**1342.290**	**0.126**	**1.075**

Table 17. Worker Vehicle Emissions, River Relocation Bottom

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Belleview Outfall	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Utility Relocations - City owned Utility	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Utility Relocations - Franchised Owned Utility	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Able Extend Pump Station Outfalls	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Able Pumping Plant Sump Pond and Enhancements	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Bridge Pier Modifications - Houston Street Bridge	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Bridge Pier Modifications - Jefferson Street Bridge	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Bridge Pier Modifications - IH-35 SB Bridge	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Bridge Pier Modifications - IH-35 NB Bridge	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Channels - Corinth Bridge to Commerce Bridge																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Downstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Excavate New Channel	Light-Duty Truck, catalyst	60	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Upstream Tie In	Light-Duty Truck, catalyst	10	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Storm Drain Crossing and Extension	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Backfill Existing Channel	Light-Duty Truck, catalyst	30	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rechape Existing Channel	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grading	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
River Bank and Outfall Treatments	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Riprap and Toe	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Slurry Cutoff Wall	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00

Assume startup after 8 hours
Assume 45 minutes run time total
Assume 10 workers per crew

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Utility Relocations - Storm Drain, Belleview Outfall
Utility Relocations - City owned Utility
Utility Relocations - Franchised Owned Utility
Able Extend Pump Station Outfalls
Able Pumping Plant Sump Pond and Enhancements
Bridge Pier Modifications - Houston Street Bridge
Bridge Pier Modifications - Jefferson Street Bridge
Bridge Pier Modifications - IH-35 SB Bridge
Bridge Pier Modifications - IH-35 NB Bridge
Erosion/Sediment Control and Clearing
Downstream Tie In
Excavate New Channel
Upstream Tie In
Storm Drain Crossing and Extension
Backfill Existing Channel
Rechape Existing Channel
Rough Grading
River Bank and Outfall Treatments
Riprap and Toe
Slurry Cutoff Wall

Emissions, lbs/day											
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
4.59	0.58	0.23	0.01	0.06	0.03	0.08	0.02	711.17	0.01	0.00
27.56	3.48	1.36	0.05	0.34	0.19	0.51	0.11	4267.00	0.04	0.02
4.59	0.58	0.23	0.01	0.06	0.03	0.08	0.02	711.17	0.01	0.00
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
13.78	1.74	0.68	0.03	0.17	0.09	0.25	0.05	2133.50	0.02	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01

	Total Emissions, tons										
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
37	0.17	0.02	0.00837	3.26E-04	0.00209	0.00117	0.00312	0.00066	26	0.00023	0.00014
118	0.54	0.07	0.02669	1.04E-03	0.00666	0.00373	0.00996	0.00209	84	0.00074	0.00044
94	0.43	0.05	0.02126	8.28E-04	0.00531	0.00297	0.00793	0.00167	67	0.00059	0.00035
219	1.01	0.13	0.04954	1.93E-03	0.01237	0.00692	0.01848	0.00388	156	0.00138	0.00082
219	1.01	0.13	0.04954	1.93E-03	0.01237	0.00692	0.01848	0.00388	156	0.00138	0.00082
300	1.38	0.17	0.06786	2.64E-03	0.01694	0.00948	0.02532	0.00532	213	0.00189	0.00112
180	0.83	0.10	0.04071	1.59E-03	0.01016	0.00569	0.01519	0.00319	128	0.00114	0.00067
369	1.69	0.21	0.08346	3.25E-03	0.02084	0.01166	0.03114	0.00654	262	0.00233	0.00138
267	1.23	0.15	0.06039	2.35E-03	0.01508	0.00844	0.02253	0.00473	190	0.00169	0.00100
102	0.47	0.06	0.02	0.00	0.01	0.00	0.01	0.00	72.54	0.00	0.00
5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.00	0.00
468	6.45	0.81	0.32	0.01	0.08	0.04	0.12	0.02	998.48	0.01	0.01
4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.00	0.00
302	1.39	0.18	0.07	0.00	0.02	0.01	0.03	0.01	214.77	0.00	0.00
193	1.33	0.17	0.07	0.00	0.02	0.01	0.02	0.01	205.88	0.00	0.00
104	0.96	0.12	0.05	0.00	0.01	0.01	0.02	0.00	147.92	0.00	0.00
200	0.92	0.12	0.05	0.00	0.01	0.01	0.02	0.00	142.23	0.00	0.00
24	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.00	17.07	0.00	0.00
42	0.19	0.02	0.01	0.00	0.00	0.00	0.00	0.00	29.87	0.00	0.00
400	3.67	0.46	0.18	0.01	0.05	0.03	0.07	0.01	568.93	0.01	0.00
Total 2025	**0.71**	**0.09**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**109.83**	**0.00**	**0.00**
Total 2026	**10.47**	**1.32**	**0.52**	**0.02**	**0.13**	**0.07**	**0.19**	**0.04**	**1620.73**	**0.01**	**0.01**
Total 2027	**9.68**	**1.22**	**0.48**	**0.02**	**0.12**	**0.07**	**0.18**	**0.04**	**1498.56**	**0.01**	**0.01**
Total 2028	**1.91**	**0.24**	**0.09**	**0.00**	**0.02**	**0.01**	**0.04**	**0.01**	**295.50**	**0.00**	**0.00**
Total 2029	**1.02**	**0.13**	**0.05**	**0.00**	**0.01**	**0.01**	**0.02**	**0.00**	**158.23**	**0.00**	**0.00**

Table 18. Construction Truck Emissions, River Relocation Bottom

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Utility Relocations - Storm Drain, Belleview Outfall	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Utility Relocations - City owned Utility	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Utility Relocations - Franchised Owned Utility	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Able Extend Pump Station Outfalls	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Able Pumping Plant Sump Pond and Enhancements	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Bridge Pier Modifications - Houston Street Bridge	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Bridge Pier Modifications - Jefferson Street Bridge	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Bridge Pier Modifications - IH-35 SB Bridge	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Bridge Pier Modifications - IH-35 NB Bridge	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Channels - Corinth Bridge to Commerce Bridge																	
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Downstream Tie In	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Excavate New Channel	Heavy Duty Truck, Diesel	12	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Upstream Tie In	Heavy Duty Truck, Diesel	2	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Storm Drain Crossing and Extension	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Backfill Existing Channel	Heavy Duty Truck, Diesel	6	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Rechape Existing Channel	Heavy Duty Truck, Diesel	8	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Rough Grading	Heavy Duty Truck, Diesel	8	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
River Bank and Outfall Treatments	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Riprap and Toe	Heavy Duty Truck, Diesel	4	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Slurry Cutoff Wall	Heavy Duty Truck, Diesel	16	35	80	0.7044468	2.7126763	0.1368004	0.0149089	0.1091708	0.036	0.0125	0.1059056	0.009	0.0053	2178.682864	0.0500788	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
1.49	5.74	0.29	0.03	0.33	0.25	18.06	3.79	3.02	0.30	4611.07	0.11	0.00
0.25	0.96	0.05	0.01	0.06	0.04	3.01	0.63	0.50	0.05	768.51	0.02	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.75	2.87	0.14	0.02	0.17	0.13	9.03	1.90	1.51	0.15	2305.54	0.05	0.00
0.99	3.83	0.19	0.02	0.22	0.17	12.04	2.53	2.01	0.20	3074.05	0.07	0.00
0.99	3.83	0.19	0.02	0.22	0.17	12.04	2.53	2.01	0.20	3074.05	0.07	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
0.50	1.91	0.10	0.01	0.11	0.08	6.02	1.26	1.01	0.10	1537.02	0.04	0.00
1.99	7.65	0.39	0.04	0.44	0.34	24.07	5.06	4.03	0.40	6148.09	0.14	0.01

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

	Total Emissions, tons													
	Construction Days/Total Deliveries	**CO**	**NOx**	**VOCs**	**SOx**	**PM10**	**PM2.5**	**Paved Road Fugitive Dust PM10**	**Paved Road Fugitive Dust PM2.5**	**Unpaved Road Fugitive Dust PM10**	**Unpaved Road Fugitive Dust PM2.5**	**CO2**	**CH4**	**N2O**
Utility Relocations - Storm Drain, Belleview Outfall	37	0.01	0.04	0.00	0.00	0.00	0.00	0.11	0.02	0.02	0.00	28.43	0.00	0.00
Utility Relocations - City owned Utility	118	0.03	0.11	0.01	0.00	0.01	0.01	0.36	0.07	0.06	0.01	90.68	0.00	0.00
Utility Relocations - Franchised Owned Utility	94	0.02	0.09	0.00	0.00	0.01	0.00	0.28	0.06	0.05	0.00	72.24	0.00	0.00
Able Extend Pump Station Outfalls	219	0.05	0.21	0.01	0.00	0.01	0.01	0.66	0.14	0.11	0.01	168.30	0.00	0.00
Able Pumping Plant Sump Pond and Enhancements	219	0.05	0.21	0.01	0.00	0.01	0.01	0.66	0.14	0.11	0.01	168.30	0.00	0.00
Bridge Pier Modifications - Houston Street Bridge	300	0.04	0.14	0.01	0.00	0.01	0.01	0.45	0.09	0.08	0.01	115.28	0.00	0.00
Bridge Pier Modifications - Jefferson Street Bridge	180	0.02	0.09	0.00	0.00	0.01	0.00	0.27	0.06	0.05	0.00	69.17	0.00	0.00
Bridge Pier Modifications - IH-35 SB Bridge	369	0.05	0.18	0.01	0.00	0.01	0.01	0.56	0.12	0.09	0.01	141.79	0.00	0.00
Bridge Pier Modifications - IH-35 NB Bridge	267	0.03	0.13	0.01	0.00	0.01	0.01	0.40	0.08	0.07	0.01	102.60	0.00	0.00
Erosion/Sediment Control and Clearing	102	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.39	0.00	0.00
Downstream Tie In	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.92	0.00	0.00
Excavate New Channel	468	0.35	1.34	0.07	0.01	0.08	0.06	4.22	0.89	0.71	0.07	1078.99	0.02	0.00
Upstream Tie In	4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.54	0.00	0.00
Storm Drain Crossing and Extension	302	0.08	0.29	0.01	0.00	0.02	0.01	0.91	0.19	0.15	0.02	232.09	0.01	0.00
Backfill Existing Channel	193	0.07	0.28	0.01	0.00	0.02	0.01	0.87	0.18	0.15	0.01	222.48	0.01	0.00
Rechape Existing Channel	104	0.05	0.20	0.01	0.00	0.01	0.01	0.63	0.13	0.10	0.01	159.85	0.00	0.00
Rough Grading	200	0.10	0.38	0.02	0.00	0.02	0.02	1.20	0.25	0.20	0.02	307.40	0.01	0.00
River Bank and Outfall Treatments	24	0.01	0.02	0.00	0.00	0.00	0.00	0.07	0.02	0.01	0.00	18.44	0.00	0.00
Riprap and Toe	42	0.01	0.04	0.00	0.00	0.00	0.00	0.13	0.03	0.02	0.00	32.28	0.00	0.00
Slurry Cutoff Wall	400	0.40	1.53	0.08	0.01	0.09	0.07	4.81	1.01	0.81	0.08	1229.62	0.03	0.00
Total 2025		**0.05**	**0.20**	**0.01**	**0.00**	**0.01**	**0.01**	**0.62**	**0.13**	**0.10**	**0.01**	**157.11**	**0.00**	**0.00**
Total 2026		**0.68**	**2.62**	**0.13**	**0.01**	**0.15**	**0.12**	**8.25**	**1.73**	**1.38**	**0.14**	**2106.85**	**0.05**	**0.00**
Total 2027		**0.54**	**2.07**	**0.10**	**0.01**	**0.12**	**0.09**	**6.52**	**1.37**	**1.09**	**0.11**	**1666.28**	**0.04**	**0.00**
Total 2028		**0.10**	**0.38**	**0.02**	**0.00**	**0.02**	**0.02**	**1.19**	**0.25**	**0.20**	**0.02**	**303.76**	**0.01**	**0.00**
Total 2029		**0.03**	**0.11**	**0.01**	**0.00**	**0.01**	**0.00**	**0.33**	**0.07**	**0.06**	**0.01**	**85.49**	**0.00**	**0.00**

Table 19. Heavy Construction Equipment Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction

				Emission Factors												Emissions												Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
West Dallas Lake - Contract 7																																		
Utility Relocations - City owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	195	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.611	1.856	4.419	0.008	0.158	0.140	850	0.055	0.420
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	195	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.164	1.038	1.156	0.002	0.063	0.056	175	0.015	0.110
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	195	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.915	3.886	7.473	0.008	0.307	0.274	826	0.083	0.710
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**1.69**	**6.78**	**13.05**	**0.02**	**0.53**	**0.47**	**1851.15**	**0.15**	**1.24**
Utility Relocations - Franchised Owned Utility																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	49	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.154	0.466	1.111	0.002	0.040	0.035	214	0.014	0.105
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	49	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.041	0.261	0.290	0.000	0.016	0.014	44	0.004	0.028
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	49	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.230	0.977	1.878	0.002	0.077	0.069	208	0.021	0.178
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.42**	**1.70**	**3.28**	**0.00**	**0.13**	**0.12**	**465.16**	**0.04**	**0.31**
Bridge Pier Modifications - Westmoreland Bridge																																		
Equipment																																		
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	302	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.223	0.655	2.001	0.003	0.069	0.062	271	0.020	0.190
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	302	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.254	1.607	1.790	0.003	0.098	0.087	271	0.023	0.170
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	302	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.417	6.019	11.573	0.013	0.476	0.424	1280	0.128	1.099
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.89**	**8.28**	**15.36**	**0.02**	**0.64**	**0.57**	**1821.97**	**0.17**	**1.46**
West Dallas Lake																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																		
Lake Bottom																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	16	8	187	25.08	76.15	181.31	0.34	6.46	5.75	34858.73	2.26	17.22	2.345	7.120	16.952	0.032	0.604	0.538	3259	0.212	1.610
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	16	8	187	13.46	85.16	94.82	0.16	5.18	4.61	14364.36	1.21	9.01	1.259	7.963	8.866	0.015	0.484	0.431	1343	0.114	0.842
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	16	8	187	37.52	159.44	306.57	0.33	12.61	11.22	33903.69	3.39	29.12	3.509	14.908	28.664	0.031	1.179	1.049	3170	0.317	2.723
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	16	8	187	10.97	51.19	70.37	0.09	5.82	5.18	7550.56	0.99	6.69	1.025	4.787	6.580	0.008	0.544	0.484	706	0.093	0.625
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	8	8	187	8.01	23.69	62.83	0.12	2.10	1.87	10658.91	0.72	5.97	0.749	2.215	5.875	0.011	0.196	0.175	997	0.068	0.558
Subtotal																**113.42**	**457.77**	**927.12**	**1.24**	**38.59**	**34.34**	**101336.25**	**8.58**	**68.01**	**10.60**	**42.80**	**86.69**	**0.12**	**3.61**	**3.21**	**9474.94**	**0.80**	**6.36**
Lake Sides																																		
Edge Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	16	8	57	25.08	76.15	181.31	0.34	6.46	5.75	34858.73	2.26	17.22	0.715	2.170	5.167	0.010	0.184	0.164	993	0.065	0.491
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	57	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.096	0.607	0.676	0.001	0.037	0.033	102	0.009	0.064
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	57	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	0.210	1.269	1.412	0.002	0.107	0.095	189	0.019	0.134
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	4	8	57	1.21	6.84	6.57	0.01	0.36	0.32	816.61	0.11	0.62	0.035	0.195	0.187	0.000	0.010	0.009	23	0.003	0.018
Subtotal																**37.04**	**148.82**	**261.12**	**0.47**	**11.88**	**10.57**	**45887.62**	**3.34**	**24.81**	**1.06**	**4.24**	**7.44**	**0.01**	**0.34**	**0.30**	**1307.80**	**0.10**	**0.71**
Overflow Weir 1 and 2 Weir for River Connection																																		
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	118	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.199	1.256	1.399	0.002	0.076	0.068	212	0.018	0.133
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	118	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	0.436	2.628	2.923	0.005	0.222	0.197	391	0.039	0.278
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	8	8	118	2.42	13.69	13.13	0.02	0.73	0.65	1633.23	0.22	1.25	0.143	0.807	0.775	0.001	0.043	0.038	96	0.013	0.074
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	16	8	118	8.84	40.73	55.47	0.07	4.80	4.27	6009.63	0.80	5.27	0.521	2.403	3.273	0.004	0.283	0.252	355	0.047	0.311
Subtotal																**22.01**	**120.25**	**141.85**	**0.21**	**10.57**	**9.41**	**17855.13**	**1.99**	**13.48**	**1.30**	**7.09**	**8.37**	**0.01**	**0.62**	**0.56**	**1053.45**	**0.12**	**0.80**
Lake Drain																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	27	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.169	0.514	1.224	0.002	0.044	0.039	235	0.015	0.116
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	27	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.023	0.144	0.160	0.000	0.009	0.008	24	0.002	0.015
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	8	8	27	3.69	22.27	24.77	0.04	1.88	1.67	3310.59	0.33	2.35	0.050	0.301	0.334	0.001	0.025	0.023	45	0.004	0.032
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	4	8	27	1.21	6.84	6.57	0.01	0.36	0.32	816.61	0.11	0.62	0.016	0.092	0.089	0.000	0.005	0.004	11	0.001	0.008
Subtotal																**19.13**	**77.83**	**133.84**	**0.24**	**6.12**	**5.45**	**23352.12**	**1.73**	**12.72**	**0.26**	**1.05**	**1.81**	**0.00**	**0.08**	**0.07**	**315.25**	**0.02**	**0.17**
Lake Edge Treatment and Planting																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																		
Paved Loop Trail																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
West End Parking																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	41	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.085	0.480	0.625	0.001	0.034	0.031	81	0.008	0.059
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**0.29**	**1.27**	**2.09**	**0.00**	**0.10**	**0.09**	**306.83**	**0.03**	**0.20**
Lighting																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**2.45**	**14.56**	**15.67**	**0.02**	**1.12**	**1.00**	**2063.60**	**0.22**	**1.49**	**0.05**	**0.30**	**0.32**	**0.00**	**0.02**	**0.02**	**42.30**	**0.00**	**0.03**

Boat Dock																																		
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	1	8	41	0.80	4.11	5.07	0.01	0.41	0.37	588.98	0.07	0.48	0.016	0.084	0.104	0.000	0.009	0.008	12	0.001	0.010
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	4	8	41	2.03	11.21	13.61	0.02	1.08	0.96	1655.30	0.18	1.29	0.042	0.230	0.279	0.000	0.022	0.020	34	0.004	0.026
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	41	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.015	0.072	0.071	0.000	0.004	0.004	8	0.001	0.007
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.96**	**29.12**	**37.11**	**0.05**	**3.04**	**2.70**	**4155.00**	**0.54**	**3.53**	**0.12**	**0.60**	**0.76**	**0.00**	**0.06**	**0.06**	**85.18**	**0.01**	**0.07**
Lane Buoys																																		
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	41	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.015	0.072	0.071	0.000	0.004	0.004	8	0.001	0.007
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**3.13**	**13.80**	**18.44**	**0.02**	**1.55**	**1.38**	**1910.71**	**0.28**	**1.75**	**0.06**	**0.28**	**0.38**	**0.00**	**0.03**	**0.03**	**39.17**	**0.01**	**0.04**
Levee Cutoff Walls																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**
Deep Water Well																																		
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	1	8	180	0.80	4.11	5.07	0.01	0.41	0.37	588.98	0.07	0.48	0.072	0.370	0.456	0.001	0.037	0.033	53	0.006	0.043
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	4	8	180	2.03	11.21	13.61	0.02	1.08	0.96	1655.30	0.18	1.29	0.183	1.009	1.225	0.002	0.097	0.086	149	0.016	0.116
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	180	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.064	0.316	0.311	0.000	0.019	0.017	37	0.006	0.030
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	180	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.218	0.926	1.349	0.002	0.120	0.107	135	0.020	0.128
Subtotal																**5.96**	**29.12**	**37.11**	**0.05**	**3.04**	**2.70**	**4155.00**	**0.54**	**3.53**	**0.54**	**2.62**	**3.34**	**0.00**	**0.27**	**0.24**	**373.95**	**0.05**	**0.32**
Urban Lake																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																		
Lake Bottom																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	187	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.586	1.780	4.238	0.008	0.151	0.134	815	0.053	0.403
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	187	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.315	1.991	2.217	0.004	0.121	0.108	336	0.028	0.211
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	187	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.877	3.727	7.166	0.008	0.295	0.262	792	0.079	0.681
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	187	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.256	1.197	1.645	0.002	0.136	0.121	176	0.023	0.156
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	187	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.187	0.554	1.469	0.003	0.049	0.044	249	0.017	0.140
Subtotal																**42.13**	**161.04**	**390.19**	**0.45**	**14.46**	**12.87**	**25334.06**	**2.14**	**17.00**	**3.94**	**15.06**	**36.48**	**0.04**	**1.35**	**1.20**	**2368.73**	**0.20**	**1.59**
Lake Sides																																		
Edge Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	57	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.179	0.543	1.292	0.002	0.046	0.041	248	0.016	0.123
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	57	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.024	0.152	0.169	0.000	0.009	0.008	26	0.002	0.016
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	57	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.053	0.317	0.353	0.001	0.027	0.024	47	0.005	0.034
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	57	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.017	0.098	0.094	0.000	0.005	0.005	12	0.002	0.009
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.27**	**1.11**	**1.91**	**0.00**	**0.09**	**0.08**	**332.77**	**0.02**	**0.19**
Overflow Weir 1 and 2 Weir for River Connection																																		
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	118	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.050	0.314	0.350	0.001	0.019	0.017	53	0.004	0.033
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	118	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.109	0.657	0.731	0.001	0.055	0.049	98	0.010	0.069
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	118	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.036	0.202	0.194	0.000	0.011	0.010	24	0.003	0.018
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	118	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.130	0.601	0.818	0.001	0.071	0.063	89	0.012	0.078
Subtotal																**5.50**	**30.06**	**35.46**	**0.05**	**2.64**	**2.35**	**4463.78**	**0.50**	**3.37**	**0.32**	**1.77**	**2.09**	**0.00**	**0.16**	**0.14**	**263.36**	**0.03**	**0.20**
Lake Drain																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	27	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.085	0.257	0.612	0.001	0.022	0.019	118	0.008	0.058
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	27	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.011	0.072	0.080	0.000	0.004	0.004	12	0.001	0.008
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	27	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.025	0.150	0.167	0.000	0.013	0.011	22	0.002	0.016
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	27	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.008	0.046	0.044	0.000	0.002	0.002	6	0.001	0.004
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.13**	**0.53**	**0.90**	**0.00**	**0.04**	**0.04**	**157.63**	**0.01**	**0.09**
Lake Edge Treatment and Planting																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																		
Pavilion																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Whitewater Course																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	41	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.129	0.390	0.929	0.002	0.033	0.029	179	0.012	0.088
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.20**	**0.80**	**1.37**	**0.00**	**0.06**	**0.06**	**239.36**	**0.02**	**0.13**

Boat Launch																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Restroom Trailers																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**0.17**	**0.66**	**1.29**	**0.00**	**0.06**	**0.05**	**206.18**	**0.02**	**0.12**
Rock Plantings/Landscaping																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**3.29**	**19.88**	**21.60**	**0.03**	**1.44**	**1.29**	**2961.38**	**0.30**	**2.05**	**0.07**	**0.41**	**0.44**	**0.00**	**0.03**	**0.03**	**60.71**	**0.01**	**0.04**
Loop Trail																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Cypress Planting/Landscaping																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**3.29**	**19.88**	**21.60**	**0.03**	**1.44**	**1.29**	**2961.38**	**0.30**	**2.05**	**0.07**	**0.41**	**0.44**	**0.00**	**0.03**	**0.03**	**60.71**	**0.01**	**0.04**
Stone Curb w/ Safety Bench																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**0.17**	**0.66**	**1.29**	**0.00**	**0.06**	**0.05**	**206.18**	**0.02**	**0.12**
Water Maze																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.72**	**30.17**	**36.58**	**0.05**	**2.77**	**2.47**	**4463.78**	**0.52**	**3.47**	**0.12**	**0.62**	**0.75**	**0.00**	**0.06**	**0.05**	**91.51**	**0.01**	**0.07**
Fountain Bubblers/Aeratots																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**2.45**	**14.56**	**15.67**	**0.02**	**1.12**	**1.00**	**2063.60**	**0.22**	**1.49**	**0.05**	**0.30**	**0.32**	**0.00**	**0.02**	**0.02**	**42.30**	**0.00**	**0.03**
Fountain Plaza																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Canoe Path																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.72**	**30.17**	**36.58**	**0.05**	**2.77**	**2.47**	**4463.78**	**0.52**	**3.47**	**0.12**	**0.62**	**0.75**	**0.00**	**0.06**	**0.05**	**91.51**	**0.01**	**0.07**
Skate Path																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Amphitheater																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Levee Cutoff Walls																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**

Natural Lake																																		
Erosion/Sediment Control and Clearing																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																		
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																		
Lake Bottom																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	187	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.586	1.780	4.238	0.008	0.151	0.134	815	0.053	0.403
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	187	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.315	1.991	2.217	0.004	0.121	0.108	336	0.028	0.211
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	187	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.877	3.727	7.166	0.008	0.295	0.262	792	0.079	0.681
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	187	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.256	1.197	1.645	0.002	0.136	0.121	176	0.023	0.156
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	187	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.187	0.554	1.469	0.003	0.049	0.044	249	0.017	0.140
Subtotal																**42.13**	**161.04**	**390.19**	**0.45**	**14.46**	**12.87**	**25334.06**	**2.14**	**17.00**	**3.94**	**15.06**	**36.48**	**0.04**	**1.35**	**1.20**	**2368.73**	**0.20**	**1.59**
Lake Sides																																		
Edge Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	57	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.179	0.543	1.292	0.002	0.046	0.041	248	0.016	0.123
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	57	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.024	0.152	0.169	0.000	0.009	0.008	26	0.002	0.016
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	57	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.053	0.317	0.353	0.001	0.027	0.024	47	0.005	0.034
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	57	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.017	0.098	0.094	0.000	0.005	0.005	12	0.002	0.009
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.27**	**1.11**	**1.91**	**0.00**	**0.09**	**0.08**	**332.77**	**0.02**	**0.18**
Overflow Weir 1 and 2 Weir for River Connection																																		
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	118	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.050	0.314	0.350	0.001	0.019	0.017	53	0.004	0.033
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	118	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.109	0.657	0.731	0.001	0.055	0.049	98	0.010	0.069
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	118	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.036	0.202	0.194	0.000	0.011	0.010	24	0.003	0.016
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	118	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.130	0.601	0.818	0.001	0.071	0.063	89	0.012	0.078
Subtotal																**5.50**	**30.06**	**35.46**	**0.05**	**2.64**	**2.35**	**4463.78**	**0.50**	**3.37**	**0.32**	**1.77**	**2.09**	**0.00**	**0.16**	**0.14**	**263.36**	**0.03**	**0.20**
Lake Drain																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	27	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.085	0.257	0.612	0.001	0.022	0.019	118	0.008	0.058
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	27	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.011	0.072	0.080	0.000	0.004	0.004	12	0.001	0.008
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	27	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.025	0.150	0.167	0.000	0.013	0.011	22	0.002	0.016
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	27	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.008	0.046	0.044	0.000	0.002	0.002	6	0.001	0.004
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.13**	**0.53**	**0.90**	**0.00**	**0.04**	**0.04**	**157.63**	**0.01**	**0.09**
Lake Edge Treatment and Planting																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																		
Boardwalk Loop																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Floating Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	41	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.129	0.390	0.929	0.002	0.033	0.029	179	0.012	0.088
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.20**	**0.80**	**1.37**	**0.00**	**0.06**	**0.06**	**239.36**	**0.02**	**0.13**
Small Amphitheater																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Boat Launch																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Levee Cutoff Walls																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**
TOTAL 2017																									**10.89**	**43.93**	**88.37**	**0.12**	**3.65**	**3.25**	**10047.47**	**0.83**	**6.52**
TOTAL 2018																									**8.57**	**34.76**	**69.65**	**0.10**	**2.99**	**2.66**	**7476.07**	**0.62**	**4.74**
TOTAL 2022																									**0.188**	**0.753**	**1.450**	**0.002**	**0.059**	**0.052**	**205.663**	**0.017**	**0.138**
TOTAL 2023																									**2.401**	**9.801**	**18.718**	**0.026**	**0.763**	**0.679**	**2566.140**	**0.217**	**1.778**
TOTAL 2024																									**2.255**	**9.596**	**17.961**	**0.023**	**0.745**	**0.663**	**2277.940**	**0.204**	**1.706**
TOTAL 2025																									**14.151**	**57.990**	**112.264**	**0.154**	**4.900**	**4.361**	**13150.709**	**1.122**	**8.789**
TOTAL 2026																									**3.075**	**14.352**	**20.973**	**0.034**	**1.208**	**1.075**	**3167.700**	**0.277**	**1.992**

Table 20. Worker Vehicle Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
West Dallas Lake - Contract 7																					
Utility Relocations - City owned Utility	Light-Duty Truck, catalyst	20	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Utility Relocations - Franchised Owned Utility	Light-Duty Truck, catalyst	20	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Bridge Pier Modifications - Westmoreland Bridge	Light-Duty Truck, catalyst	30	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
West Dallas Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Paved Loop Trail	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
West End Parking	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lighting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Dock	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lane Buoys	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Deep Water Well	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Urban Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Pavilion	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Whitewater Course	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Launch	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Restroom Trailers	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rock Plantings/Landscaping	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Loop Trail	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Cypress Planting/Landscaping	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Stone Curb w/ Safety Bench	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Water Maze	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Fountain Bubblers/Aeratots	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Fountain Plaza	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Canoe Path	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Skate Path	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Amphitheater	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Natural Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Boardwalk Loop	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Floating Wetlands	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Small Amphitheater	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Launch	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00

Assume startup after 8 hours
Assume 45 minutes run time total

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
9.70	1.30	0.49	0.02	0.11	0.06	0.17	0.04	1461.94	0.01	0.01
9.45	1.23	0.47	0.02	0.11	0.06	0.17	0.04	1441.24	0.01	0.01
14.17	1.84	0.70	0.03	0.17	0.10	0.25	0.05	2161.86	0.02	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01

	Total Emissions, tons											
West Dallas Lake - Contract 7	Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Utility Relocations - City owned Utility	195	0.95	0.13	0.04731	1.76E-03	0.01109	0.00623	0.01646	0.00346	143	0.00133	0.00086
Utility Relocations - Franchised Owned Utility	49	0.23	0.03	0.01144	4.37E-04	0.00278	0.00156	0.00413	0.00087	35	0.00032	0.00020
Bridge Pier Modifications - Westmoreland Bridge	302	2.14	0.28	0.10573	4.04E-03	0.02568	0.01440	0.03823	0.00803	326	0.00300	0.00184
West Dallas Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.02	0.00	0.00	0.00	0.01	0.00	51.92	0.00	0.00
Rough Grade Lake	125	0.57	0.11	0.04230	1.65E-03	0.01056	0.00591	0.01578	0.00331	133	0.00118	0.00070
Lake Bottom	187	1.72	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Lake Sides	57	0.52	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Paved Loop Trail	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
West End Parking	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Lighting	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Dock	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Lane Buoys	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
Deep Water Well	180	1.65	0.21	0.08143	3.17E-03	0.02033	0.01137	0.03038	0.00638	256	0.00227	0.00134
Urban Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.01651	6.43E-04	0.00412	0.00231	0.00616	0.00129	52	0.00046	0.00027
Rough Grade Lake	125	0.57	0.07	0.02827	1.10E-03	0.00706	0.00395	0.01055	0.00222	89	0.00079	0.00047
Lake Bottom	187	1.72	0.22	0.08459	3.29E-03	0.02112	0.01182	0.03156	0.00663	266	0.00236	0.00140
Lake Sides	57	0.52	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Pavilion	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Whitewater Course	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Launch	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Restroom Trailers	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Rock Plantings/Landscaping	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Loop Trail	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Cypress Planting/Landscaping	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Stone Curb w/ Safety Bench	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Water Maze	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Fountain Bubblers/Aeratots	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Fountain Plaza	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Canoe Path	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Skate Path	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Amphitheater	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
Natural Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.01651	6.43E-04	0.00412	0.00231	0.00616	0.00129	52	0.00046	0.00027
Rough Grade Lake	125	0.57	0.07	0.02827	1.10E-03	0.00706	0.00395	0.01055	0.00222	89	0.00079	0.00047
Lake Bottom	187	1.72	0.22	0.08459	3.29E-03	0.02112	0.01182	0.03156	0.00663	266	0.00236	0.00140
Lake Sides	57	0.52	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Boardwalk Loop	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Floating Wetlands	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Small Amphitheater	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Launch	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
TOTAL 2017	**9.31**	**1.18**	**0.46**	**0.02**	**0.11**	**0.06**	**0.17**	**0.04**	**1441.53**	**0.01**	**0.01**
TOTAL 2018	**11.26**	**1.42**	**0.55**	**0.02**	**0.14**	**0.08**	**0.21**	**0.04**	**1743.07**	**0.02**	**0.01**
TOTAL 2022	**0.11**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**15.84**	**0.00**	**0.00**
TOTAL 2023	**1.61**	**0.21**	**0.08**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**243.62**	**0.00**	**0.00**
TOTAL 2024	**2.04**	**0.27**	**0.10**	**0.00**	**0.03**	**0.01**	**0.04**	**0.01**	**318.91**	**0.00**	**0.00**
TOTAL 2025	**6.947**	**0.780**	**0.304**	**0.012**	**0.076**	**0.042**	**0.113**	**0.024**	**956.324**	**0.008**	**0.005**
TOTAL 2026	**3.05**	**0.43**	**0.17**	**0.01**	**0.04**	**0.02**	**0.06**	**0.01**	**530.60**	**0.00**	**0.00**

Table 21. Construction Truck Emissions, Lakes, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Construction

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO	NO_X	ROG	SOx	PM10			PM2.5			CO2	CH4	N2O
					Running Exhaust (g/mi)	Running Exhaust (g/mi)	Running Exhaust (g/mi)	Running Exhaust (g/mi)	Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Running Exhaust (g/mi)	Running Exhaust (g/mi)	Running Exhaust (g/mi)
West Dallas Lake - Contract 7																	
Utility Relocations - City owned Utility	Heavy Duty Truck, Diesel	10	35	20	0.871807363	3.316724334	0.16817599	0.014974	0.14674414	0.036	0.0125	0.142150806	0.009	0.0053	2178.446793	0.04887025	0.00
Utility Relocations - Franchised Owned Utility	Heavy Duty Truck, Diesel	10	35	20	0.781457199	2.991381103	0.15125977	0.01492336	0.12636546	0.036	0.0125	0.122573398	0.009	0.0053	2178.467845	0.04949967	0.00
Bridge Pier Modifications - Westmoreland Bridge	Heavy Duty Truck, Diesel	10	35	20	0.781457199	2.991381103	0.15125977	0.01492336	0.12636546	0.036	0.0125	0.122573398	0.009	0.0053	2178.467845	0.04949967	0.00
West Dallas Lake																	
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	150	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)	Heavy Duty Truck, Diesel																
Paved Loop Trail	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
West End Parking	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lighting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Dock	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lane Buoys	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Deep Water Well	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Urban Lake	Heavy Duty Truck, Diesel																
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	100	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)	Heavy Duty Truck, Diesel																
Pavilion	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Whitewater Course	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Launch	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Restroom Trailers	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rock Plantings/Landscaping	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Loop Trail	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Cypress Planting/Landscaping	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Stone Curb w/ Safety Bench	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Water Maze	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Fountain Bubblers/Aeratots	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Fountain Plaza	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Canoe Path	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Skate Path	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Amphitheater	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Natural Lake	Heavy Duty Truck, Diesel																
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	150	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																	
Boardwalk Loop	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Floating Wetlands	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Small Amphitheater	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Launch	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust

Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
0.38	1.46	0.07	0.01	0.09	0.07	4.55	0.96	2.52	0.25	960.54	0.02	0.00
0.34	1.32	0.07	0.01	0.08	0.06	4.55	0.96	2.52	0.25	960.54	0.02	0.00
0.34	1.32	0.07	0.01	0.08	0.06	4.55	0.96	2.52	0.25	960.54	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
4.66	17.94	0.90	0.10	1.04	0.80	68.23	14.33	37.77	3.78	14409.60	0.33	0.01
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
3.11	11.96	0.60	0.07	0.70	0.53	45.49	9.55	25.18	2.52	9606.40	0.22	0.01
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
4.66	17.94	0.90	0.10	1.04	0.80	68.23	14.33	37.77	3.78	14409.60	0.33	0.01
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	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
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00

	Total Emissions, tons													
	Construction Days/Total Deliveries	**CO**	**NOx**	**VOCs**	**SOx**	**PM10**	**PM2.5**	**Paved Road Fugitive Dust PM10**	**Paved Road Fugitive Dust PM2.5**	**Unpaved Road Fugitive Dust PM10**	**Unpaved Road Fugitive Dust PM2.5**	**CO2**	**CH4**	**N2O**
West Dallas Lake - Contract 7														
Utility Relocations - City owned Utility	195	0.04	0.14	0.01	0.00	0.01	0.01	0.44	0.09	0.25	0.02	93.65	0.00	0.00
Utility Relocations - Franchised Owned Utility	49	0.01	0.03	0.00	0.00	0.00	0.00	0.11	0.02	0.06	0.01	23.53	0.00	0.00
Bridge Pier Modifications - Westmoreland Bridge	302	0.05	0.20	0.01	0.00	0.01	0.01	0.69	0.14	0.38	0.04	145.04	0.00	0.00
West Dallas Lake														
Erosion/Sediment Control and Clearing	73	0.01	0.04	0.00	0.00	0.00	0.00	0.17	0.03	0.09	0.01	35.06	0.00	0.00
Rough Grade Lake	125	0.02	0.07	0.00	0.00	0.00	0.00	0.28	0.06	0.16	0.02	60.04	0.00	0.00
Lake Bottom	187	0.44	1.68	0.08	0.01	0.10	0.07	6.38	1.34	3.53	0.35	1347.30	0.03	0.00
Lake Sides	57	0.01	0.03	0.00	0.00	0.00	0.00	0.13	0.03	0.07	0.01	27.38	0.00	0.00
Overflow Weir 1 and 2 Weir for River Connection	118	0.02	0.07	0.00	0.00	0.00	0.00	0.27	0.06	0.15	0.01	56.68	0.00	0.00
Lake Drain	27	0.00	0.02	0.00	0.00	0.00	0.00	0.06	0.01	0.03	0.00	12.97	0.00	0.00
Lake Edge Treatment and Planting	72	0.01	0.04	0.00	0.00	0.00	0.00	0.16	0.03	0.09	0.01	34.58	0.00	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)														
Paved Loop Trail	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
West End Parking	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Lighting	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Boat Dock	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Lane Buoys	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Levee Cutoff Walls	204	0.03	0.12	0.01	0.00	0.01	0.01	0.46	0.10	0.26	0.03	97.99	0.00	0.00
Deep Water Well	180	0.03	0.11	0.01	0.00	0.01	0.00	0.41	0.09	0.23	0.02	86.46	0.00	0.00
Urban Lake														
Erosion/Sediment Control and Clearing	73	0.01	0.04	0.00	0.00	0.00	0.00	0.17	0.03	0.09	0.01	35.06	0.00	0.00
Rough Grade Lake	125	0.02	0.07	0.00	0.00	0.00	0.00	0.28	0.06	0.16	0.02	60.04	0.00	0.00

k = 1.5 for PM10, 0.15 for PM2.5		Lake Bottom	187	0.29	1.12	0.06	0.01	0.07	0.05	4.25	0.89	2.35	0.24	898.20	0.02	0.00
s = 8.5, a = 0.9, b = 0.45		Lake Sides	57	0.01	0.03	0.00	0.00	0.00	0.00	0.13	0.03	0.07	0.01	27.38	0.00	0.00
Assume 61% control efficiency for watering 3x daily		Overflow Weir 1 and 2 Weir for River Connection	118	0.02	0.07	0.00	0.00	0.00	0.00	0.27	0.06	0.15	0.01	56.68	0.00	0.00
Emission Factors		Lake Drain	27	0.00	0.02	0.00	0.00	0.00	0.00	0.06	0.01	0.03	0.00	12.97	0.00	0.00
PM10, LDT	0.357378738	Lake Edge Treatment and Planting	72	0.01	0.04	0.00	0.00	0.00	0.00	0.16	0.03	0.09	0.01	34.58	0.00	0.00
PM10, MDT	0.829735596	Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)														
PM10, HDT	1.007230136	Pavilion	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, LDT	0.035737874	Whitewater Course	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, MDT	0.08297356	Boat Launch	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, HDT	0.100723014	Restroom Trailers	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Assume 0.25 miles each way of unpaved road travel		Rock Plantings/Landscaping	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Loop Trail	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Cypress Planting/Landscaping	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Stone Curb w/ Safety Bench	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Water Maze	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Fountain Bubblers/Aeratots	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Fountain Plaza	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Canoe Path	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Skate Path	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Amphitheater	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Levee Cutoff Walls	204	0.03	0.12	0.01	0.00	0.01	0.01	0.46	0.10	0.26	0.03	97.99	0.00	0.00
		Natural Lake														
		Erosion/Sediment Control and Clearing	73	0.05	0.17	0.01	0.00	0.01	0.01	0.55	0.12	0.09	0.01	140.25	0.00	0.00
		Rough Grade Lake	125	0.08	0.30	0.02	0.00	0.02	0.01	0.94	0.20	0.16	0.02	240.16	0.01	0.00
		Lake Bottom	187	0.44	1.68	0.08	0.01	0.10	0.07	6.38	1.34	3.53	0.35	1347.30	0.03	0.00
		Lake Sides	57	0.04	0.14	0.01	0.00	0.01	0.01	0.43	0.09	0.07	0.01	109.51	0.00	0.00
		Overflow Weir 1 and 2 Weir for River Connection	118	0.07	0.28	0.01	0.00	0.02	0.01	0.89	0.19	0.15	0.01	226.71	0.01	0.00
		Lake Drain	27	0.02	0.06	0.00	0.00	0.00	0.00	0.20	0.04	0.03	0.00	51.87	0.00	0.00
		Lake Edge Treatment and Planting	72	0.04	0.17	0.01	0.00	0.01	0.01	0.54	0.11	0.09	0.01	138.33	0.00	0.00

Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)														
Boardwalk Loop	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Floating Wetlands	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Small Amphitheater	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Boat Launch	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Levee Cutoff Walls	204	0.13	0.49	0.02	0.00	0.03	0.02	1.53	0.32	0.26	0.03	391.94	0.01	0.00
	TOTAL 2017	**0.99**	**3.81**	**0.19**	**0.02**	**0.22**	**0.17**	**13.15**	**2.76**	**4.84**	**0.48**	**3056.28**	**0.07**	**0.00**
	TOTAL 2018	**0.45**	**1.75**	**0.09**	**0.01**	**0.10**	**0.08**	**6.65**	**1.40**	**3.68**	**0.37**	**1403.49**	**0.03**	**0.00**
	TOTAL 2022	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.01**	**0.03**	**0.00**	**10.40**	**0.00**	**0.00**
	TOTAL 2023	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.68**	**0.14**	**0.37**	**0.04**	**143.04**	**0.00**	**0.00**
	TOTAL 2024	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.73**	**0.15**	**0.40**	**0.04**	**153.85**	**0.00**	**0.00**
	TOTAL 2025	**0.532**	**2.049**	**0.103**	**0.011**	**0.119**	**0.091**	**7.793**	**1.636**	**4.314**	**0.431**	**1645.711**	**0.038**	**0.002**
	TOTAL 2026	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.79**	**0.17**	**0.44**	**0.04**	**166.13**	**0.00**	**0.00**

Table 22. Heavy Construction Equipment Emissions, Interior Drainage Plan Phase II - West Levee

				Emission Factors												Emissions											Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Charlie Pump Station																																	
Demolition of Existing Pump Station																																	
Equipment																																	
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	1	8	15	0.74	2.17	6.63	0.01	0.23	0.20	897.27	0.07	0.63	0.006	0.016	0.050	0.000	0.002	0.002	7	0.001	0.005
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	15	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.024	0.071	0.170	0.000	0.006	0.005	33	0.002	0.016
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	15	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.013	0.080	0.089	0.000	0.005	0.004	13	0.001	0.008
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	15	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.070	0.299	0.575	0.001	0.024	0.021	64	0.006	0.055
Subtotal																**14.94**	**62.19**	**117.79**	**0.16**	**4.84**	**4.31**	**15526.08**	**1.35**	**11.19**	**0.11**	**0.47**	**0.88**	**0.00**	**0.04**	**0.03**	**116.45**	**0.01**	**0.08**
Road Surfacing																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	3	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.006	0.035	0.046	0.000	0.003	0.002	6	0.001	0.004
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	3	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.002	0.010	0.013	0.000	0.001	0.001	1	0.000	0.001
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	3	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.003	0.017	0.019	0.000	0.001	0.001	2	0.000	0.002
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	3	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.001	0.005	0.005	0.000	0.000	0.000	1	0.000	0.000
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	3	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	3	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.003	0.009	0.024	0.000	0.001	0.001	4	0.000	0.002
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**0.02**	**0.09**	**0.15**	**0.00**	**0.01**	**0.01**	**22.45**	**0.00**	**0.01**
Levee Construction																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	88	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.206	0.877	1.686	0.002	0.069	0.062	186	0.019	0.160
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	88	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.060	0.282	0.387	0.000	0.032	0.028	42	0.005	0.037
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	88	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.088	0.261	0.691	0.001	0.023	0.021	117	0.008	0.066
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.35**	**1.42**	**2.76**	**0.00**	**0.12**	**0.11**	**345.25**	**0.03**	**0.26**
New Charlie Pump Station Construction																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	62	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.014	0.086	0.096	0.000	0.007	0.006	13	0.001	0.009
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	62	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.049	0.148	0.351	0.001	0.013	0.011	68	0.004	0.033
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	62	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.031	0.092	0.243	0.000	0.008	0.007	41	0.003	0.023
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	62	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.026	0.165	0.184	0.000	0.010	0.009	28	0.002	0.017
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	1	8	62	0.30	1.71	1.64	0.00	0.09	0.08	204.15	0.03	0.16	0.009	0.053	0.051	0.000	0.003	0.003	8	0.001	0.005
Trencher	DIESEL	69	0.75	0.1144	0.4600	0.7060	0.0008	0.0590	0.0525	64.9	0.0103	0.0671	1	8	62	0.92	3.68	5.65	0.01	0.47	0.42	519.16	0.08	0.54	0.028	0.114	0.175	0.000	0.015	0.013	16	0.003	0.017
Hand-Held Compactor	DIESEL	8	0.5	0.0050	0.0263	0.0314	0.0001	0.0012	0.0011	4.3	0.0005	0.0030	1	8	62	0.04	0.21	0.25	0.00	0.01	0.01	34.51	0.00	0.02	0.001	0.007	0.008	0.000	0.000	0.000	1	0.000	0.001
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	1	8	62	0.55	2.55	3.47	0.00	0.30	0.27	375.60	0.05	0.33	0.017	0.079	0.107	0.000	0.009	0.008	12	0.002	0.010
Paver	DIESEL	89	0.62	0.1235	0.4969	0.7477	0.0008	0.0636	0.0566	69.2	0.0111	0.0710	1	8	62	0.99	3.97	5.98	0.01	0.51	0.45	553.57	0.09	0.57	0.031	0.123	0.185	0.000	0.016	0.014	17	0.003	0.018
Subtotal																**6.67**	**27.95**	**45.20**	**0.07**	**2.61**	**2.32**	**6509.63**	**0.60**	**4.29**	**0.21**	**0.87**	**1.40**	**0.00**	**0.08**	**0.07**	**201.80**	**0.02**	**0.13**
Delta Pump Station																																	
Mob/Demob/Fence																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	6	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.006	0.033	0.037	0.000	0.003	0.003	5	0.000	0.004
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	6	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.002	0.010	0.010	0.000	0.001	0.000	1	0.000	0.001
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	6	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**4.45**	**20.48**	**31.38**	**0.05**	**1.64**	**1.46**	**4728.33**	**0.40**	**2.98**	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**	**14.18**	**0.00**	**0.01**
Site Work																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	1	8	312	0.51	2.80	3.40	0.00	0.27	0.24	413.82	0.05	0.32	0.079	0.437	0.531	0.001	0.042	0.037	65	0.007	0.050
Dump Truck	DIESEL	381	0.57	0.2065	0.6134	1.5945	0.0027	0.0567	0.0505	272.3	0.0186	0.1515	4	8	312	6.61	19.63	51.03	0.09	1.81	1.62	8714.69	0.60	4.85	1.031	3.062	7.960	0.013	0.283	0.252	1359	0.093	0.756
4000 Gallon Water Truck	DIESEL	235	0.57	0.1326	0.3761	1.1048	0.0019	0.0368	0.0328	166.5	0.0120	0.1050	1	8	312	1.06	3.01	8.84	0.01	0.29	0.26	1332.36	0.10	0.84	0.165	0.469	1.379	0.002	0.046	0.041	208	0.015	0.131
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	2	8	312	1.60	8.22	10.13	0.01	0.83	0.74	1177.97	0.14	0.96	0.249	1.282	1.580	0.002	0.129	0.115	184	0.022	0.150
Roller Compactor	DIESEL	84	0.56	0.0921	0.4030	0.5906	0.0007	0.0494	0.0439	59.0	0.0083	0.0561	1	8	312	0.74	3.22	4.72	0.01	0.39	0.35	471.91	0.07	0.45	0.115	0.503	0.737	0.001	0.062	0.055	74	0.010	0.070
Concrete Trucks	DIESEL	235	0.57	0.1326	0.3761	1.1048	0.0019	0.0368	0.0328	166.5	0.0120	0.1050	1	8	312	1.06	3.01	8.84	0.01	0.29	0.26	1332.36	0.10	0.84	0.165	0.469	1.379	0.002	0.046	0.041	208	0.015	0.131
Subtotal																**11.57**	**39.89**	**86.96**	**0.14**	**3.90**	**3.47**	**13443.12**	**1.04**	**8.26**	**1.81**	**6.22**	**13.57**	**0.02**	**0.61**	**0.54**	**2097.13**	**0.16**	**1.29**
New Delta Pump Station Construction																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	1	8	30	0.51	2.80	3.40	0.00	0.27	0.24	413.82	0.05	0.32	0.008	0.042	0.051	0.000	0.004	0.004	6	0.001	0.005
Dump Truck	DIESEL	381	0.57	0.2065	0.6134	1.5945	0.0027	0.0567	0.0505	272.3	0.0186	0.1515	1	8	30	1.65	4.91	12.76	0.02	0.45	0.40	2178.67	0.15	1.21	0.025	0.074	0.191	0.000	0.007	0.006	33	0.002	0.018
4000 Gallon Water Truck	DIESEL	235	0.57	0.1326	0.3761	1.1048	0.0019	0.0368	0.0328	166.5	0.0120	0.1050	1	8	30	1.06	3.01	8.84	0.01	0.29	0.26	1332.36	0.10	0.84	0.016	0.045	0.133	0.000	0.004	0.004	20	0.001	0.013
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	1	8	30	0.80	4.11	5.07	0.01	0.41	0.37	588.98	0.07	0.48	0.012	0.062	0.076	0.000	0.006	0.006	9	0.001	0.007
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	1	8	30	0.35	1.76	1.73	0.00	0.11	0.10	204.15	0.03	0.16	0.005	0.026	0.026	0.000	0.002	0.001	3	0.000	0.002
Trencher	DIESEL	69	0.75	0.1212	0.4640	0.7489	0.0008	0.0629	0.0560	64.9	0.0109	0.0711	1	8	30	0.97	3.71	5.99	0.01	0.50	0.45	519.16	0.09	0.57	0.015	0.056	0.090	0.000	0.008	0.007	8	0.001	0.009
Hand-Held Compactor	DIESEL	8	0.5	0.0050	0.0263	0.0314	0.0001	0.0012	0.0011	4.3	0.0005	0.0030	1	8	30	0.04	0.21	0.25	0.00	0.01	0.01	34.51	0.00	0.02	0.001	0.003	0.004	0.000	0.000	0.000	1	0.000	0.000
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	1	8	30	0.61	2.57	3.75	0.00	0.33	0.30	375.60	0.05	0.36	0.009	0.039	0.056	0.000	0.005	0.004	6	0.001	0.005
Paver	DIESEL	89	0.62	0.1311	0.5011	0.7948	0.0008	0.0682	0.0607	69.2	0.0118	0.0755	1	8	30	1.05	4.01	6.36	0.01	0.55	0.49	553.57	0.09	0.60	0.016	0.060	0.095	0.000	0.008	0.007	8	0.001	0.009
Subtotal																**7.04**	**27.09**	**48.14**	**0.07**	**2.93**	**2.61**	**6200.84**	**0.63**	**4.57**	**0.11**	**0.41**	**0.72**	**0.00**	**0.04**	**0.04**	**93.01**	**0.01**	**0.07**
Facility Renovations																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	12	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.003	0.017	0.019	0.000	0.001	0.001	2	0.000	0.002
Skid Steer Loader	DIESEL	37	0.55	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	12	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.009	0.029	0.068	0.000	0.002	0.002	13	0.001	0.006
Trencher	DIESEL	69	0.75	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	12	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Hand-Held Compactor	DIESEL	8	0.5	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	12	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.005	0.032	0.036	0.000	0.002	0.002	5	0.000	0.003
Air Compressor	DIESEL	78	0.48	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	12	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.004	0.019	0.026	0.000	0.002	0.002	3	0.000	0.003
Paver	DIESEL	89	0.62	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	12	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**5.56**	**21.99**	**40.46**	**0.07**	**1.85**	**1.65**	**6626.90**	**0.50**	**3.84**	**0.03**	**0.13**	**0.24**	**0.00**	**0.01**	**0.01**	**39.76**	**0.00**	**0.02**
Eagle Ford Sump Improvements																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	1	8	312	0.51	2.80	3.40	0.00	0.27	0.24	413.82	0.05	0.32	0.079	0.437	0.531	0.001	0.042	0.037	65	0.007	0.050
Dump Truck	DIESEL	381	0.57	0.2065	0.6134	1.5945	0.0027	0.0567	0.0505	272.3	0.0186	0.1515	4	8	312	6.61	19.63	51.03	0.09	1.81	1.62	8714.69	0.60	4.85	1.031	3.062	7.960	0.013	0.283	0.252	1359	0.093	0.756
4000 Gallon Water Truck	DIESEL	235	0.57	0.1326	0.3761	1.1048	0.0019	0.0368	0.0328	166.5	0.0120	0.1050	1	8	312	1.06	3.01	8.84	0.01	0.29	0.26	1332.36	0.10	0.84	0.165	0.469	1.379	0.002	0.046	0.041	208	0.015	0.131
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	2	8	312	1.60	8.22	10.13	0.01	0.83	0.74	1177.97	0.14	0.96	0.249	1.282	1.580	0.002	0.129	0.115	184	0.022	0.150
Roller Compactor	DIESEL	84	0.56	0.0921	0.4030	0.5906	0.0007	0.0494	0.0439	59.0	0.0083	0.0561	1	8	312	0.74	3.22	4.72	0.01	0.39	0.35	471.91	0.07	0.45	0.115	0.503	0.737	0.001	0.062	0.055	74	0.010	0.070
Concrete Trucks	DIESEL	235	0.57	0.1326	0.3761	1.1048	0.0019	0.0368	0.0328	166.5	0.0120	0.1050	1	8	312	1.06	3.01	8.84	0.01	0.29	0.26	1332.36	0.10	0.84	0.165	0.469	1.379	0.002	0.046	0.041	208	0.015	0.131
Subtotal																**11.57**	**39.89**	**86.96**	**0.14**	**3.90**	**3.47**	**13443.12**	**1.04**	**8.26**	**1.81**	**6.22**	**13.57**	**0.02**	**0.61**	**0.54**	**2097.13**	**0.16**	**1.29**
Trinity-Portland Pump Station Construction																																	
Mob/Demob/Fence																																	
Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	6	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.006	0.033	0.037	0.000	0.003	0.003	5	0.000	0.004
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	6	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.002	0.010	0.010	0.000	0.001	0.000	1	0.000	0.001
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	6	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
Subtotal																**4.45**	**20.48**	**31.38**	**0.05**	**1.64**	**1.46**	**4728.33**	**0.40**	**2.98**	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**	**14.18**	**0.00**	**0.01**
Road Surfacing																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	3	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.006	0.035	0.046	0.000	0.003	0.002	6	0.001	0.004
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	3	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.002	0.010	0.013	0.000	0.001	0.001	1	0.000	0.001

CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	3	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.003	0.017	0.019	0.000	0.001	0.001	2	0.000	0.002
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	3	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.001	0.005	0.005	0.000	0.000	0.000	1	0.000	0.000
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	3	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.006	0.018	0.047	0.000	0.002	0.001	8	0.001	0.004
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	3	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.003	0.009	0.024	0.000	0.001	0.001	4	0.000	0.002
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**0.02**	**0.09**	**0.15**	**0.00**	**0.01**	**0.01**	**22.45**	**0.00**	**0.01**
Levee Construction																																	
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	78	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.183	0.777	1.495	0.002	0.061	0.055	165	0.017	0.142
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	78	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.053	0.250	0.343	0.000	0.028	0.025	37	0.005	0.033
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	78	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.078	0.231	0.613	0.001	0.020	0.018	104	0.007	0.058
Subtotal																**8.06**	**32.25**	**62.83**	**0.08**	**2.83**	**2.52**	**7846.51**	**0.73**	**5.97**	**0.31**	**1.26**	**2.45**	**0.00**	**0.11**	**0.10**	**306.01**	**0.03**	**0.23**
New Trinity-Portland Pump Station Construction Equipment																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	1	8	338	0.46	2.78	3.10	0.00	0.23	0.21	413.82	0.04	0.29	0.078	0.470	0.523	0.001	0.040	0.035	70	0.007	0.050
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	1	8	338	1.57	4.76	11.33	0.02	0.40	0.36	2178.67	0.14	1.08	0.265	0.804	1.915	0.004	0.068	0.061	368	0.024	0.182
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0292	166.5	0.0113	0.0933	1	8	338	1.00	2.96	7.85	0.01	0.26	0.23	1332.36	0.09	0.75	0.169	0.500	1.327	0.003	0.044	0.039	225	0.015	0.126
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	338	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.142	0.900	1.002	0.002	0.055	0.049	152	0.013	0.095
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	1	8	338	0.30	1.71	1.64	0.00	0.09	0.08	204.15	0.03	0.16	0.051	0.289	0.277	0.000	0.015	0.014	35	0.005	0.026
Trencher	DIESEL	69	0.75	0.1144	0.4600	0.7060	0.0008	0.0590	0.0525	64.9	0.0103	0.0671	1	8	338	0.92	3.68	5.65	0.01	0.47	0.42	519.16	0.08	0.54	0.155	0.622	0.954	0.001	0.080	0.071	88	0.014	0.091
Hand-Held Compactor	DIESEL	8	0.5	0.0050	0.0263	0.0314	0.0001	0.0012	0.0011	4.3	0.0005	0.0030	1	8	338	0.04	0.21	0.25	0.00	0.01	0.01	34.51	0.00	0.02	0.007	0.036	0.043	0.000	0.002	0.001	6	0.001	0.004
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	1	8	338	0.55	2.55	3.47	0.00	0.30	0.27	375.60	0.05	0.33	0.093	0.430	0.586	0.001	0.051	0.045	63	0.008	0.056
Paver	DIESEL	89	0.62	0.1235	0.4969	0.7477	0.0008	0.0636	0.0566	69.2	0.0111	0.0710	1	8	338	0.99	3.97	5.98	0.01	0.51	0.45	553.57	0.09	0.57	0.167	0.672	1.011	0.001	0.086	0.077	94	0.015	0.096
Subtotal																**6.67**	**27.95**	**45.20**	**0.07**	**2.61**	**2.32**	**6509.63**	**0.60**	**4.29**	**1.13**	**4.72**	**7.64**	**0.01**	**0.44**	**0.39**	**1100.13**	**0.10**	**0.73**
TOTAL 2016																									**1.35**	**4.67**	**10.17**	**0.02**	**0.46**	**0.41**	**1572.84**	**0.12**	**0.97**
TOTAL 2017																									**0.65**	**2.38**	**4.90**	**0.01**	**0.22**	**0.20**	**725.95**	**0.06**	**0.47**
TOTAL 2018																									**0.50**	**2.02**	**3.69**	**0.01**	**0.18**	**0.16**	**484.27**	**0.04**	**0.35**
TOTAL 2019																									**2.915**	**10.786**	**21.447**	**0.034**	**1.029**	**0.916**	**3180.803**	**0.263**	**2.037**
TOTAL 2020																									**0.519**	**2.173**	**3.514**	**0.006**	**0.203**	**0.180**	**506.059**	**0.047**	**0.334**

Table 23. Worker Vehicle Emissions, Interior Drainage Plan Phase II - West Leve

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Charlie Pump Station																					
Demolition of Existing Pump Station	Light-Duty Truck, catalyst	9	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Road Surfacing	Light-Duty Truck, catalyst	18	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Levee Construction	Light-Duty Truck, catalyst	15	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
New Charlie Pump Station Construction	Light-Duty Truck, catalyst	15	35	80	3.279952	0.515311	0.132459	0.079	0.045	0.069	0.02	0.005612	0.01254	0.008	0.0125	0.011566	0.002	0.0053	452.8343	0.004791	0.00
Delta Pump Station																					
Mob/Demob/Fence	Light-Duty Truck, catalyst	9	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Site Work	Light-Duty Truck, catalyst	10	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
New Delta Pump Station Construction	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Facility Renovations	Light-Duty Truck, catalyst	10	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Eagle Ford Sump Improvements	Light-Duty Truck, catalyst	10	35	80	3.435217	0.558174	0.005065	0.084	0.049	0.071	0.021	0.005579	0.012818	0.008	0.0125	0.011825	0.002	0.0053	448.9316	0.033	0.00
Trinity-Portland Pump Station																					
Mob/Demob/Fence	Light-Duty Truck, catalyst	9	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Road Surfacing	Light-Duty Truck, catalyst	18	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
Levee Construction	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00
New Trinity-Portland Pump Station	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.00

Assume startup after 8 hours
Assume 45 minutes run time total

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors
PM10, LDT 9.81231E-05

	Emissions, lbs/day										
	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Charlie Pump Station											
Demolition of Existing Pump Station	5.21	0.82	0.29	0.01	0.05	0.03	0.08	0.02	718.80	0.01	0.01
Road Surfacing	10.41	1.64	0.58	0.02	0.10	0.06	0.15	0.03	1437.60	0.02	0.01
Levee Construction	8.68	1.36	0.48	0.01	0.09	0.05	0.13	0.03	1198.00	0.01	0.01
New Charlie Pump Station Construction	8.68	1.36	0.48	0.01	0.09	0.05	0.13	0.03	1198.00	0.01	0.01
Delta Pump Station											
Mob/Demob/Fence	4.79	0.71	0.26	0.01	0.05	0.03	0.08	0.02	691.48	0.01	0.00
Site Work	5.32	0.78	0.28	0.01	0.06	0.03	0.08	0.02	768.32	0.01	0.01
New Delta Pump Station Construction	7.99	1.18	0.43	0.01	0.09	0.05	0.13	0.03	1152.47	0.01	0.01
Facility Renovations	5.32	0.78	0.28	0.01	0.06	0.03	0.08	0.02	768.32	0.01	0.01
Eagle Ford Sump Improvements	6.06	0.98	0.10	0.01	0.06	0.03	0.08	0.02	791.78	0.06	0.01
Trinity-Portland Pump Station Construction											
Mob/Demob/Fence	4.79	0.71	0.26	0.01	0.05	0.03	0.08	0.02	691.48	0.01	0.00
Road Surfacing	9.58	1.41	0.51	0.02	0.10	0.06	0.15	0.03	1382.97	0.01	0.01
Levee Construction	7.99	1.18	0.43	0.01	0.09	0.05	0.13	0.03	1152.47	0.01	0.01
New Trinity-Portland Pump Station Construction	7.99	1.18	0.43	0.01	0.09	0.05	0.13	0.03	1152.47	0.01	0.01

		Total Emissions, tons										
	Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Charlie Pump Station												
Demolition of Existing Pump Station	15	0.04	0.01	0.00217	6.68E-05	0.00039	0.00022	0.00057	0.00012	5	0.00006	0.00004
Road Surfacing	3	0.02	0.00	0.00087	2.67E-05	0.00016	0.00009	0.00023	0.00005	2	0.00002	0.00002
Levee Construction	88	0.38	0.06	0.02119	6.53E-04	0.00385	0.00220	0.00557	0.00117	53	0.00056	0.00044
New Charlie Pump Station Construction	62	0.27	0.04	0.01493	4.60E-04	0.00271	0.00155	0.00392	0.00082	37	0.00039	0.00031
Delta Pump Station												
Mob/Demob/Fence	6	0.01	0.00	0.00077	2.57E-05	0.00016	0.00009	0.00023	0.00005	2	0.00002	0.00001
Site Work	312	0.83	0.12	0.04427	1.48E-03	0.00897	0.00508	0.01316	0.00276	120	0.00118	0.00084
New Delta Pump Station Construction	30	0.12	0.02	0.00638	2.14E-04	0.00129	0.00073	0.00190	0.00040	17	0.00017	0.00012
Facility Renovations	12	0.03	0.00	0.00170	5.70E-05	0.00034	0.00020	0.00051	0.00011	5	0.00005	0.00003
Eagle Ford Sump Improvements	312	0.95	0.15	0.01556	1.54E-03	0.00917	0.00526	0.01316	0.00276	124	0.00908	0.00114
Trinity-Portland Pump Station Construction												
Mob/Demob/Fence	6	0.01	0.00	0.00077	2.57E-05	0.00016	0.00009	0.00023	0.00005	2	0.00002	0.00001
Road Surfacing	3	0.01	0.00	0.00077	2.57E-05	0.00016	0.00009	0.00023	0.00005	2	0.00002	0.00001
Levee Construction	78	0.31	0.05	0.01660	5.56E-04	0.00336	0.00190	0.00494	0.00104	45	0.00044	0.00032
New Trinity-Portland Pump Station Construction	338	1.35	0.20	0.07193	2.41E-03	0.01457	0.00825	0.02139	0.00449	195	0.00192	0.00137
TOTAL 2016		**0.71**	**0.12**	**0.01**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**92.64**	**0.01**	**0.00**
TOTAL 2017		**0.37**	**0.06**	**0.01**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**48.90**	**0.00**	**0.00**
TOTAL 2018		**0.57**	**0.09**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**79.38**	**0.00**	**0.00**
TOTAL 2019		**2.065**	**0.304**	**0.110**	**0.004**	**0.022**	**0.013**	**0.033**	**0.007**	**298.099**	**0.003**	**0.002**
TOTAL 2020		**0.435**	**0.071**	**0.007**	**0.001**	**0.004**	**0.002**	**0.006**	**0.001**	**56.818**	**0.004**	**0.001**

Table 24. Construction Truck Emissions, Interior Drainage Plan Phase II - West Levee

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Charlie Pump Station	Heavy Duty Truck, Diesel																
Demolition of Existing Pump Station	Heavy Duty Truck, Diesel	20	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Road Surfacing	Heavy Duty Truck, Diesel	20	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Levee Construction	Heavy Duty Truck, Diesel	20	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
New Charlie Pump Station Construction	Heavy Duty Truck, Diesel	20	35	80	1.6135149	5.9825691	0.3057337	0.015408	0.3102148	0.036	0.0125	0.301107	0.009	0.0053	2178.231743	0.0433313	0.00
Delta Pump Station																	
Mob/Demob/Fence	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Site Work	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
New Delta Pump Station Construction	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Facility Renovations	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Eagle Ford Sump Improvements	Heavy Duty Truck, Diesel	20	35	80	1.8289733	6.7606577	0.3441237	0.015105	0.3578864	0.036	0.0125	0.3472714	0.009	0.0053	2117.790543	0.0417419	0.00
Trinity-Portland Pump Station Construction																	
Mob/Demob/Fence	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Road Surfacing	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Levee Construction	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
New Trinity-Portland Pump Station Construction	Heavy Duty Truck, Diesel	20	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.00
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

	Emissions, lbs/day												
	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Charlie Pump Station													
Demolition of Existing Pump Station	5.69	21.10	1.08	0.05	1.27	1.11	30.09	6.32	5.04	0.50	7683.53	0.15	0.01
Road Surfacing	5.69	21.10	1.08	0.05	1.27	1.11	30.09	6.32	5.04	0.50	7683.53	0.15	0.01
Levee Construction	5.69	21.10	1.08	0.05	1.27	1.11	30.09	6.32	5.04	0.50	7683.53	0.15	0.01
New Charlie Pump Station Construction	5.69	21.10	1.08	0.05	1.27	1.11	30.09	6.32	5.04	0.50	7683.53	0.15	0.01
Delta Pump Station													
Mob/Demob/Fence	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
Site Work	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
New Delta Pump Station Construction	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
Facility Renovations	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
Eagle Ford Sump Improvements	6.45	23.85	1.21	0.05	1.43	1.28	30.09	6.32	5.04	0.50	7470.33	0.15	0.01
Trinity-Portland Pump Station Construction													
Mob/Demob/Fence	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
Road Surfacing	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
Levee Construction	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
New Trinity-Portland Pump Station Construction	4.41	16.52	0.84	0.05	0.98	0.84	30.09	6.32	5.04	0.50	7684.92	0.16	0.01
	64.53	**240.43**	**12.27**	**0.70**	**14.37**	**12.45**	**391.20**	**82.15**	**65.47**	**6.55**	**99683.77**	**2.06**	**0.09**

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily

Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

	Total Emissions, tons												
	Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Charlie Pump Station														
Demolition of Existing Pump Station	15	0.04	0.16	0.01	0.00	0.01	0.01	0.23	0.05	0.04	0.00	57.63	0.00	0.00
Road Surfacing	3	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	11.53	0.00	0.00
Levee Construction	88	0.25	0.93	0.05	0.00	0.06	0.05	1.32	0.28	0.22	0.02	338.08	0.01	0.00
New Charlie Pump Station Construction	62	0.18	0.65	0.03	0.00	0.04	0.03	0.93	0.20	0.16	0.02	238.19	0.00	0.00
Delta Pump Station														
Mob/Demob/Fence	6	0.01	0.05	0.00	0.00	0.00	0.00	0.09	0.02	0.02	0.00	23.05	0.00	0.00
Site Work	312	0.69	2.58	0.13	0.01	0.15	0.13	4.69	0.99	0.79	0.08	1198.85	0.03	0.00
New Delta Pump Station Construction	30	0.07	0.25	0.01	0.00	0.01	0.01	0.45	0.09	0.08	0.01	115.27	0.00	0.00
Facility Renovations	12	0.03	0.10	0.01	0.00	0.01	0.01	0.18	0.04	0.03	0.00	46.11	0.00	0.00
Eagle Ford Sump Improvements	312	1.01	3.72	0.19	0.01	0.22	0.20	4.69	0.99	0.79	0.08	1165.37	0.02	0.00
Trinity-Portland Pump Station Construction														
Mob/Demob/Fence	6	0.01	0.05	0.00	0.00	0.00	0.00	0.09	0.02	0.02	0.00	23.05	0.00	0.00
Road Surfacing	3	0.01	0.02	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	11.53	0.00	0.00
Levee Construction	78	0.17	0.64	0.03	0.00	0.04	0.03	1.17	0.25	0.20	0.02	299.71	0.01	0.00
New Trinity-Portland Pump Station Construction	338	0.75	2.79	0.14	0.01	0.17	0.14	5.09	1.07	0.85	0.09	1298.75	0.03	0.00
TOTAL 2016		**0.75**	**2.79**	**0.14**	**0.01**	**0.17**	**0.15**	**3.52**	**0.74**	**0.59**	**0.06**	**874.03**	**0.02**	**0.00**
TOTAL 2017		**0.35**	**1.30**	**0.07**	**0.00**	**0.08**	**0.07**	**1.71**	**0.36**	**0.29**	**0.03**	**427.65**	**0.01**	**0.00**
TOTAL 2018		**0.38**	**1.40**	**0.07**	**0.00**	**0.08**	**0.07**	**1.99**	**0.42**	**0.33**	**0.03**	**509.11**	**0.01**	**0.00**
TOTAL 2019		**1.389**	**5.200**	**0.265**	**0.017**	**0.310**	**0.264**	**9.472**	**1.989**	**1.585**	**0.159**	**2418.905**	**0.051**	**0.002**
TOTAL 2020		**0.463**	**1.711**	**0.087**	**0.004**	**0.103**	**0.092**	**2.159**	**0.453**	**0.361**	**0.036**	**536.071**	**0.011**	**0.000**

Table 25. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - Wetlands

				Emission Factors												Emissions											Emission, tons (total)						
Equipment and Activity	**FUEL**	**HP**	**Load Factor**	**ROG (lb/hr)**	**CO (lb/hr)**	**NOX (lb/hr)**	**SOX (lb/hr)**	**PM10 (lb/hr)**	**PM2.5 (lb/hr)**	**CO2 (lb/hr)**	**CH4 (lb/hr)**	**N2O (lb/hr)**	**No of Equipment**	**Hrs Per Day**	**Days in Service**	**ROG lbs/day**	**CO lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**PM2.5 lbs/day**	**CO2 lbs/day**	**CH4 lbs/day**	**N2O lbs/day**	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Project 3 - Wetlands																																	
Duration: 24 months																																	
Marshlands																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	250	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	2.297	7.767	26.402	0.024	0.803	0.714	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	2	8	250	3.14	9.52	22.66	0.04	0.81	0.72	4357.34	0.28	2.15	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	250	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	250	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**27.04**	**96.90**	**278.13**	**0.29**	**9.13**	**8.13**	**9493.08**	**0.78**	**6.36**	**3.38**	**12.11**	**34.77**	**0.04**	**1.14**	**1.02**	**1186.63**	**0.10**	**0.79**
Hampton and Biofiltration Wetlands																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	250	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.260	1.464	1.907	0.003	0.105	0.094	248	0.023	0.181
Bulldozers	DIESEL	358	0.59	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	2	8	250	0.92	5.57	6.19	0.01	0.47	0.42	827.65	0.08	0.59	0.115	0.696	0.774	0.001	0.059	0.052	103	0.010	0.074
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Air Compressor	DIESEL	78	0.48	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.61**	**38.47**	**71.86**	**0.13**	**3.06**	**2.73**	**11212.88**	**0.87**	**6.83**	**1.20**	**4.81**	**8.98**	**0.02**	**0.38**	**0.34**	**1401.61**	**0.11**	**0.85**
Corinth Wetlands																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	250	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.784	2.380	5.666	0.011	0.202	0.180	1089	0.071	0.538
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	250	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**1.20**	**4.86**	**8.37**	**0.02**	**0.38**	**0.34**	**1459.51**	**0.11**	**0.79**
Cypress Wetlands																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	250	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.784	2.380	5.666	0.011	0.202	0.180	1089	0.071	0.538
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	250	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**1.20**	**4.86**	**8.37**	**0.02**	**0.38**	**0.34**	**1459.51**	**0.11**	**0.79**

Table 26. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Wetlands

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Marshlands	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.003055
Hampton and Biofiltration Wetlands	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Corinth Wetlands	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Cypress Wetlands	Light-Duty Truck, catalyst	25	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.002716

Assume startup after 8 hours
Assume 45 minutes run time total

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
7.99	1.18	0.43	0.01	0.09	0.05	0.00	0.00	1152.47	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
12.45	1.72	0.64	0.02	0.14	0.08	0.00	0.00	1855.68	0.02	0.01

	Total Emissions, tons										
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
250	1.00	0.15	0.05320	1.78E-03	0.01078	0.00610	0.00000	0.00000	144	0.00142	0.00101
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095
125	0.47	0.07	0.02468	8.76E-04	0.00537	0.00303	0.00000	0.00000	71	0.00065	0.00048
125	0.78	0.11	0.03972	1.44E-03	0.00891	0.00501	0.00000	0.00000	116	0.00109	0.00075

Table 27. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - Wetlands

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
WDL Wetland Complex	Heavy Duty Truck, Diesel	10	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.0018938
Playing Field Complex	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.42186	0.0454297	0.0020004
Corinth Wetlands	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.42186	0.0454297	0.0020004
Cypress Wetlands	Heavy Duty Truck, Diesel	10	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.51789	0.0481179	0.00204
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
2.21	8.26	0.42	0.03	0.49	0.42	7.69	1.62	2.07	0.21	3842.46	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.73	6.52	0.33	0.03	0.39	0.32	7.69	1.62	2.07	0.21	3842.27	0.08	0.00
7.69	**29.01**	**1.48**	**0.11**	**1.75**	**1.47**	**30.77**	**6.46**	**8.30**	**0.83**	**15368.92**	**0.33**	**0.01**

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Total Emissions, tons													
Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
250	0.03	0.10	0.01	0.00	0.01	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01018	0.00042
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
125	0.01	0.04	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00501	0.00022
125	0.01	0.04	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00530	0.00022
	0.07	**0.28**	**0.01**	**0.00**	**0.01**	**0.00**	**2.88**	**0.61**	**0.78**	**0.08**	**1440.84**	**0.03**	**0.00**

Table 28. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities

				Emission Factors													Emissions									Emission, tons (total)						
Equipment and Activity	**FUEL**	**HP**	**Load Factor**	**ROG (lb/hr)**	**CO (lb/hr)**	**NOX (lb/hr)**	**SOX (lb/hr)**	**PM10 (lb/hr)**	**PM2.5 (lb/hr)**	**CO2 (lb/hr)**	**CH4 (lb/hr)**	**N2O (lb/hr)**	**No of Equipment**	**Hrs Per Day**	**Days in Service**	**ROG lbs/day**	**CO lbs/day**	**NOX lbs/day**	**SOX lbs/day**	**PM10 lbs/day**	**PM2.5 lbs/day**	**CO2 lbs/day**	**CH4 lbs/day**	**N2O lbs/day**	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Project 4 - Recreational Facilities																																
Duration: 24 months																																
Equipment																																
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	250	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.260	1.464	1.907	0.003	0.105	0.094	248	0.023	0.181
Crane	DIESEL	208	0.43	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	1	8	250	0.69	3.20	4.40	0.01	0.36	0.32	471.91	0.06	0.42	0.086	0.400	0.550	0.001	0.045	0.040	59	0.008	0.052
Bulldozers	DIESEL	358	0.59	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	2	8	250	0.92	5.57	6.19	0.01	0.47	0.42	827.65	0.08	0.59	0.115	0.696	0.774	0.001	0.059	0.052	103	0.010	0.074
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Air Compressor	DIESEL	78	0.48	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**10.30**	**41.67**	**76.25**	**0.13**	**3.43**	**3.05**	**11684.79**	**0.93**	**7.24**	**1.29**	**5.21**	**9.53**	**0.02**	**0.43**	**0.38**	**1460.60**	**0.12**	**0.91**

Table 29. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Play Fields	Light-Duty Truck, catalyst	15	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.002504

Assume startup after 8 hours
Assume 45 minutes run time total

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
7.28	0.97	0.36	0.01	0.09	0.05	0.00	0.00	1096.45	0.01	0.01

	Total Emissions, tons										
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
250	0.91	0.12	0.04549	1.70E-03	0.01066	0.00599	0.00000	0.00000	137	0.00128	0.00083

Table 30. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - Recreational Facilities

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Play Fields	Heavy Duty Truck, Diesel	10	35	80	0.8718074	3.3167243	0.168176	0.014974	0.1467441	0.036	0.0125	0.1421508	0.009	0.0053	2178.446793	0.0488703	0.002041
Subtotal																	

MOVES2010 Emission Factors, Dallas County

	Emissions, lbs/day												
Paved Road Fugitive Dust	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3	1.54	5.85	0.30	0.03	0.34	0.28	7.69	1.62	2.07	0.21	3842.14	0.09	0.00
Assume k = 0.016 PM10	**1.54**	**5.85**	**0.30**	**0.03**	**0.34**	**0.28**	**7.69**	**1.62**	**2.07**	**0.21**	**3842.14**	**0.09**	**0.00**

Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

	Total Emissions, tons													
Unpaved Road Fugitive Dust	Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle	250	0.02	0.07	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01077	0.00045
k = 1.5 for PM10, 0.15 for PM2.5		**0.02**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.96**	**0.20**	**0.26**	**0.03**	**480.27**	**0.01**	**0.00**

s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Table 31. Heavy Construction Equipment Emissions, BVP Ecosystem and Recreation Improvements - General Elements

				Emission Factors														Emissions									Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Project 5 - General Elements																																	
Duration: 36 months																																	
Parking																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	250	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.520	2.928	3.813	0.006	0.210	0.187	496	0.047	0.362
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**1.75**	**7.77**	**12.76**	**0.02**	**0.64**	**0.57**	**1870.89**	**0.16**	**1.21**
Lighting																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Subtotal																**2.45**	**14.56**	**15.67**	**0.02**	**1.12**	**1.00**	**2063.60**	**0.22**	**1.49**	**0.31**	**1.82**	**1.96**	**0.00**	**0.14**	**0.12**	**257.95**	**0.03**	**0.19**
Vehicular Access and Roads																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	250	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.520	2.928	3.813	0.006	0.210	0.187	496	0.047	0.362
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**1.75**	**7.77**	**12.76**	**0.02**	**0.64**	**0.57**	**1870.89**	**0.16**	**1.21**
Trails																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**1.23**	**4.84**	**8.95**	**0.02**	**0.43**	**0.38**	**1375.20**	**0.11**	**0.85**
Equestrian Trail																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**5.82**	**26.88**	**40.17**	**0.07**	**2.37**	**2.11**	**5672.15**	**0.53**	**3.82**	**0.73**	**3.36**	**5.02**	**0.01**	**0.30**	**0.26**	**709.02**	**0.07**	**0.48**
Sidewalks																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**1.23**	**4.84**	**8.95**	**0.02**	**0.43**	**0.38**	**1375.20**	**0.11**	**0.85**
Boardwalks																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**1.23**	**4.84**	**8.95**	**0.02**	**0.43**	**0.38**	**1375.20**	**0.11**	**0.85**
Boat Dock																																	
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	250	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	250	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.276	1.273	1.733	0.002	0.150	0.133	188	0.025	0.165
Subtotal																**5.50**	**30.06**	**35.46**	**0.05**	**2.64**	**2.35**	**4463.78**	**0.50**	**3.37**	**0.69**	**3.76**	**4.43**	**0.01**	**0.33**	**0.29**	**557.97**	**0.06**	**0.42**
Restroom Trailers																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**1.06**	**4.04**	**7.85**	**0.01**	**0.34**	**0.30**	**1257.22**	**0.10**	**0.75**
Stair Access to Floodway																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**1.06**	**4.04**	**7.85**	**0.01**	**0.34**	**0.30**	**1257.22**	**0.10**	**0.75**
Wetland Garden																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	250	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.784	2.380	5.666	0.011	0.202	0.180	1089	0.071	0.538
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	250	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**1.20**	**4.86**	**8.37**	**0.02**	**0.38**	**0.34**	**1459.51**	**0.11**	**0.79**
Observation Decks/Blinds																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**1.23**	**4.84**	**8.95**	**0.02**	**0.43**	**0.38**	**1375.20**	**0.11**	**0.85**
Pedestrian Bridges																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	250	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.171	0.800	1.100	0.001	0.091	0.081	118	0.015	0.104
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	250	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.231	1.392	1.548	0.002	0.117	0.104	207	0.021	0.147
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	250	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.076	0.428	0.410	0.001	0.023	0.020	51	0.007	0.039
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	250	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.501	1.481	3.927	0.007	0.131	0.117	666	0.045	0.373
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	250	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.250	0.740	1.964	0.004	0.066	0.058	333	0.023	0.187
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**1.23**	**4.84**	**8.95**	**0.02**	**0.43**	**0.38**	**1375.20**	**0.11**	**0.85**

Table 32. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - General Elements

Construction Phase	Vehicle Class	No. of Daily Workers Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
Parking	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.003055
Lighting	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.003055
Vehicular Access and Roads	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.003055
Trails	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Equestrian Trail	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Sidewalks	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Boardwalks	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876
Boat Docks	Light-Duty Truck, catalyst	15	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.002716
Restroom Trailers	Light-Duty Truck, catalyst	15	35	80	3.018328	0.444534	0.114635	0.07	0.038	0.066	0.017	0.005391	0.012099	0.008	0.0125	0.011149	0.002	0.0053	435.6252	0.004286	0.003055
Stair Access to Floodway	Light-Duty Truck, catalyst	15	35	80	2.824266	0.389368	0.103185	0.054	0.024	0.062	0.012	0.005209	0.011827	0.008	0.0125	0.010892	0.002	0.0053	420.8597	0.003946	0.002716
Wetland Garden	Light-Duty Truck, catalyst	15	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.002297
Observation Decks/Blinds	Light-Duty Truck, catalyst	15	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.002115
Pedestrian Bridges	Light-Duty Truck, catalyst	15	35	80	2.818514	0.402178	0.106177	0.061	0.03	0.063	0.016	0.005297	0.011969	0.008	0.0125	0.011032	0.002	0.0053	427.9689	0.00391	0.002876

Assume startup after 8 hours
Assume 45 minutes run time total

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
7.99	1.18	0.43	0.01	0.09	0.05	0.00	0.00	1152.47	0.01	0.01
7.99	1.18	0.43	0.01	0.09	0.05	0.00	0.00	1152.47	0.01	0.01
7.99	1.18	0.43	0.01	0.09	0.05	0.00	0.00	1152.47	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01
7.47	1.03	0.38	0.01	0.09	0.05	0.00	0.00	1113.41	0.01	0.01
7.99	1.18	0.43	0.01	0.09	0.05	0.00	0.00	1152.47	0.01	0.01
7.47	1.03	0.38	0.01	0.09	0.05	0.00	0.00	1113.41	0.01	0.01
7.09	0.92	0.35	0.01	0.09	0.05	0.00	0.00	1080.93	0.01	0.01
6.89	0.87	0.34	0.01	0.08	0.05	0.00	0.00	1066.75	0.01	0.01
7.46	1.06	0.39	0.01	0.09	0.05	0.00	0.00	1132.22	0.01	0.01

	Total Emissions, tons										
Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
250	1.00	0.15	0.05320	1.78E-03	0.01078	0.00610	0.00000	0.00000	144	0.00142	0.00101
125	0.50	0.07	0.02660	8.91E-04	0.00539	0.00305	0.00000	0.00000	72	0.00071	0.00051
250	1.00	0.15	0.05320	1.78E-03	0.01078	0.00610	0.00000	0.00000	144	0.00142	0.00101
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095
250	0.93	0.13	0.04766	1.72E-03	0.01069	0.00602	0.00000	0.00000	139	0.00130	0.00090
250	1.00	0.15	0.05320	1.78E-03	0.01078	0.00610	0.00000	0.00000	144	0.00142	0.00101
125	0.47	0.06	0.02383	8.61E-04	0.00535	0.00301	0.00000	0.00000	70	0.00065	0.00045
125	0.44	0.06	0.02188	8.36E-04	0.00532	0.00298	0.00000	0.00000	68	0.00062	0.00038
125	0.43	0.05	0.02121	8.26E-04	0.00529	0.00296	0.00000	0.00000	67	0.00059	0.00035
250	0.93	0.13	0.04937	1.75E-03	0.01074	0.00606	0.00000	0.00000	142	0.00129	0.00095

Table 33. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - General Elements

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
West End Parking	Heavy Duty Truck, Diesel	10	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.0018938
Lighting	Heavy Duty Truck, Diesel	10	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.0018938
Vehicular Access and Roads	Heavy Duty Truck, Diesel	10	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.0018938
Trails	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.0020004
Equestrian Trail	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.0020004
Sidewalks	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.0020004
Boardwalks	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.0020004
Boat Docks	Heavy Duty Truck, Diesel	10	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00204
Restroom Trailers	Heavy Duty Truck, Diesel	10	35	80	1.2512529	4.6837296	0.2388455	0.0151788	0.2306205	0.036	0.0125	0.2238325	0.009	0.0053	2178.62608	0.0461638	0.0018938
Stair Access to Floodway	Heavy Duty Truck, Diesel	10	35	80	0.9787303	3.6993065	0.1882928	0.0150375	0.1703331	0.036	0.0125	0.1652896	0.009	0.0053	2178.517895	0.0481179	0.00204
Wetland Garden	Heavy Duty Truck, Diesel	10	35	80	0.8718074	3.3167243	0.168176	0.014974	0.1467441	0.036	0.0125	0.1421508	0.009	0.0053	2178.446793	0.0488703	0.002041
Observation Decks/Blinds	Heavy Duty Truck, Diesel	10	35	80	0.7814572	2.9913811	0.1512598	0.0149234	0.1263655	0.036	0.0125	0.1225734	0.009	0.0053	2178.467845	0.0494997	0.0020673
Pedestrian Bridges	Heavy Duty Truck, Diesel	10	35	80	1.0664606	4.0320132	0.2052264	0.0150826	0.1982743	0.036	0.0125	0.1924519	0.009	0.0053	2178.421857	0.0454297	0.0020004
Subtotal																	

MOVES2010 Emission Factors, Dallas County

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Emissions, lbs/day													
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
2.21	8.26	0.42	0.03	0.49	0.42	7.69	1.62	2.07	0.21	3842.46	0.08	0.00
2.21	8.26	0.42	0.03	0.49	0.42	7.69	1.62	2.07	0.21	3842.46	0.08	0.00
2.21	8.26	0.42	0.03	0.49	0.42	7.69	1.62	2.07	0.21	3842.46	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
1.73	6.52	0.33	0.03	0.39	0.32	7.69	1.62	2.07	0.21	3842.27	0.08	0.00
2.21	8.26	0.42	0.03	0.49	0.42	7.69	1.62	2.07	0.21	3842.46	0.08	0.00
1.73	6.52	0.33	0.03	0.39	0.32	7.69	1.62	2.07	0.21	3842.27	0.08	0.00
1.54	5.85	0.30	0.03	0.34	0.28	7.69	1.62	2.07	0.21	3842.14	0.09	0.00
1.38	5.28	0.27	0.03	0.31	0.24	7.69	1.62	2.07	0.21	3842.18	0.09	0.00
1.88	7.11	0.36	0.03	0.44	0.36	7.69	1.62	2.07	0.21	3842.10	0.08	0.00
24.60	**92.77**	**4.72**	**0.35**	**5.57**	**4.65**	**100.00**	**21.00**	**26.97**	**2.70**	**49949.19**	**1.07**	**0.05**

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45
Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738
PM10, MDT	0.829735596
PM10, HDT	1.007230136
PM2.5, LDT	0.035737874
PM2.5, MDT	0.08297356
PM2.5, HDT	0.100723014

Assume 0.25 miles each way of unpaved road travel

Total Emissions, tons													
Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
250	0.03	0.10	0.01	0.00	0.01	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01018	0.00042
125	0.01	0.05	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00509	0.00021
250	0.03	0.10	0.01	0.00	0.01	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01018	0.00042
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
250	0.02	0.08	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01061	0.00045
250	0.03	0.10	0.01	0.00	0.01	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01018	0.00042
125	0.01	0.04	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00530	0.00022
125	0.01	0.04	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00539	0.00022
125	0.01	0.03	0.00	0.00	0.00	0.00	0.48078	0.10096	0.12965	0.01296	240	0.00546	0.00023
250	0.02	0.09	0.00	0.00	0.00	0.00	0.96157	0.20193	0.25929	0.02593	480	0.01002	0.00044
	0.26	**1.00**	**0.05**	**0.00**	**0.05**	**0.01**	**10.58**	**2.22**	**2.85**	**0.29**	**5283.08**	**0.11**	**0.00**

Table 34. Fugitive Dust Emissions
Activity Assumptions for Fugitive Dust Sources
Flood Risk Management
277K Levee Raise

Total cubic yards	260000		
Total Haul Trucks	26000		
Daily (assume 250 days)	104		
Fugitive Dust emissions			
from WRAP Fugitive Dust Handbook, 2006			
Transfer operations (drop operation)			
E = k x (0.0032) x (U/5)^1.3/(M/2)^1.4	0.000208165	PM10	
Assume U - wind speed = 12 mph	4.37146E-05	PM2.5	
Assume M - moisture content = 15%			
k = .35 for PM10			
Assume PM2.5 is 21% of PM10			
Assume material is 1.35 tons/cy (approximate)			
Assume 4 drops per truckload (pile, pickup, drop off, pile)			**Total**
PM10 Emissions, total	292.2630929		292.2631
PM10 Emissions, lbs/day (max, assume 5x average)	5.845261858		5.845262
PM2.5 Emissions, total	61.37524951		61.37525
PM2.5 Emissions, lbs/day	1.22750499		1.227505

Levee Widening

Assumption: Levee widening will require 10% of levee raise cubic yards		
Total cubic yards	26000	
Total Haul Trucks	2600	
Daily (assume 250 days)	10	**Total**
PM10 Emissions, total	29.22630929	29.22631
PM10 Emissions, lbs/day (max, assume 5x average)	0.584526186	0.584526
PM2.5 Emissions, total	6.137524951	6.137525
PM2.5 Emissions, lbs/day	0.122750499	0.12275

Embankment Removals

Assumption: Embankment earthmoving is 5% of levee raise cubic yards		
Total cubic yards	13000	
Total Haul Trucks	1300	
Daily (assume 250 days)	5	**Total**
PM10 Emissions, total	14.61315465	14.61315
PM10 Emissions, lbs/day (max, assume 5x average)	0.292263093	0.292263
PM2.5 Emissions, total	3.068762475	3.068762
PM2.5 Emissions, lbs/day	0.06137525	0.061375

Lakes

West Dallas Lake		
Based on assumptions from traffic impact analysis		
Total cubic yards	790275.2632	
Daily (assume 200 days)	3951.376316	**Total**
PM10 Emissions, total	888.3395872	888.3396

PM10 Emissions, lbs/day (max, assume 5x average)	22.20848968	22.20849
PM2.5 Emissions, total	186.5513133	186.5513
PM2.5 Emissions, lbs/day	4.663782833	4.663783

Urban Lake
Based on assumptions from traffic impact analysis

Total cubic yards	317600.8254	
Daily (assume 200 days)	1588.004127	**Total**
PM10 Emissions, total	357.0115367	357.0115
PM10 Emissions, lbs/day	8.925288417	8.925288
PM2.5 Emissions, total	74.97242271	74.97242
PM2.5 Emissions, lbs/day	1.874310568	1.874311

Natural Lake
Based on assumptions from traffic impact analysis

Total cubic yards	918728.8735	
Daily (assume 200 days)	4593.644367	**Total**
PM10 Emissions, total	1032.732854	1032.733
PM10 Emissions, lbs/day (max, assume 5x average)	25.81832136	25.81832
PM2.5 Emissions, total	216.8738994	216.8739
PM2.5 Emissions, lbs/day	5.421847485	5.421847

For all other construction activities - assume grading is required, total disturbance per activity is 2 acres

Total Acreage of Disturbance	
Amount per day	2
Emission Factor (uncontrolled), lbs/acre-day	20
PM10 Emissions, uncontrolled, lbs/day	40
Control Efficiency	0.61
PM10 Emissions, controlled, lbs/day	15.6
PM10 Emissions, uncontrolled, tons/year	1.26
Control Efficiency	0.61
PM10 Emissions, controlled, tons/year	0.4914
Assume PM2.5 is 21% of PM10	
PM2.5 Emissions, uncontrolled, lbs/day	8.4
Control Efficiency	0.61
PM2.5 Emissions, controlled, lbs/day	3.276
PM2.5 Emissions, uncontrolled, tons/year	0.2646
Control Efficiency	0.61
PM2.5 Emissions, controlled, tons/year	0.103194

Assume that wet activities do not generate fugitive dust. These activities include:
Nonstructural flood control improvements
Wetlands construction
Boat Dock
Weir for river connection
Levee cutoff walls
Whitewater Course

Boat Launch
Water Maze
Fountain Bubblers/Aerators
Fountain Plaza
Canoe Path
River Modification
Pump Station Outfalls
Sump Pond
Gardens/plantings would generate minor fugitive dust.

Table 35. Dredge Emissions

				Emission Factors[a]								Emissions						Emission, tons (total)					
Equipment	FUEL	HP	Load Factor	CO (g/hp-hr)	VOC (g/hp-hr)	NOX (g/hp-hr)	SOX (g/hp-hr)	PM10 (g/hp-hr)	No of Equipment	Hrs Per Day	Days in Service	CO lbs/hr	VOC lbs/hr	NOX lbs/hr	SOX lbs/hr	PM10 lbs/hr	PM2.5 lbs/hr	CO tons (total)	VOC tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)
Dredging Equipment																							
Main genset	DIESEL	2,935	51	1.83E+00	5.30E-01	6.25E+00	6.00E-03	1.84E-01	1	8	40	6.04	1.75	20.63	0.02	0.61	0.54	0.966	1.399	0.413	0.000	0.012	0.011
Aux genset	DIESEL	550	74	1.49E+00	4.60E-01	4.80E+00	3.00E-03	1.64E-01	1	8	40	1.34	0.41	4.31	0.00	0.15	0.13	0.214	0.330	0.086	0.000	0.003	0.003
Spud winch	DIESEL	250	51	1.39E+00	4.80E-01	5.23E+00	6.00E-03	1.72E-01	1	8	40	0.39	0.13	1.47	0.00	0.05	0.04	0.063	0.108	0.029	0.000	0.001	0.001
TOTAL												**7.77**	**2.30**	**26.40**	**0.02**	**0.80**	**0.71**	**1.24**	**1.84**	**0.53**	**0.00**	**0.02**	**0.01**

Assumptions:

Notes:

(a) Emission factors from OFFROAD Model, SDAB, for Dredging Equipment

Work Days/Week 5

Assumptions: Dredge will be similar to the Manson "Valhalla" Clamshell Dredge

Dredge	Engine	Model Year	Max hp	*Assumed Hours of Operation per day
Valhalla	Main genset	2000	2,935	18
Valhalla	Aux genset	2000	550	24
Valhalla	Spud winch	2000	250	6

Table 36. Heavy Construction Equipment Emissions, Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Construction

				Emission Factors												Emissions											Emission, tons (total)						
Equipment and Activity	FUEL	HP	Load Factor	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	No of Equipment	Hrs Per Day	Days in Service	ROG lbs/day	CO lbs/day	NOX lbs/day	SOX lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	N2O lbs/day	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
West Dallas Lake - Contract 7																																	
Utility Relocations - City owned Utility																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	195	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.611	1.856	4.419	0.008	0.158	0.140	850	0.055	0.420
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	195	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.164	1.038	1.156	0.002	0.063	0.056	175	0.015	0.110
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	195	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.915	3.886	7.473	0.008	0.307	0.274	826	0.083	0.710
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**1.69**	**6.78**	**13.05**	**0.02**	**0.53**	**0.47**	**1851.15**	**0.15**	**1.24**
Utility Relocations - Franchised Owned Utility																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	49	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.154	0.466	1.111	0.002	0.040	0.035	214	0.014	0.105
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	49	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.041	0.261	0.290	0.000	0.016	0.014	44	0.004	0.028
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	49	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.230	0.977	1.878	0.002	0.077	0.069	208	0.021	0.178
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.42**	**1.70**	**3.28**	**0.00**	**0.13**	**0.12**	**465.16**	**0.04**	**0.31**
Bridge Pier Modifications - Westmoreland Bridge																																	
Equipment																																	
Crane	DIESEL	208	0.43	0.0925	0.2713	0.8284	0.0013	0.0286	0.0255	112.2	0.0083	0.0787	2	8	302	1.48	4.34	13.25	0.02	0.46	0.41	1794.54	0.13	1.26	0.223	0.655	2.001	0.003	0.069	0.062	271	0.020	0.190
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	302	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.254	1.607	1.790	0.003	0.098	0.087	271	0.023	0.170
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	302	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	1.417	6.019	11.573	0.013	0.476	0.424	1280	0.128	1.099
Subtotal																**12.54**	**54.85**	**101.75**	**0.12**	**4.26**	**3.79**	**12066.01**	**1.13**	**9.67**	**1.89**	**8.28**	**15.36**	**0.02**	**0.64**	**0.57**	**1821.97**	**0.17**	**1.46**
West Dallas Lake																																	
Erosion/Sediment Control and Clearing																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																	
Lake Bottom																																	
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	16	8	187	25.08	76.15	181.31	0.34	6.46	5.75	34858.73	2.26	17.22	2.345	7.120	16.952	0.032	0.604	0.538	3259	0.212	1.610
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	16	8	187	13.46	85.16	94.82	0.16	5.18	4.61	14364.36	1.21	9.01	1.259	7.963	8.866	0.015	0.484	0.431	1343	0.114	0.842
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	16	8	187	37.52	159.44	306.57	0.33	12.61	11.22	33903.69	3.39	29.12	3.509	14.906	28.664	0.031	1.179	1.049	3170	0.317	2.723
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	16	8	187	10.97	51.19	70.37	0.09	5.82	5.18	7550.56	0.99	6.69	1.025	4.787	6.580	0.008	0.544	0.484	706	0.093	0.625
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	8	8	187	8.01	23.69	62.83	0.12	2.10	1.87	10658.91	0.72	5.97	0.749	2.215	5.875	0.011	0.196	0.175	997	0.068	0.558
Subtotal																**113.42**	**457.77**	**927.12**	**1.24**	**38.59**	**34.34**	**101336.25**	**8.58**	**68.01**	**10.60**	**42.80**	**86.69**	**0.12**	**3.61**	**3.21**	**9474.94**	**0.80**	**6.36**
Lake Sides																																	
Edge Wetlands																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	16	8	57	25.08	76.15	181.31	0.34	6.46	5.75	34858.73	2.26	17.22	0.715	2.170	5.167	0.010	0.184	0.164	993	0.065	0.491
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	57	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.096	0.607	0.676	0.001	0.037	0.033	102	0.009	0.064
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	57	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	0.210	1.269	1.412	0.002	0.107	0.095	189	0.019	0.134
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	4	8	57	1.21	6.84	6.57	0.01	0.36	0.32	816.61	0.11	0.62	0.035	0.195	0.187	0.000	0.010	0.009	23	0.003	0.018
Subtotal																**37.04**	**148.82**	**261.12**	**0.47**	**11.88**	**10.57**	**45887.62**	**3.34**	**24.81**	**1.06**	**4.24**	**7.44**	**0.01**	**0.34**	**0.30**	**1307.80**	**0.10**	**0.71**
Overflow Weir 1 and 2 Weir for River Connection																																	
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	118	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.199	1.256	1.399	0.002	0.076	0.068	212	0.018	0.133
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	16	8	118	7.38	44.54	49.54	0.08	3.75	3.34	6621.19	0.67	4.71	0.436	2.628	2.923	0.005	0.222	0.197	391	0.039	0.278
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	8	8	118	2.42	13.69	13.13	0.02	0.73	0.65	1633.23	0.22	1.25	0.143	0.807	0.775	0.001	0.043	0.038	96	0.013	0.074
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	16	8	118	8.84	40.73	55.47	0.07	4.80	4.27	6009.63	0.80	5.27	0.521	2.403	3.273	0.004	0.283	0.252	355	0.047	0.311
Subtotal																**22.01**	**120.25**	**141.85**	**0.21**	**10.57**	**9.41**	**17855.13**	**1.99**	**13.48**	**1.30**	**7.09**	**8.37**	**0.01**	**0.62**	**0.56**	**1053.45**	**0.12**	**0.80**
Lake Drain																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	8	8	27	12.54	38.07	90.65	0.17	3.23	2.88	17429.37	1.13	8.61	0.169	0.514	1.224	0.002	0.044	0.039	235	0.015	0.116
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	27	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.023	0.144	0.160	0.000	0.009	0.008	24	0.002	0.015
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	8	8	27	3.69	22.27	24.77	0.04	1.88	1.67	3310.59	0.33	2.35	0.050	0.301	0.334	0.001	0.025	0.023	45	0.004	0.032
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	4	8	27	1.21	6.84	6.57	0.01	0.36	0.32	816.61	0.11	0.62	0.016	0.092	0.089	0.000	0.005	0.004	11	0.001	0.008
Subtotal																**19.13**	**77.83**	**133.84**	**0.24**	**6.12**	**5.45**	**23352.12**	**1.73**	**12.72**	**0.26**	**1.05**	**1.81**	**0.00**	**0.08**	**0.07**	**315.25**	**0.02**	**0.17**
Lake Edge Treatment and Planting																																	
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																	
Paved Loop Trail																																	
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
West End Parking																																	
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	4	8	41	4.16	23.42	30.51	0.04	1.68	1.50	3965.49	0.38	2.90	0.085	0.480	0.625	0.001	0.034	0.031	81	0.008	0.059
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**13.99**	**62.15**	**102.10**	**0.17**	**5.10**	**4.54**	**14967.09**	**1.26**	**9.70**	**0.29**	**1.27**	**2.09**	**0.00**	**0.10**	**0.09**	**306.83**	**0.03**	**0.20**
Lighting																																	
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**2.45**	**14.56**	**15.67**	**0.02**	**1.12**	**1.00**	**2063.60**	**0.22**	**1.49**	**0.05**	**0.30**	**0.32**	**0.00**	**0.02**	**0.02**	**42.30**	**0.00**	**0.03**
Boat Dock																																	
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	1	8	41	0.80	4.11	5.07	0.01	0.41	0.37	588.98	0.07	0.48	0.016	0.084	0.104	0.000	0.009	0.008	12	0.001	0.010

CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	4	8	41	2.03	11.21	13.61	0.02	1.08	0.96	1655.30	0.18	1.29	0.042	0.230	0.279	0.000	0.022	0.020	34	0.004	0.026
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	41	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.015	0.072	0.071	0.000	0.004	0.004	8	0.001	0.007
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.96**	**29.12**	**37.11**	**0.05**	**3.04**	**2.70**	**4155.00**	**0.54**	**3.53**	**0.12**	**0.60**	**0.76**	**0.00**	**0.06**	**0.06**	**85.18**	**0.01**	**0.07**
Lane Buoys																																			
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	41	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.015	0.072	0.071	0.000	0.004	0.004	8	0.001	0.007
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**3.13**	**13.80**	**18.44**	**0.02**	**1.55**	**1.38**	**1910.71**	**0.28**	**1.75**	**0.06**	**0.28**	**0.38**	**0.00**	**0.03**	**0.03**	**39.17**	**0.01**	**0.04**
Levee Cutoff Walls																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**
Deep Water Well																																			
Excavator	DIESEL	157	0.57	0.0998	0.5137	0.6331	0.0009	0.0519	0.0462	73.6	0.0090	0.0601	1	8	180	0.80	4.11	5.07	0.01	0.41	0.37	588.98	0.07	0.48	0.072	0.370	0.456	0.001	0.037	0.033	53	0.006	0.043
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0634	0.3503	0.4252	0.0006	0.0337	0.0300	51.7	0.0057	0.0404	4	8	180	2.03	11.21	13.61	0.02	1.08	0.96	1655.30	0.18	1.29	0.183	1.009	1.225	0.002	0.097	0.086	149	0.016	0.116
Skid Steer Loader	DIESEL	37	0.55	0.0443	0.2196	0.2161	0.0003	0.0134	0.0120	25.5	0.0040	0.0205	2	8	180	0.71	3.51	3.46	0.01	0.21	0.19	408.31	0.06	0.33	0.064	0.316	0.311	0.000	0.019	0.017	37	0.006	0.030
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	180	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.218	0.926	1.349	0.002	0.120	0.107	135	0.020	0.128
Subtotal																**5.96**	**29.12**	**37.11**	**0.05**	**3.04**	**2.70**	**4155.00**	**0.54**	**3.53**	**0.54**	**2.62**	**3.34**	**0.00**	**0.27**	**0.24**	**373.95**	**0.05**	**0.32**
Urban Lake																																			
Erosion/Sediment Control and Clearing																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																			
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																			
Lake Bottom																																			
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	187	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.586	1.780	4.238	0.008	0.151	0.134	815	0.053	0.403
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	187	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.315	1.991	2.217	0.004	0.121	0.108	336	0.028	0.211
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	187	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.877	3.727	7.166	0.008	0.295	0.262	792	0.079	0.681
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	187	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.256	1.197	1.645	0.002	0.136	0.121	176	0.023	0.156
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	187	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.187	0.554	1.469	0.003	0.049	0.044	249	0.017	0.140
Subtotal																**42.13**	**161.04**	**390.19**	**0.45**	**14.46**	**12.87**	**25334.06**	**2.14**	**17.00**	**3.94**	**15.06**	**36.48**	**0.04**	**1.35**	**1.20**	**2368.73**	**0.20**	**1.59**
Lake Sides																																			
Edge Wetlands																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	57	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.179	0.543	1.292	0.002	0.046	0.041	248	0.016	0.123
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	57	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.024	0.152	0.169	0.000	0.009	0.008	26	0.002	0.016
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	57	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.053	0.317	0.353	0.001	0.027	0.024	47	0.005	0.034
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	57	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.017	0.098	0.094	0.000	0.005	0.005	12	0.002	0.009
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.27**	**1.11**	**1.91**	**0.00**	**0.09**	**0.08**	**332.77**	**0.02**	**0.18**
Overflow Weir 1 and 2 Weir for River Connection																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	118	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.050	0.314	0.350	0.001	0.019	0.017	53	0.004	0.033
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	118	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.109	0.657	0.731	0.001	0.055	0.049	98	0.010	0.069
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	118	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.036	0.202	0.194	0.000	0.011	0.010	24	0.003	0.018
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	118	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.130	0.601	0.818	0.001	0.071	0.063	89	0.012	0.078
Subtotal																**5.50**	**30.06**	**35.46**	**0.05**	**2.64**	**2.35**	**4463.78**	**0.50**	**3.37**	**0.32**	**1.77**	**2.09**	**0.00**	**0.16**	**0.14**	**263.36**	**0.03**	**0.20**
Lake Drain																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	27	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.085	0.257	0.612	0.001	0.022	0.019	118	0.008	0.058
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	27	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.011	0.072	0.080	0.000	0.004	0.004	12	0.001	0.008
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	27	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.025	0.150	0.167	0.000	0.013	0.011	22	0.002	0.016
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	27	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.008	0.046	0.044	0.000	0.002	0.002	6	0.001	0.004
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.13**	**0.53**	**0.90**	**0.00**	**0.04**	**0.04**	**157.63**	**0.01**	**0.09**
Lake Edge Treatment and Planting																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																			
Pavilion																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Whitewater Course																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	41	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.129	0.390	0.929	0.002	0.033	0.029	179	0.012	0.088
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.20**	**0.80**	**1.37**	**0.00**	**0.06**	**0.06**	**239.36**	**0.02**	**0.13**
Boat Launch																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**

Restroom Trailers																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**0.17**	**0.66**	**1.29**	**0.00**	**0.06**	**0.05**	**206.18**	**0.02**	**0.12**
Rock Plantings/Landscaping																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**3.29**	**19.88**	**21.60**	**0.03**	**1.44**	**1.29**	**2961.38**	**0.30**	**2.05**	**0.07**	**0.41**	**0.44**	**0.00**	**0.03**	**0.03**	**60.71**	**0.01**	**0.04**
Loop Trail																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Cypress Planting/Landscaping																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**3.29**	**19.88**	**21.60**	**0.03**	**1.44**	**1.29**	**2961.38**	**0.30**	**2.05**	**0.07**	**0.41**	**0.44**	**0.00**	**0.03**	**0.03**	**60.71**	**0.01**	**0.04**
Stone Curb w/ Safety Bench																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**8.46**	**32.33**	**62.79**	**0.11**	**2.69**	**2.40**	**10057.78**	**0.76**	**5.97**	**0.17**	**0.66**	**1.29**	**0.00**	**0.06**	**0.05**	**206.18**	**0.02**	**0.12**
Water Maze																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.72**	**30.17**	**36.58**	**0.05**	**2.77**	**2.47**	**4463.78**	**0.52**	**3.47**	**0.12**	**0.62**	**0.75**	**0.00**	**0.06**	**0.05**	**91.51**	**0.01**	**0.07**
Fountain Bubblers/Aeratots																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**2.45**	**14.56**	**15.67**	**0.02**	**1.12**	**1.00**	**2063.60**	**0.22**	**1.49**	**0.05**	**0.30**	**0.32**	**0.00**	**0.02**	**0.02**	**42.30**	**0.00**	**0.03**
Fountain Plaza																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Canoe Path																																			
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Air Compressor	DIESEL	78	0.48	0.0758	0.3216	0.4682	0.0006	0.0416	0.0370	47.0	0.0068	0.0445	4	8	41	2.42	10.29	14.98	0.02	1.33	1.18	1502.41	0.22	1.42	0.050	0.211	0.307	0.000	0.027	0.024	31	0.004	0.029
Subtotal																**5.72**	**30.17**	**36.58**	**0.05**	**2.77**	**2.47**	**4463.78**	**0.52**	**3.47**	**0.12**	**0.62**	**0.75**	**0.00**	**0.06**	**0.05**	**91.51**	**0.01**	**0.07**
Skate Path																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Amphitheater																																			
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Levee Cutoff Walls																																			
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**
Natural Lake																																			
Erosion/Sediment Control and Clearing																																			
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	73	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.229	0.695	1.654	0.003	0.059	0.052	318	0.021	0.157
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	73	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.061	0.389	0.433	0.001	0.024	0.021	66	0.006	0.041
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	73	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.342	1.455	2.797	0.003	0.115	0.102	309	0.031	0.266
Subtotal																**17.33**	**69.54**	**133.82**	**0.19**	**5.42**	**4.82**	**18986.15**	**1.56**	**12.71**	**0.63**	**2.54**	**4.88**	**0.01**	**0.20**	**0.18**	**692.99**	**0.06**	**0.46**
Rough Grade Lake																																			
Graders	DIESEL	162	0.61	0.1299	0.7319	0.9534	0.0014	0.0526	0.0468	123.9	0.0117	0.0906	2	8	125	2.08	11.71	15.25	0.02	0.84	0.75	1982.74	0.19	1.45	0.130	0.732	0.953	0.001	0.053	0.047	124	0.012	0.091
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	125	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.392	1.190	2.833	0.005	0.101	0.090	545	0.035	0.269

Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	2	8	125	1.68	10.65	11.85	0.02	0.65	0.58	1795.55	0.15	1.13	0.105	0.665	0.741	0.001	0.040	0.036	112	0.009	0.070
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	125	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.586	2.491	4.790	0.005	0.197	0.175	530	0.053	0.455
Subtotal																**19.41**	**81.25**	**149.08**	**0.21**	**6.26**	**5.57**	**20968.89**	**1.75**	**14.16**	**1.21**	**5.08**	**9.32**	**0.01**	**0.39**	**0.35**	**1310.56**	**0.11**	**0.89**
Lake																																		
Lake Bottom																																		
Dredge	DIESEL			2.2967	7.7667	26.4021	0.0242	0.8027	0.7144				1	8	187	18.37	62.13	211.22	0.19	6.42	5.72	0.00	0.00	0.00	1.718	5.809	19.749	0.018	0.600	0.534	0	0.000	0.000
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	187	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.586	1.780	4.238	0.008	0.151	0.134	815	0.053	0.403
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	4	8	187	3.37	21.29	23.71	0.04	1.30	1.15	3591.09	0.30	2.25	0.315	1.991	2.217	0.004	0.121	0.108	336	0.028	0.211
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	4	8	187	9.38	39.86	76.64	0.08	3.15	2.81	8475.92	0.85	7.28	0.877	3.727	7.166	0.008	0.295	0.262	792	0.079	0.681
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	4	8	187	2.74	12.80	17.59	0.02	1.45	1.29	1887.64	0.25	1.67	0.256	1.197	1.645	0.002	0.136	0.121	176	0.023	0.156
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	187	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.187	0.554	1.469	0.003	0.049	0.044	249	0.017	0.140
Subtotal																**42.13**	**161.04**	**390.19**	**0.45**	**14.46**	**12.87**	**25334.06**	**2.14**	**17.00**	**3.94**	**15.06**	**36.48**	**0.04**	**1.35**	**1.20**	**2368.73**	**0.20**	**1.59**
Lake Sides																																		
Edge Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	57	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.179	0.543	1.292	0.002	0.046	0.041	248	0.016	0.123
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	57	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.024	0.152	0.169	0.000	0.009	0.008	26	0.002	0.016
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	57	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.053	0.317	0.353	0.001	0.027	0.024	47	0.005	0.034
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	57	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.017	0.098	0.094	0.000	0.005	0.005	12	0.002	0.009
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.27**	**1.11**	**1.91**	**0.00**	**0.09**	**0.08**	**332.77**	**0.02**	**0.18**
Overflow Weir 1 and 2 Weir for River Connection																																		
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	118	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.050	0.314	0.350	0.001	0.019	0.017	53	0.004	0.033
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	118	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.109	0.657	0.731	0.001	0.055	0.049	98	0.010	0.069
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	118	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.036	0.202	0.194	0.000	0.011	0.010	24	0.003	0.018
Air Compressor	DIESEL	78	0.48	0.0691	0.3182	0.4334	0.0006	0.0375	0.0334	47.0	0.0062	0.0412	4	8	118	2.21	10.18	13.87	0.02	1.20	1.07	1502.41	0.20	1.32	0.130	0.601	0.818	0.001	0.071	0.063	89	0.012	0.078
Subtotal																**5.50**	**30.06**	**35.46**	**0.05**	**2.64**	**2.35**	**4463.78**	**0.50**	**3.37**	**0.32**	**1.77**	**2.09**	**0.00**	**0.16**	**0.14**	**263.36**	**0.03**	**0.20**
Lake Drain																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	27	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.085	0.257	0.612	0.001	0.022	0.019	118	0.008	0.058
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	27	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.011	0.072	0.080	0.000	0.004	0.004	12	0.001	0.008
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	27	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.025	0.150	0.167	0.000	0.013	0.011	22	0.002	0.016
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	27	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.008	0.046	0.044	0.000	0.002	0.002	6	0.001	0.004
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.13**	**0.53**	**0.90**	**0.00**	**0.04**	**0.04**	**157.63**	**0.01**	**0.09**
Lake Edge Treatment and Planting																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	72	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.226	0.685	1.632	0.003	0.058	0.052	314	0.020	0.155
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	72	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.030	0.192	0.213	0.000	0.012	0.010	32	0.003	0.020
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	72	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.066	0.401	0.446	0.001	0.034	0.030	60	0.006	0.042
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	72	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.022	0.123	0.118	0.000	0.007	0.006	15	0.002	0.011
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.34**	**1.40**	**2.41**	**0.00**	**0.11**	**0.10**	**420.34**	**0.03**	**0.23**
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																																		
Boardwalk Loop																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Floating Wetlands																																		
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	41	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.129	0.390	0.929	0.002	0.033	0.029	179	0.012	0.088
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	41	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.017	0.109	0.121	0.000	0.007	0.006	18	0.002	0.012
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Subtotal																**9.56**	**38.92**	**66.92**	**0.12**	**3.06**	**2.72**	**11676.06**	**0.86**	**6.36**	**0.20**	**0.80**	**1.37**	**0.00**	**0.06**	**0.06**	**239.36**	**0.02**	**0.13**
Small Amphitheater																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Boat Launch																																		
Roller Compactor	DIESEL	84	0.56	0.0857	0.4000	0.5498	0.0007	0.0454	0.0404	59.0	0.0077	0.0522	2	8	41	1.37	6.40	8.80	0.01	0.73	0.65	943.82	0.12	0.84	0.028	0.131	0.180	0.000	0.015	0.013	19	0.003	0.017
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	41	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.038	0.228	0.254	0.000	0.019	0.017	34	0.003	0.024
Skid Steer Loader	DIESEL	37	0.55	0.0378	0.2138	0.2052	0.0003	0.0113	0.0101	25.5	0.0034	0.0195	2	8	41	0.61	3.42	3.28	0.01	0.18	0.16	408.31	0.05	0.31	0.012	0.070	0.067	0.000	0.004	0.003	8	0.001	0.006
Concrete Trucks	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	4	8	41	4.00	11.85	31.42	0.06	1.05	0.93	5329.45	0.36	2.98	0.082	0.243	0.644	0.001	0.021	0.019	109	0.007	0.061
4000 Gallon Water Truck	DIESEL	235	0.57	0.1252	0.3702	0.9818	0.0019	0.0328	0.0291649	166.5	0.0113	0.0933	2	8	41	2.00	5.92	15.71	0.03	0.52	0.47	2664.73	0.18	1.49	0.041	0.121	0.322	0.001	0.011	0.010	55	0.004	0.031
Subtotal																**9.83**	**38.73**	**71.59**	**0.13**	**3.42**	**3.04**	**11001.60**	**0.89**	**6.80**	**0.20**	**0.79**	**1.47**	**0.00**	**0.07**	**0.06**	**225.53**	**0.02**	**0.14**
Levee Cutoff Walls																																		
CAT 416 Rubber Tire Backhoe	DIESEL	87	0.55	0.0577	0.3480	0.3870	0.0006	0.0293	0.0261084	51.7	0.0052	0.0368	4	8	204	1.85	11.14	12.39	0.02	0.94	0.84	1655.30	0.17	1.18	0.188	1.136	1.263	0.002	0.096	0.085	169	0.017	0.120
Dump Truck	DIESEL	381	0.57	0.1960	0.5949	1.4165	0.0027	0.0505	0.0449	272.3	0.0177	0.1346	4	8	204	6.27	19.04	45.33	0.09	1.62	1.44	8714.68	0.57	4.31	0.640	1.942	4.623	0.009	0.165	0.147	889	0.058	0.439
Excavator	DIESEL	157	0.57	0.1052	0.6653	0.7408	0.0013	0.0405	0.0360	112.2	0.0095	0.0704	1	8	204	0.84	5.32	5.93	0.01	0.32	0.29	897.77	0.08	0.56	0.086	0.543	0.605	0.001	0.033	0.029	92	0.008	0.057
Bulldozers	DIESEL	358	0.59	0.2932	1.2456	2.3951	0.0026	0.0985	0.0877	264.9	0.0265	0.2275	2	8	204	4.69	19.93	38.32	0.04	1.58	1.40	4237.96	0.42	3.64	0.478	2.033	3.909	0.004	0.161	0.143	432	0.043	0.371
Subtotal																**13.65**	**55.43**	**101.96**	**0.16**	**4.45**	**3.96**	**15505.71**	**1.23**	**9.69**	**1.39**	**5.65**	**10.40**	**0.02**	**0.45**	**0.40**	**1581.58**	**0.13**	**0.99**
TOTAL 2017																									**10.89**	**43.93**	**88.37**	**0.12**	**3.65**	**3.25**	**10047.47**	**0.83**	**6.52**
TOTAL 2018																									**8.57**	**34.76**	**69.65**	**0.10**	**2.99**	**2.66**	**7476.07**	**0.62**	**4.74**
TOTAL 2022																									**0.188**	**0.753**	**1.450**	**0.002**	**0.059**	**0.052**	**205.663**	**0.017**	**0.138**
TOTAL 2023																									**2.401**	**9.801**	**18.718**	**0.026**	**0.763**	**0.679**	**2566.140**	**0.217**	**1.778**
TOTAL 2024																									**2.255**	**9.596**	**17.961**	**0.023**	**0.745**	**0.663**	**2277.940**	**0.204**	**1.706**
TOTAL 2025																									**14.151**	**57.990**	**112.264**	**0.154**	**4.900**	**4.361**	**13150.709**	**1.122**	**8.789**
TOTAL 2026																									**3.075**	**14.352**	**20.973**	**0.034**	**1.208**	**1.075**	**3167.700**	**0.277**	**1.992**

Table 37. Worker Vehicle Emissions, BVP Ecosystem and Recreation Improvements - Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Contruction

Construction Phase	Vehicle Class	Per phase	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	Hot-Soak (g/trip)	Resting Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
West Dallas Lake - Contract 7																					
Utility Relocations - City owned Utility	Light-Duty Truck, catalyst	20	35	80	2.750149	0.367153	0.09862	0.046	0.017	0.061	0.01	0.005128	0.011742	0.008	0.0125	0.010819	0.002	0.0053	414.4503	0.003872	0.00
Utility Relocations - Franchised Owned Utility	Light-Duty Truck, catalyst	20	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
Bridge Pier Modifications - Westmoreland Bridge	Light-Duty Truck, catalyst	30	35	80	2.678204	0.347289	0.094284	0.044	0.015	0.06	0.01	0.005057	0.011646	0.008	0.0125	0.010722	0.002	0.0053	408.5823	0.00375	0.00
West Dallas Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Paved Loop Trail	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
West End Parking	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lighting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Dock	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lane Buoys	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Deep Water Well	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Urban Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Pavilion	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Whitewater Course	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Launch	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Restroom Trailers	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rock Plantings/Landscaping	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Loop Trail	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Cypress Planting/Landscaping	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Stone Curb w/ Safety Bench	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Water Maze	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Fountain Bubblers/Aeratots	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Fountain Plaza	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00

Canoe Path	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Skate Path	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Amphitheater	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Natural Lake																					
Erosion/Sediment Control and Clearing	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Rough Grade Lake	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Bottom	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Sides	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Overflow Weir 1 and 2 Weir for River Connection	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Drain	Light-Duty Truck, catalyst	20	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Lake Edge Treatment and Planting	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																					
Boardwalk Loop	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Floating Wetlands	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Small Amphitheater	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Boat Launch	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00
Levee Cutoff Walls	Light-Duty Truck, catalyst	40	35	80	2.60437	0.328866	0.090196	0.044	0.015	0.06	0.01	0.004993	0.011517	0.008	0.0125	0.010614	0.002	0.0053	403.2226	0.003578	0.00

Assume startup after 8 hours
Assume 45 minutes run time total

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Emissions, lbs/day										
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
9.70	1.30	0.49	0.02	0.11	0.06	0.17	0.04	1461.94	0.01	0.01
9.45	1.23	0.47	0.02	0.11	0.06	0.17	0.04	1441.24	0.01	0.01
14.17	1.84	0.70	0.03	0.17	0.10	0.25	0.05	2161.86	0.02	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
9.19	1.16	0.45	0.02	0.11	0.06	0.17	0.04	1422.33	0.01	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01
18.37	2.32	0.90	0.04	0.23	0.13	0.34	0.07	2844.67	0.03	0.01

		Total Emissions, tons										
West Dallas Lake - Contract 7	Construction Days	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	CO2	CH4	N2O
Utility Relocations - City owned Utility	195	0.95	0.13	0.04731	1.76E-03	0.01109	0.00623	0.01646	0.00346	143	0.00133	0.00086
Utility Relocations - Franchised Owned Utility	49	0.23	0.03	0.01144	4.37E-04	0.00278	0.00156	0.00413	0.00087	35	0.00032	0.00020
Bridge Pier Modifications - Westmoreland Bridge	302	2.14	0.28	0.10573	4.04E-03	0.02568	0.01440	0.03823	0.00803	326	0.00300	0.00184
West Dallas Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.02	0.00	0.00	0.00	0.01	0.00	51.92	0.00	0.00
Rough Grade Lake	125	0.57	0.11	0.04230	1.65E-03	0.01056	0.00591	0.01578	0.00331	133	0.00118	0.00070
Lake Bottom	187	1.72	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Lake Sides	57	0.52	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Paved Loop Trail	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
West End Parking	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Lighting	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Dock	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Lane Buoys	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
Deep Water Well	180	1.65	0.21	0.08143	3.17E-03	0.02033	0.01137	0.03038	0.00638	256	0.00227	0.00134
Urban Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.01651	6.43E-04	0.00412	0.00231	0.00616	0.00129	52	0.00046	0.00027
Rough Grade Lake	125	0.57	0.07	0.02827	1.10E-03	0.00706	0.00395	0.01055	0.00222	89	0.00079	0.00047
Lake Bottom	187	1.72	0.22	0.08459	3.29E-03	0.02112	0.01182	0.03156	0.00663	266	0.00236	0.00140
Lake Sides	57	0.52	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Pavilion	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Whitewater Course	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Launch	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Restroom Trailers	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Rock Plantings/Landscaping	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Loop Trail	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Cypress Planting/Landscaping	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Stone Curb w/ Safety Bench	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Water Maze	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Fountain Bubblers/Aeratots	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Fountain Plaza	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Canoe Path	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Skate Path	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Amphitheater	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
Natural Lake												
Erosion/Sediment Control and Clearing	73	0.34	0.04	0.01651	6.43E-04	0.00412	0.00231	0.00616	0.00129	52	0.00046	0.00027
Rough Grade Lake	125	0.57	0.07	0.02827	1.10E-03	0.00706	0.00395	0.01055	0.00222	89	0.00079	0.00047
Lake Bottom	187	1.72	0.22	0.08459	3.29E-03	0.02112	0.01182	0.03156	0.00663	266	0.00236	0.00140
Lake Sides	57	0.52	0.07	0.02579	1.00E-03	0.00644	0.00360	0.00962	0.00202	81	0.00072	0.00043
Overflow Weir 1 and 2 Weir for River Connection	118	1.08	0.14	0.05338	2.08E-03	0.01333	0.00746	0.01992	0.00418	168	0.00149	0.00088
Lake Drain	27	0.12	0.02	0.00611	2.38E-04	0.00152	0.00085	0.00228	0.00048	19	0.00017	0.00010
Lake Edge Treatment and Planting	72	0.66	0.08	0.03257	1.27E-03	0.00813	0.00455	0.01215	0.00255	102	0.00091	0.00054
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)												
Boardwalk Loop	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Floating Wetlands	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Small Amphitheater	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Boat Launch	41	0.38	0.05	0.01855	7.22E-04	0.00463	0.00259	0.00692	0.00145	58	0.00052	0.00031
Levee Cutoff Walls	204	1.87	0.24	0.09228	3.59E-03	0.02304	0.01289	0.03443	0.00723	290	0.00257	0.00152
TOTAL 2017		**9.31**	**1.18**	**0.46**	**0.02**	**0.11**	**0.06**	**0.17**	**0.04**	**1441.53**	**0.01**	**0.01**
TOTAL 2018		**11.26**	**1.42**	**0.55**	**0.02**	**0.14**	**0.08**	**0.21**	**0.04**	**1743.07**	**0.02**	**0.01**
TOTAL 2022		**0.11**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**15.84**	**0.00**	**0.00**
TOTAL 2023		**1.61**	**0.21**	**0.08**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**243.62**	**0.00**	**0.00**
TOTAL 2024		**2.04**	**0.27**	**0.10**	**0.00**	**0.03**	**0.01**	**0.04**	**0.01**	**318.91**	**0.00**	**0.00**
TOTAL 2025		**6.947**	**0.780**	**0.304**	**0.012**	**0.076**	**0.042**	**0.113**	**0.024**	**956.324**	**0.008**	**0.005**
TOTAL 2026		**3.05**	**0.43**	**0.17**	**0.01**	**0.04**	**0.02**	**0.06**	**0.01**	**530.60**	**0.00**	**0.00**

Table 38. Construction Truck Emissions, BVP Ecosystem and Recreation Improvements - Lakes, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Contruction

Construction Phase	Vehicle Class	Peak No. of Trucks per day	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_X Running Exhaust (g/mi)	ROG Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	N2O Running Exhaust (g/mi)
West Dallas Lake - Contract 7																	
Utility Relocations - City owned Utility	Heavy Duty Truck, Diesel	10	35	20	0.871807363	3.316724334	0.16817599	0.014974	0.14674414	0.036	0.0125	0.142150806	0.009	0.0053	2178.446793	0.04887025	0.00
Utility Relocations - Franchised Owned Utility	Heavy Duty Truck, Diesel	10	35	20	0.781457199	2.991381103	0.15125977	0.01492336	0.12636546	0.036	0.0125	0.122573398	0.009	0.0053	2178.467845	0.04949967	0.00
Bridge Pier Modifications - Westmoreland Bridge	Heavy Duty Truck, Diesel	10	35	20	0.781457199	2.991381103	0.15125977	0.01492336	0.12636546	0.036	0.0125	0.122573398	0.009	0.0053	2178.467845	0.04949967	0.00
West Dallas Lake																	
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	300	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)	Heavy Duty Truck, Diesel																
Paved Loop Trail	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
West End Parking	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lighting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Dock	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lane Buoys	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Deep Water Well	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Urban Lake	Heavy Duty Truck, Diesel																
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	300	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)	Heavy Duty Truck, Diesel																
Pavilion	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Whitewater Course	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Launch	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Restroom Trailers	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rock Plantings/Landscaping	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Loop Trail	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Cypress Planting/Landscaping	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Stone Curb w/ Safety Bench	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Water Maze	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Fountain Bubblers/Aeratots	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Fountain Plaza	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Canoe Path	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Skate Path	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Amphitheater	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Natural Lake	Heavy Duty Truck, Diesel																
Erosion/Sediment Control and Clearing	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Rough Grade Lake	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Bottom	Heavy Duty Truck, Diesel	300	35	20	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Sides	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Overflow Weir 1 and 2 Weir for River Connection	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Drain	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Lake Edge Treatment and Planting	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)																	
Boardwalk Loop	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Floating Wetlands	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Small Amphitheater	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Boat Launch	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Levee Cutoff Walls	Heavy Duty Truck, Diesel	10	35	80	0.704446822	2.712676256	0.13680044	0.01490895	0.10917075	0.036	0.0125	0.105905613	0.009	0.0053	2178.682864	0.05007875	0.00
Subtotal																	

Paved Road Fugitive Dust
Assume silt loading for 10,000 ADT roadways = 0.03 g/m3

Assume k = 0.016 PM10
Assume 6 miles in addition for track-out for PM10
Emission Factors

PM10, LDT	9.81231E-05
PM10, MDT	0.008944829
PM10, HDT	0.017495628

Unpaved Road Fugitive Dust
For LDT assume 2 tons/vehicle, MDT assume 13 tons/vehicle, HDT assume 20 tons/vehicle

Emissions, lbs/day												
CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
0.38	1.46	0.07	0.01	0.09	0.07	4.55	0.96	2.52	0.25	960.54	0.02	0.00
0.34	1.32	0.07	0.01	0.08	0.06	4.55	0.96	2.52	0.25	960.54	0.02	0.00
0.34	1.32	0.07	0.01	0.08	0.06	4.55	0.96	2.52	0.25	960.54	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
9.32	35.88	1.81	0.20	2.09	1.59	136.47	28.66	75.54	7.55	28819.19	0.66	0.03
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
9.32	35.88	1.81	0.20	2.09	1.59	136.47	28.66	75.54	7.55	28819.19	0.66	0.03
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	0.00
0.31	1.20	0.06	0.01	0.07	0.05	4.55	0.96	2.52	0.25	960.64	0.02	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
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
9.32	35.88	1.81	0.20	2.09	1.59	136.47	28.66	75.54	7.55	28819.19	0.66	0.03
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	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
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00
1.24	4.78	0.24	0.03	0.28	0.21	15.05	3.16	2.52	0.25	3842.56	0.09	0.00

	Total Emissions, tons													
	Construction Days/Total Deliveries	CO	NOx	VOCs	SOx	PM10	PM2.5	Paved Road Fugitive Dust PM10	Paved Road Fugitive Dust PM2.5	Unpaved Road Fugitive Dust PM10	Unpaved Road Fugitive Dust PM2.5	CO2	CH4	N2O
West Dallas Lake - Contract 7														
Utility Relocations - City owned Utility	195	0.04	0.14	0.01	0.00	0.01	0.01	0.44	0.09	0.25	0.02	93.65	0.00	0.00
Utility Relocations - Franchised Owned Utility	49	0.01	0.03	0.00	0.00	0.00	0.00	0.11	0.02	0.06	0.01	23.53	0.00	0.00
Bridge Pier Modifications - Westmoreland Bridge	302	0.05	0.20	0.01	0.00	0.01	0.01	0.69	0.14	0.38	0.04	145.04	0.00	0.00
West Dallas Lake														
Erosion/Sediment Control and Clearing	73	0.01	0.04	0.00	0.00	0.00	0.00	0.17	0.03	0.09	0.01	35.06	0.00	0.00
Rough Grade Lake	125	0.02	0.07	0.00	0.00	0.00	0.00	0.28	0.06	0.16	0.02	60.04	0.00	0.00
Lake Bottom	187	0.87	3.36	0.17	0.02	0.20	0.15	12.76	2.68	7.06	0.71	2694.59	0.06	0.00
Lake Sides	57	0.01	0.03	0.00	0.00	0.00	0.00	0.13	0.03	0.07	0.01	27.38	0.00	0.00
Overflow Weir 1 and 2 Weir for River Connection	118	0.02	0.07	0.00	0.00	0.00	0.00	0.27	0.06	0.15	0.01	56.68	0.00	0.00
Lake Drain	27	0.00	0.02	0.00	0.00	0.00	0.00	0.06	0.01	0.03	0.00	12.97	0.00	0.00
Lake Edge Treatment and Planting	72	0.01	0.04	0.00	0.00	0.00	0.00	0.16	0.03	0.09	0.01	34.58	0.00	0.00
Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)														
Paved Loop Trail	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
West End Parking	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Lighting	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Boat Dock	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Lane Buoys	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Levee Cutoff Walls	204	0.03	0.12	0.01	0.00	0.01	0.01	0.46	0.10	0.26	0.03	97.99	0.00	0.00
Deep Water Well	180	0.03	0.11	0.01	0.00	0.01	0.00	0.41	0.09	0.23	0.02	86.46	0.00	0.00
Urban Lake														
Erosion/Sediment Control and Clearing	73	0.01	0.04	0.00	0.00	0.00	0.00	0.17	0.03	0.09	0.01	35.06	0.00	0.00
Rough Grade Lake	125	0.02	0.07	0.00	0.00	0.00	0.00	0.28	0.06	0.16	0.02	60.04	0.00	0.00
Lake Bottom	187	0.87	3.36	0.17	0.02	0.20	0.15	12.76	2.68	7.06	0.71	2694.59	0.06	0.00
Lake Sides	57	0.01	0.03	0.00	0.00	0.00	0.00	0.13	0.03	0.07	0.01	27.38	0.00	0.00
Overflow Weir 1 and 2 Weir for River Connection	118	0.02	0.07	0.00	0.00	0.00	0.00	0.27	0.06	0.15	0.01	56.68	0.00	0.00
Lake Drain	27	0.00	0.02	0.00	0.00	0.00	0.00	0.06	0.01	0.03	0.00	12.97	0.00	0.00

k = 1.5 for PM10, 0.15 for PM2.5
s = 8.5, a = 0.9, b = 0.45

Assume 61% control efficiency for watering 3x daily
Emission Factors

PM10, LDT	0.357378738	Lake Edge Treatment and Planting	72	0.01	0.04	0.00	0.00	0.00	0.00	0.16	0.03	0.09	0.01	34.58	0.00	0.00
PM10, MDT	0.829735596	**Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)**														
PM10, HDT	1.007230136	Pavilion	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, LDT	0.035737874	Whitewater Course	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, MDT	0.08297356	Boat Launch	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
PM2.5, HDT	0.100723014	Restroom Trailers	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
Assume 0.25 miles each way of unpaved road travel		Rock Plantings/Landscaping	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Loop Trail	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Cypress Planting/Landscaping	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Stone Curb w/ Safety Bench	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Water Maze	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Fountain Bubblers/Aeratots	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Fountain Plaza	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Canoe Path	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Skate Path	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Amphitheater	41	0.01	0.02	0.00	0.00	0.00	0.00	0.09	0.02	0.05	0.01	19.69	0.00	0.00
		Levee Cutoff Walls	204	0.03	0.12	0.01	0.00	0.01	0.01	0.46	0.10	0.26	0.03	97.99	0.00	0.00
		Natural Lake														
		Erosion/Sediment Control and Clearing	73	0.05	0.17	0.01	0.00	0.01	0.01	0.55	0.12	0.09	0.01	140.25	0.00	0.00
		Rough Grade Lake	125	0.08	0.30	0.02	0.00	0.02	0.01	0.94	0.20	0.16	0.02	240.16	0.01	0.00
		Lake Bottom	187	0.87	3.36	0.17	0.02	0.20	0.15	12.76	2.68	7.06	0.71	2694.59	0.06	0.00
		Lake Sides	57	0.04	0.14	0.01	0.00	0.01	0.01	0.43	0.09	0.07	0.01	109.51	0.00	0.00
		Overflow Weir 1 and 2 Weir for River Connection	118	0.07	0.28	0.01	0.00	0.02	0.01	0.89	0.19	0.15	0.01	226.71	0.01	0.00
		Lake Drain	27	0.02	0.06	0.00	0.00	0.00	0.00	0.20	0.04	0.03	0.00	51.87	0.00	0.00
		Lake Edge Treatment and Planting	72	0.04	0.17	0.01	0.00	0.01	0.01	0.54	0.11	0.09	0.01	138.33	0.00	0.00
		Landscape (assume the remaining activities under this category, assume duration is 34.05 weeks/5 for each individual item)														
		Boardwalk Loop	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00

Floating Wetlands	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Small Amphitheater	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Boat Launch	41	0.03	0.10	0.00	0.00	0.01	0.00	0.31	0.06	0.05	0.01	78.77	0.00	0.00
Levee Cutoff Walls	204	0.13	0.49	0.02	0.00	0.03	0.02	1.53	0.32	0.26	0.03	391.94	0.01	0.00
	TOTAL 2017	**1.42**	**5.48**	**0.28**	**0.03**	**0.32**	**0.24**	**19.53**	**4.10**	**8.37**	**0.84**	**4403.57**	**0.10**	**0.00**
	TOTAL 2018	**1.03**	**3.98**	**0.20**	**0.02**	**0.23**	**0.18**	**15.15**	**3.18**	**8.39**	**0.84**	**3199.89**	**0.07**	**0.00**
	TOTAL 2022	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.01**	**0.03**	**0.00**	**10.40**	**0.00**	**0.00**
	TOTAL 2023	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.68**	**0.14**	**0.37**	**0.04**	**143.04**	**0.00**	**0.00**
	TOTAL 2024	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.73**	**0.15**	**0.40**	**0.04**	**153.85**	**0.00**	**0.00**
	TOTAL 2025	**0.968**	**3.727**	**0.188**	**0.020**	**0.217**	**0.165**	**14.173**	**2.976**	**7.845**	**0.785**	**2993.008**	**0.069**	**0.003**
	TOTAL 2026	**0.05**	**0.21**	**0.01**	**0.00**	**0.01**	**0.01**	**0.79**	**0.17**	**0.44**	**0.04**	**166.13**	**0.00**	**0.00**

Table 39. Fugitive Dust Emissions, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Contruction
Activity Assumptions for Fugitive Dust Sources Flood Risk Management
277K Levee Raise

Total cubic yards	260000		
Total Haul Trucks	26000		
Daily (assume 250 days)	104		
Fugitive Dust emissions			
from WRAP Fugitive Dust Handbook, 2006			
Transfer operations (drop operation)			
E = k x (0.0032) x (U/5)^1.3/(M/2)^1.4	0.000208165	PM10	
Assume U - wind speed = 12 mph	4.37146E-05	PM2.5	
Assume M - moisture content = 15%			
k = .35 for PM10			
Assume PM2.5 is 21% of PM10			
Assume material is 1.35 tons/cy (approximate)			
Assume 4 drops per truckload (pile, pickup, drop off, pile)			**Total**
PM10 Emissions, total	292.2630929		292.2631
PM10 Emissions, lbs/day (max, assume 5x average)	5.845261858		5.845262
PM2.5 Emissions, total	61.37524951		61.37525
PM2.5 Emissions, lbs/day	1.22750499		1.227505

Levee Widening

Assumption: Levee widening will require 10% of levee raise cubic yards		
Total cubic yards	26000	
Total Haul Trucks	2600	
Daily (assume 250 days)	10	**Total**
PM10 Emissions, total	29.22630929	29.22631
PM10 Emissions, lbs/day (max, assume 5x average)	0.584526186	0.584526
PM2.5 Emissions, total	6.137524951	6.137525
PM2.5 Emissions, lbs/day	0.122750499	0.12275

Embankment Removals

Assumption: Embankment earthmoving is 5% of levee raise cubic yards		
Total cubic yards	13000	
Total Haul Trucks	1300	
Daily (assume 250 days)	5	**Total**
PM10 Emissions, total	14.61315465	14.61315
PM10 Emissions, lbs/day (max, assume 5x average)	0.292263093	0.292263
PM2.5 Emissions, total	3.068762475	3.068762
PM2.5 Emissions, lbs/day	0.06137525	0.061375

Lakes

West Dallas Lake	
Based on assumptions from traffic impact analysis	
Total cubic yards	3556238.684

Daily (assume 200 days)	17781.19342	**Total**
PM10 Emissions, total	3997.528142	3997.528
PM10 Emissions, lbs/day (max, assume 5x average)	99.93820356	99.9382
PM2.5 Emissions, total	839.4809099	839.4809
PM2.5 Emissions, lbs/day	20.98702275	20.98702

Urban Lake
Based on assumptions from traffic impact analysis

Total cubic yards	1645600.132	
Daily (assume 200 days)	8228.000658	**Total**
PM10 Emissions, total	1849.800708	1849.801
PM10 Emissions, lbs/day	46.24501771	46.24502
PM2.5 Emissions, total	388.4581487	388.4581
PM2.5 Emissions, lbs/day	9.711453718	9.711454

Natural Lake
Based on assumptions from traffic impact analysis

Total cubic yards	968000.0774	
Daily (assume 200 days)	4840.000387	**Total**
PM10 Emissions, total	1088.118064	1088.118
PM10 Emissions, lbs/day (max, assume 5x average)	27.20295159	27.20295
PM2.5 Emissions, total	228.5047934	228.5048
PM2.5 Emissions, lbs/day	5.712619834	5.71262

For all other construction activities - assume grading is required, total disturbance per activity is 2 acres

Total Acreage of Disturbance	
Amount per day	2
Emission Factor (uncontrolled), lbs/acre-day	20
PM10 Emissions, uncontrolled, lbs/day	40
Control Efficiency	0.61
PM10 Emissions, controlled, lbs/day	15.6
PM10 Emissions, uncontrolled, tons/year	1.26
Control Efficiency	0.61
PM10 Emissions, controlled, tons/year	0.4914
Assume PM2.5 is 21% of PM10	
PM2.5 Emissions, uncontrolled, lbs/day	8.4
Control Efficiency	0.61
PM2.5 Emissions, controlled, lbs/day	3.276
PM2.5 Emissions, uncontrolled, tons/year	0.2646
Control Efficiency	0.61
PM2.5 Emissions, controlled, tons/year	0.103194

Assume that wet activities do not generate fugitive dust. These activities include:
Nonstructural flood control improvements
Wetlands construction

Boat Dock
Weir for river connection
Levee cutoff walls
Whitewater Course
Boat Launch
Water Maze
Fountain Bubblers/Aerators
Fountain Plaza
Canoe Path
River Modification
Pump Station Outfalls
Sump Pond
Gardens/plantings would generate minor fugitive dust.

Table 40. Summary of Construction Emissions - By Year, Alternative 2: Proposed Action Design Anticipating Potential Trinity Parkway Contruction

	Emission, tons (total)								
Year 1 (2016)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
IDP2 Improvements									
Heavy Construction Equipment	1.35	4.67	10.17	0.02	0.46	0.41	1572.84	0.12	0.97
Worker Vehicles	0.01	0.71	0.12	0.00	0.02	0.01	92.64	0.01	0.00
Truck Trips	0.14	0.75	2.79	0.01	4.28	0.95	874.03	0.02	0.00
Fugitive Dust					0.4914	0.103194			
Total 2016	**1.51**	**6.13**	**13.08**	**0.02**	**5.24**	**1.46**	**2539.51**	**0.15**	**0.97**

	Emission, tons (total)								
Year 2 (2017)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 1 - 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope									
Heavy Construction Equipment	12.94	50.10	97.22	0.15	4.16	3.70	14549.84	1.17	9.24
Worker Vehicles	0.40	7.14	1.12	0.01	0.18	0.06	985.11	0.01	0.01
Truck Trips	0.23	1.24	4.58	0.01	7.95	1.73	1668.46	0.03	0.00
Fugitive Dust					0.146132	0.030688			
Lakes - Urban Lake and Natural Lake									
Heavy Construction Equipment	10.89	43.93	88.37	0.12	3.65	3.25	10047.47	0.83	6.52
Worker Vehicles	0.46	9.31	1.18	0.02	0.29	0.10	1441.53	0.01	0.01
Truck Trips	0.19	0.99	3.81	0.02	18.21	3.41	3056.28	0.07	0.00
Fugitive Dust					0.694872	0.145923			
IDP2 Improvements									
Heavy Construction Equipment	0.65	2.38	4.90	0.01	0.22	0.20	725.95	0.06	0.47
Worker Vehicles	0.01	0.37	0.06	0.00	0.01	0.00	48.90	0.00	0.00
Truck Trips	0.07	0.35	1.30	0.00	2.07	0.46	427.65	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2017	**25.84**	**115.80**	**202.54**	**0.34**	**38.07**	**13.19**	**32951.20**	**2.19**	**16.24**

Year 3 (2018)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 1 - 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope									
Heavy Construction Equipment	2.77	10.63	20.60	0.03	0.87	0.78	3197.06	0.25	1.96
Worker Vehicles	0.06	1.00	0.16	0.00	0.02	0.01	137.42	0.00	0.00
Truck Trips	0.05	0.24	0.90	0.00	1.55	0.34	327.81	0.01	0.00
Fugitive Dust					0.146132	0.030688			
Contract 2 - Remaining 4:1 Side Slope									
Heavy Construction Equipment	3.73	14.57	28.04	0.04	1.21	1.08	4156.29	0.34	2.66
Worker Vehicles	0.10	1.81	0.28	0.00	0.04	0.02	249.39	0.00	0.00
Truck Trips	0.07	0.37	1.38	0.00	2.37	0.52	501.08	0.01	0.00
Fugitive Dust					0.014613	0.003069			
Contract 3 - River Relocation Top									
Heavy Construction Equipment	4.13	15.87	36.30	0.04	1.34	1.19	3252.61	0.27	2.18
Worker Vehicles	0.10	1.88	0.28	0.00	0.05	0.02	259.51	0.00	0.00
Truck Trips	0.03	0.17	0.63	0.00	1.24	0.27	256.30	0.01	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	0.50	2.02	3.69	0.01	0.18	0.16	484.27	0.04	0.35
Worker Vehicles	0.03	0.57	0.09	0.00	0.01	0.01	79.38	0.00	0.00
Truck Trips	0.07	0.38	1.40	0.00	2.41	0.53	509.11	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lakes - Urban Lake and Natural Lake									
Heavy Construction Equipment	8.57	34.76	69.65	0.10	2.99	2.66	7476.07	0.62	4.74
Worker Vehicles	0.55	11.26	1.42	0.02	0.35	0.12	1743.07	0.02	0.01
Truck Trips	0.09	0.45	1.75	0.01	10.43	1.84	1403.49	0.03	0.00
Fugitive Dust					0.694872	0.145923			
Total 2018	**20.85**	**95.97**	**166.57**	**0.27**	**26.91**	**9.91**	**24032.85**	**1.61**	**11.91**

Year 4 (2019)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 2 - Remaining 4:1 Side Slope									
Heavy Construction Equipment	9.09	35.02	67.87	0.11	2.89	2.57	10418.61	0.82	6.45
Worker Vehicles	0.21	3.79	0.60	0.01	0.09	0.03	522.92	0.01	0.00
Truck Trips	0.04	0.22	0.81	0.00	1.39	0.30	293.62	0.01	0.00
Fugitive Dust					0.014613	0.003069			
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.28	98.62	275.52	0.29	9.16	8.15	11051.57	0.91	7.40
Worker Vehicles	0.33	6.19	0.91	0.01	0.17	0.06	894.21	0.01	0.01
Truck Trips	0.10	0.51	1.92	0.01	3.62	0.83	894.69	0.02	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	2.91	10.79	21.45	0.03	1.03	0.92	3180.80	0.26	2.04
Worker Vehicles	0.11	2.07	0.30	0.00	0.06	0.02	298.10	0.00	0.00
Truck Trips	0.27	1.39	5.20	0.02	11.37	2.41	2418.90	0.05	0.00
Fugitive Dust					0.4914	0.103194			
Wetlands									
Marshlands									
Heavy Construction Equipment	3.38	12.11	34.77	0.04	1.14	1.02	1186.63	0.10	0.79
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
General Elements									
Parking									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Vehicular Access and Roads									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Restroom Trailers									
Heavy Construction Equipment	1.06	4.04	7.85	0.01	0.34	0.30	1257.22	0.10	0.75
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2019	**48.84**	**196.71**	**445.80**	**0.58**	**41.19**	**19.55**	**39226.66**	**2.68**	**20.06**

Year 5 (2020)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.84	102.25	266.89	0.31	9.43	8.39	14871.83	1.21	9.65
Worker Vehicles	0.35	6.62	0.95	0.01	0.19	0.07	994.76	0.01	0.01
Truck Trips	0.17	0.86	3.25	0.01	8.10	1.70	1727.90	0.04	0.00
Fugitive Dust					0.4914	0.103194			
Contract 5 - Hampton Pump Station									
Heavy Construction Equipment	3.78	15.85	25.81	0.04	1.44	1.28	3799.57	0.34	2.45
Worker Vehicles	0.43	3.03	0.43	0.01	0.04	0.02	459.99	0.00	0.00
Truck Trips	0.03	0.14	0.53	0.00	1.11	0.23	235.01	0.00	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	0.52	2.17	3.51	0.01	0.20	0.18	506.06	0.05	0.33
Worker Vehicles	0.01	0.43	0.07	0.00	0.01	0.00	56.82	0.00	0.00
Truck Trips	0.09	0.46	1.71	0.00	2.62	0.58	536.07	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Wetlands									
Hampton and Biofiltration Wetlands									
Heavy Construction Equipment	1.20	4.81	8.98	0.02	0.38	0.34	1401.61	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Corinth Wetlands									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.024683	0.47	0.07	0.00	0.01	0.00	70.76	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.13	0.01	0.00
General Elements									
Parking									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Vehicular Access and Roads									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00

Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2020	**45.55**	**190.35**	**390.87**	**0.56**	**44.35**	**19.54**	**41861.21**	**2.84**	**20.59**

Year 6 (2021)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.46	100.53	267.71	0.30	9.22	8.21	13674.63	1.12	9.02
Worker Vehicles	0.29	5.60	0.78	0.01	0.16	0.06	841.82	0.01	0.01
Truck Trips	0.12	0.61	2.31	0.01	5.93	1.24	1267.19	0.03	0.00
Fugitive Dust					0.4914	0.103194			
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	1.95	7.83	15.06	0.02	0.61	0.54	2136.83	0.18	1.43
Worker Vehicles	0.06	1.12	0.15	0.00	0.03	0.01	167.11	0.00	0.00
Truck Trips	0.02	0.11	0.42	0.00	0.82	0.18	167.68	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Contract 5 - Hampton Pump Station									
Heavy Construction Equipment	2.44	10.18	16.63	0.03	0.94	0.84	2429.74	0.22	1.58
Worker Vehicles	0.26	1.86	0.26	0.00	0.02	0.01	282.34	0.00	0.00
Truck Trips	0.02	0.09	0.33	0.00	0.72	0.15	152.39	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Wetlands									
Cypress Wetlands									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.039721	0.78	0.11	0.00	0.01	0.01	115.98	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.14	0.01	0.00
General Elements									
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boat Dock									
Heavy Construction Equipment	0.69	3.76	4.43	0.01	0.33	0.29	557.97	0.06	0.42
Worker Vehicles	0.047665	0.93	0.13	0.00	0.01	0.01	139.18	0.00	0.00
Truck Trips	0.00	0.02	0.08	0.00	1.22	0.23	480.28	0.01	0.00

Stair Access to Floodway									
Heavy Construction Equipment	1.06	4.04	7.85	0.01	0.34	0.30	1257.22	0.10	0.75
Worker Vehicles	0.023832	0.47	0.06	0.00	0.01	0.00	69.59	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.14	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2021	**41.93**	**172.65**	**368.78**	**0.50**	**35.84**	**16.88**	**35568.67**	**2.46**	**18.07**

Year 7 (2022)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	30.28	112.79	283.94	0.33	10.21	9.09	17986.33	1.48	11.87
Worker Vehicles	0.44	8.87	1.19	0.02	0.26	0.09	1335.13	0.01	0.01
Truck Trips	0.18	0.96	3.60	0.01	8.32	1.76	1765.75	0.03	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake									
Heavy Construction Equipment	0.19	0.75	1.45	0.00	0.06	0.05	205.66	0.02	0.14
Worker Vehicles	0.01	0.11	0.01	0.00	0.00	0.00	15.84	0.00	0.00
Truck Trips	0.00	0.00	0.02	0.00	0.08	0.01	10.40	0.00	0.00
Fugitive Dust					0.44417	0.093276			
Recreation									
Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2022	**38.35**	**157.11**	**341.86**	**0.47**	**32.66**	**15.39**	**32715.81**	**2.23**	**16.81**

Year 8 (2023)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	26.88	98.73	260.61	0.29	9.00	8.01	13858.57	1.14	9.17
Worker Vehicles	0.40	8.07	1.07	0.02	0.24	0.08	1219.99	0.01	0.01
Truck Trips	0.14	0.75	2.82	0.01	6.49	1.37	1380.58	0.03	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	2.40	9.80	18.72	0.03	0.76	0.68	2566.14	0.22	1.78
Worker Vehicles	0.08	1.61	0.21	0.00	0.05	0.02	243.62	0.00	0.00
Truck Trips	0.01	0.05	0.21	0.00	1.06	0.19	143.04	0.00	0.00
Fugitive Dust					0.44417	0.093276			
Recreation									
Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Wetland Garden									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.021881	0.44	0.06	0.00	0.01	0.00	67.56	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.13	0.01	0.00
Total 2023	**32.48**	**130.46**	**301.82**	**0.38**	**21.68**	**11.72**	**23257.07**	**1.65**	**12.66**

Year 9 (2024)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	28.45	103.73	283.05	0.30	9.52	8.47	12769.46	1.06	8.60
Worker Vehicles	0.36	7.22	0.93	0.01	0.22	0.08	1108.71	0.01	0.01
Truck Trips	0.10	0.54	2.03	0.01	5.05	1.06	1073.74	0.02	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	2.26	9.60	17.96	0.02	0.75	0.66	2277.94	0.20	1.71
Worker Vehicles	0.10	2.04	0.27	0.00	0.06	0.02	318.91	0.00	0.00
Truck Trips	0.01	0.05	0.21	0.00	1.14	0.20	153.85	0.00	0.00
Fugitive Dust					0.44417	0.093276			
Recreation									
Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Observation Decks/Blinds									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.021205	0.43	0.05	0.00	0.01	0.00	66.67	0.00	0.00
Truck Trips	0.00	0.01	0.03	0.00	0.61	0.11	240.14	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2024	**33.87**	**134.60**	**323.21**	**0.39**	**21.36**	**12.01**	**21462.54**	**1.54**	**12.07**

Year 10 (2025)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	2.82	11.44	24.85	0.03	0.95	0.84	2163.08	0.19	1.64
Worker Vehicles	0.07	1.45	0.18	0.00	0.04	0.02	224.26	0.00	0.00
Truck Trips	0.02	0.09	0.32	0.00	0.71	0.15	147.27	0.00	0.00
Fugitive Dust					0.4914	0.103194			

Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	1.40	5.57	10.57	0.02	0.45	0.40	1541.49	0.13	1.00
Worker Vehicles	0.03	0.71	0.09	0.00	0.02	0.01	109.83	0.00	0.00
Truck Trips	0.01	0.05	0.20	0.00	0.73	0.15	157.11	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	14.15	57.99	112.26	0.15	4.90	4.36	13150.71	1.12	8.79
Worker Vehicles	0.30	6.95	0.78	0.01	0.19	0.07	956.32	0.01	0.01
Truck Trips	0.10	0.53	2.05	0.01	12.23	2.16	1645.71	0.04	0.00
Fugitive Dust					0.44417	0.093276			
Total 2025	**18.91**	**84.77**	**151.30**	**0.23**	**21.64**	**8.45**	**20095.77**	**1.50**	**11.44**

Year 11 (2026)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	31.29	117.42	285.23	0.35	10.47	9.32	21063.24	1.72	13.70
Worker Vehicles	0.52	10.47	1.32	0.02	0.32	0.11	1620.73	0.01	0.01
Truck Trips	0.13	0.68	2.62	0.01	9.78	1.99	2106.85	0.05	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	3.08	14.35	20.97	0.03	1.21	1.08	3167.70	0.28	1.99
Worker Vehicles	0.17	3.05	0.43	0.01	0.11	0.04	530.60	0.00	0.00
Truck Trips	0.01	0.05	0.21	0.00	1.23	0.22	166.13	0.00	0.00
Fugitive Dust					0.44417	0.093276			
Total 2026	**35.19**	**146.03**	**310.79**	**0.43**	**24.06**	**12.94**	**28655.25**	**2.07**	**15.71**

Year 12 (2027)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	35.46	131.87	339.31	0.38	11.84	10.54	19638.57	1.63	13.19
Worker Vehicles	0.48	9.68	1.22	0.02	0.30	0.10	1498.56	0.01	0.01
Truck Trips	0.10	0.54	2.07	0.01	7.74	1.57	1666.28	0.04	0.00
Fugitive Dust					0.4914	0.103194			
Total 2027	**36.04**	**142.09**	**342.61**	**0.41**	**20.36**	**12.31**	**22803.40**	**1.68**	**13.20**

Year 13 (2028)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	4.25	18.12	33.41	0.04	1.40	1.25	4373.83	0.38	3.17
Worker Vehicles	0.09	1.91	0.24	0.00	0.06	0.02	295.50	0.00	0.00
Truck Trips	0.02	0.10	0.38	0.00	1.41	0.29	303.76	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2028	**4.36**	**20.13**	**34.03**	**0.05**	**3.36**	**1.66**	**4973.09**	**0.39**	**3.18**

Year 14 (2029)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	1.40	6.10	11.32	0.01	0.47	0.42	1342.29	0.13	1.08
Worker Vehicles	0.05	1.02	0.13	0.00	0.03	0.01	158.23	0.00	0.00
Truck Trips	0.01	0.03	0.11	0.00	0.40	0.08	85.49	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Total 2028	**1.45**	**7.15**	**11.55**	**0.02**	**1.39**	**0.62**	**1586.01**	**0.13**	**1.08**

Table 41. Summary of Construction Emissions - By Year, Alternative 2: Proposed Action Design Without Potential Trinity Parkway Contruction

	Emission, tons (total)								
Year 1 (2016)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
IDP2 Improvements									
Heavy Construction Equipment	1.35	4.67	10.17	0.02	0.46	0.41	1572.84	0.12	0.97
Worker Vehicles	0.01	0.71	0.12	0.00	0.02	0.01	92.64	0.01	0.00
Truck Trips	0.14	0.75	2.79	0.01	4.28	0.95	874.03	0.02	0.00
Fugitive Dust					0.4914	0.103194			
Total 2016	**1.51**	**6.13**	**13.08**	**0.02**	**5.24**	**1.46**	**2539.51**	**0.15**	**0.97**

	Emission, tons (total)								
Year 2 (2017)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 1 - 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope									
Heavy Construction Equipment	12.94	50.10	97.22	0.15	4.16	3.70	14549.84	1.17	9.24
Worker Vehicles	0.40	7.14	1.12	0.01	0.18	0.06	985.11	0.01	0.01
Truck Trips	0.23	1.24	4.58	0.01	7.95	1.73	1668.46	0.03	0.00
Fugitive Dust					0.146132	0.030688			
Lakes - Urban Lake and Natural Lake									
Heavy Construction Equipment	10.89	43.93	88.37	0.12	3.65	3.25	10047.47	0.83	6.52
Worker Vehicles	0.46	9.31	1.18	0.02	0.29	0.10	1441.53	0.01	0.01
Truck Trips	0.28	1.42	5.48	0.03	28.22	5.18	4403.57	0.10	0.00
Fugitive Dust					0.694872	0.145923			
IDP2 Improvements									
Heavy Construction Equipment	0.65	2.38	4.90	0.01	0.22	0.20	725.95	0.06	0.47
Worker Vehicles	0.01	0.37	0.06	0.00	0.01	0.00	48.90	0.00	0.00
Truck Trips	0.07	0.35	1.30	0.00	2.07	0.46	427.65	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2017	**25.93**	**116.24**	**204.22**	**0.35**	**48.08**	**14.96**	**34298.50**	**2.22**	**16.24**

Year 3 (2018)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 1 - 277K Levee Raise and AT&SF Bridge Removal and Partial 4:1 Side Slope									
Heavy Construction Equipment	2.77	10.63	20.60	0.03	0.87	0.78	3197.06	0.25	1.96
Worker Vehicles	0.06	1.00	0.16	0.00	0.02	0.01	137.42	0.00	0.00
Truck Trips	0.05	0.24	0.90	0.00	1.55	0.34	327.81	0.01	0.00
Fugitive Dust					0.146132	0.030688			
Contract 2 - Remaining 4:1 Side Slope									
Heavy Construction Equipment	3.73	14.57	28.04	0.04	1.21	1.08	4156.29	0.34	2.66
Worker Vehicles	0.10	1.81	0.28	0.00	0.04	0.02	249.39	0.00	0.00
Truck Trips	0.07	0.37	1.38	0.00	2.37	0.52	501.08	0.01	0.00
Fugitive Dust					0.014613	0.003069			
Contract 3 - River Relocation Top									
Heavy Construction Equipment	4.13	15.87	36.30	0.04	1.34	1.19	3252.61	0.27	2.18
Worker Vehicles	0.10	1.88	0.28	0.00	0.05	0.02	259.51	0.00	0.00
Truck Trips	0.03	0.17	0.63	0.00	1.24	0.27	256.30	0.01	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	0.50	2.02	3.69	0.01	0.18	0.16	484.27	0.04	0.35
Worker Vehicles	0.03	0.57	0.09	0.00	0.01	0.01	79.38	0.00	0.00
Truck Trips	0.07	0.38	1.40	0.00	2.41	0.53	509.11	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lakes - Urban Lake and Natural Lake									
Heavy Construction Equipment	8.57	34.76	69.65	0.10	2.99	2.66	7476.07	0.62	4.74
Worker Vehicles	0.55	11.26	1.42	0.02	0.35	0.12	1743.07	0.02	0.01
Truck Trips	0.20	1.03	3.98	0.02	23.77	4.20	3199.89	0.07	0.00
Fugitive Dust					0.694872	0.145923			
Total 2018	**20.96**	**96.55**	**168.81**	**0.29**	**40.26**	**12.27**	**25829.24**	**1.65**	**11.91**

Year 4 (2019)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 2 - Remaining 4:1 Side Slope									
Heavy Construction Equipment	9.09	35.02	67.87	0.11	2.89	2.57	10418.61	0.82	6.45
Worker Vehicles	0.21	3.79	0.60	0.01	0.09	0.03	522.92	0.01	0.00
Truck Trips	0.04	0.22	0.81	0.00	1.39	0.30	293.62	0.01	0.00
Fugitive Dust					0.014613	0.003069			
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.28	98.62	275.52	0.29	9.16	8.15	11051.57	0.91	7.40
Worker Vehicles	0.33	6.19	0.91	0.01	0.17	0.06	894.21	0.01	0.01
Truck Trips	0.10	0.51	1.92	0.01	3.62	0.83	894.69	0.02	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	2.91	10.79	21.45	0.03	1.03	0.92	3180.80	0.26	2.04
Worker Vehicles	0.11	2.07	0.30	0.00	0.06	0.02	298.10	0.00	0.00
Truck Trips	0.27	1.39	5.20	0.02	11.37	2.41	2418.90	0.05	0.00
Fugitive Dust					0.4914	0.103194			
Wetlands									
Marshlands									
Heavy Construction Equipment	3.38	12.11	34.77	0.04	1.14	1.02	1186.63	0.10	0.79
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
General Elements									
Parking									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Vehicular Access and Roads									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Restroom Trailers									
Heavy Construction Equipment	1.06	4.04	7.85	0.01	0.34	0.30	1257.22	0.10	0.75
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2019	**48.84**	**196.71**	**445.80**	**0.58**	**41.19**	**19.55**	**39226.66**	**2.68**	**20.06**

Year 5 (2020)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.84	102.25	266.89	0.31	9.43	8.39	14871.83	1.21	9.65
Worker Vehicles	0.35	6.62	0.95	0.01	0.19	0.07	994.76	0.01	0.01
Truck Trips	0.17	0.86	3.25	0.01	8.10	1.70	1727.90	0.04	0.00
Fugitive Dust					0.4914	0.103194			
Contract 5 - Hampton Pump Station									
Heavy Construction Equipment	3.78	15.85	25.81	0.04	1.44	1.28	3799.57	0.34	2.45
Worker Vehicles	0.43	3.03	0.43	0.01	0.04	0.02	459.99	0.00	0.00
Truck Trips	0.03	0.14	0.53	0.00	1.11	0.23	235.01	0.00	0.00
Fugitive Dust					0.4914	0.103194			
IDP2 Improvements									
Heavy Construction Equipment	0.52	2.17	3.51	0.01	0.20	0.18	506.06	0.05	0.33
Worker Vehicles	0.01	0.43	0.07	0.00	0.01	0.00	56.82	0.00	0.00
Truck Trips	0.09	0.46	1.71	0.00	2.62	0.58	536.07	0.01	0.00

Fugitive Dust					0.4914	0.103194			
Wetlands									
Hampton and Biofiltration Wetlands									
Heavy Construction Equipment	1.20	4.81	8.98	0.02	0.38	0.34	1401.61	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Corinth Wetlands									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.024683	0.47	0.07	0.00	0.01	0.00	70.76	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.13	0.01	0.00
General Elements									
Parking									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Vehicular Access and Roads									
Heavy Construction Equipment	1.75	7.77	12.76	0.02	0.64	0.57	1870.89	0.16	1.21
Worker Vehicles	0.053204	1.00	0.15	0.00	0.01	0.01	144.06	0.00	0.00
Truck Trips	0.01	0.03	0.10	0.00	1.23	0.23	480.31	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2020	**45.55**	**190.35**	**390.87**	**0.56**	**44.35**	**19.54**	**41861.21**	**2.84**	**20.59**

Year 6 (2021)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 3 - River Relocation Top									
Heavy Construction Equipment	27.46	100.53	267.71	0.30	9.22	8.21	13674.63	1.12	9.02
Worker Vehicles	0.29	5.60	0.78	0.01	0.16	0.06	841.82	0.01	0.01
Truck Trips	0.12	0.61	2.31	0.01	5.93	1.24	1267.19	0.03	0.00

Fugitive Dust					0.4914	0.103194			
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	1.95	7.83	15.06	0.02	0.61	0.54	2136.83	0.18	1.43
Worker Vehicles	0.06	1.12	0.15	0.00	0.03	0.01	167.11	0.00	0.00
Truck Trips	0.02	0.11	0.42	0.00	0.82	0.18	167.68	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Contract 5 - Hampton Pump Station									
Heavy Construction Equipment	2.44	10.18	16.63	0.03	0.94	0.84	2429.74	0.22	1.58
Worker Vehicles	0.26	1.86	0.26	0.00	0.02	0.01	282.34	0.00	0.00
Truck Trips	0.02	0.09	0.33	0.00	0.72	0.15	152.39	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Wetlands									
Cypress Wetlands									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.039721	0.78	0.11	0.00	0.01	0.01	115.98	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.14	0.01	0.00
General Elements									
Lighting									
Heavy Construction Equipment	0.31	1.82	1.96	0.00	0.14	0.12	257.95	0.03	0.19
Worker Vehicles	0.026602	0.50	0.07	0.00	0.01	0.00	72.03	0.00	0.00
Truck Trips	0.00	0.01	0.05	0.00	0.61	0.11	240.15	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boat Dock									
Heavy Construction Equipment	0.69	3.76	4.43	0.01	0.33	0.29	557.97	0.06	0.42
Worker Vehicles	0.047665	0.93	0.13	0.00	0.01	0.01	139.18	0.00	0.00
Truck Trips	0.00	0.02	0.08	0.00	1.22	0.23	480.28	0.01	0.00
Stair Access to Floodway									
Heavy Construction Equipment	1.06	4.04	7.85	0.01	0.34	0.30	1257.22	0.10	0.75
Worker Vehicles	0.023832	0.47	0.06	0.00	0.01	0.00	69.59	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.14	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2021	**41.93**	**172.65**	**368.78**	**0.50**	**35.84**	**16.88**	**35568.67**	**2.46**	**18.07**

Year 7 (2022)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	30.28	112.79	283.94	0.33	10.21	9.09	17986.33	1.48	11.87
Worker Vehicles	0.44	8.87	1.19	0.02	0.26	0.09	1335.13	0.01	0.01
Truck Trips	0.18	0.96	3.60	0.01	8.32	1.76	1765.75	0.03	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	10.89	43.93	88.37	0.12	3.65	3.25	10047.47	0.83	6.52
Worker Vehicles	0.46	9.31	1.18	0.02	0.29	0.10	1441.53	0.01	0.01
Truck Trips	0.28	1.42	5.48	0.03	28.22	5.18	4403.57	0.10	0.00
Fugitive Dust					3.467723	0.728222			
Recreation									
Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Trails									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Equestrian Trail									
Heavy Construction Equipment	0.73	3.36	5.02	0.01	0.30	0.26	709.02	0.07	0.48
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Sidewalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Boardwalks									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Pedestrian Bridges									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.049365	0.93	0.13	0.00	0.01	0.01	141.53	0.00	0.00
Truck Trips	0.00	0.02	0.09	0.00	1.23	0.23	480.26	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2022	**49.78**	**210.92**	**435.41**	**0.63**	**67.69**	**24.49**	**48376.48**	**3.16**	**23.21**

Year 8 (2023)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	26.88	98.73	260.61	0.29	9.00	8.01	13858.57	1.14	9.17
Worker Vehicles	0.40	8.07	1.07	0.02	0.24	0.08	1219.99	0.01	0.01
Truck Trips	0.14	0.75	2.82	0.01	6.49	1.37	1380.58	0.03	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	8.57	34.76	69.65	0.10	2.99	2.66	7476.07	0.62	4.74
Worker Vehicles	0.55	11.26	1.42	0.02	0.35	0.12	1743.07	0.02	0.01
Truck Trips	0.20	1.03	3.98	0.02	23.77	4.20	3199.89	0.07	0.00
Fugitive Dust					3.467723	0.728222			
Recreation									

Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Wetland Garden									
Heavy Construction Equipment	1.20	4.86	8.37	0.02	0.38	0.34	1459.51	0.11	0.79
Worker Vehicles	0.021881	0.44	0.06	0.00	0.01	0.00	67.56	0.00	0.00
Truck Trips	0.00	0.01	0.04	0.00	0.61	0.11	240.13	0.01	0.00
Total 2023	**39.31**	**166.05**	**357.75**	**0.49**	**49.94**	**18.45**	**32723.30**	**2.13**	**15.63**

Year 9 (2024)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	28.45	103.73	283.05	0.30	9.52	8.47	12769.46	1.06	8.60
Worker Vehicles	0.36	7.22	0.93	0.01	0.22	0.08	1108.71	0.01	0.01
Truck Trips	0.10	0.54	2.03	0.01	5.05	1.06	1073.74	0.02	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	0.19	0.75	1.45	0.00	0.06	0.05	205.66	0.02	0.14
Worker Vehicles	0.01	0.11	0.01	0.00	0.00	0.00	15.84	0.00	0.00
Truck Trips	0.00	0.00	0.02	0.00	0.08	0.01	10.40	0.00	0.00
Fugitive Dust					3.467723	0.728222			
Recreation									
Play Fields									
Heavy Construction Equipment	1.29	5.21	9.53	0.02	0.43	0.38	1460.60	0.12	0.91
Worker Vehicles	0.045489	0.91	0.12	0.00	0.01	0.01	137.06	0.00	0.00
Truck Trips	0.00	0.02	0.07	0.00	1.22	0.23	480.27	0.01	0.00
Fugitive Dust					0.4914	0.103194			
General Elements									
Observation Decks/Blinds									
Heavy Construction Equipment	1.23	4.84	8.95	0.02	0.43	0.38	1375.20	0.11	0.85
Worker Vehicles	0.021205	0.43	0.05	0.00	0.01	0.00	66.67	0.00	0.00
Truck Trips	0.00	0.01	0.03	0.00	0.61	0.11	240.14	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2024	**31.69**	**123.77**	**306.25**	**0.36**	**22.57**	**11.83**	**18943.74**	**1.35**	**10.50**

Year 10 (2025)	**ROG tons (total)**	**CO tons (total)**	**NOX tons (total)**	**SOX tons (total)**	**PM10 tons (total)**	**PM2.5 tons (total)**	**CO2 tons (total)**	**CH4 tons (total)**	**N2O tons (total)**
Contract 4 - River Relocation Middle									
Heavy Construction Equipment	2.82	11.44	24.85	0.03	0.95	0.84	2163.08	0.19	1.64
Worker Vehicles	0.07	1.45	0.18	0.00	0.04	0.02	224.26	0.00	0.00
Truck Trips	0.02	0.09	0.32	0.00	0.71	0.15	147.27	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	1.40	5.57	10.57	0.02	0.45	0.40	1541.49	0.13	1.00
Worker Vehicles	0.03	0.71	0.09	0.00	0.02	0.01	109.83	0.00	0.00
Truck Trips	0.01	0.05	0.20	0.00	0.73	0.15	157.11	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	2.40	9.80	18.72	0.03	0.76	0.68	2566.14	0.22	1.78
Worker Vehicles	0.08	1.61	0.21	0.00	0.05	0.02	243.62	0.00	0.00
Truck Trips	0.01	0.05	0.21	0.00	1.06	0.19	143.04	0.00	0.00
Fugitive Dust					1.139042	0.239199			
Total 2025	**6.84**	**30.76**	**55.35**	**0.08**	**6.90**	**2.90**	**7295.83**	**0.55**	**4.42**

Year 11 (2026)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	31.29	117.42	285.23	0.35	10.47	9.32	21063.24	1.72	13.70
Worker Vehicles	0.52	10.47	1.32	0.02	0.32	0.11	1620.73	0.01	0.01
Truck Trips	0.13	0.68	2.62	0.01	9.78	1.99	2106.85	0.05	0.00
Fugitive Dust					0.4914	0.103194			
Contract 7 - West Dallas Lake (Assume All Lakes)									
Heavy Construction Equipment	2.26	9.60	17.96	0.02	0.75	0.66	2277.94	0.20	1.71
Worker Vehicles	0.10	2.04	0.27	0.00	0.06	0.02	318.91	0.00	0.00
Truck Trips	0.01	0.05	0.21	0.00	1.14	0.20	153.85	0.00	0.00
Fugitive Dust					3.467723	0.728222			
Total 2026	**34.31**	**140.26**	**307.61**	**0.41**	**26.48**	**13.14**	**27541.52**	**1.99**	**15.42**

Year 12 (2027)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	35.46	131.87	339.31	0.38	11.84	10.54	19638.57	1.63	13.19
Worker Vehicles	0.48	9.68	1.22	0.02	0.30	0.10	1498.56	0.01	0.01
Truck Trips	0.10	0.54	2.07	0.01	7.74	1.57	1666.28	0.04	0.00
Fugitive Dust					0.4914	0.103194			
Total 2027	**36.04**	**142.09**	**342.61**	**0.41**	**20.36**	**12.31**	**22803.40**	**1.68**	**13.20**

Year 13 (2028)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	4.25	18.12	33.41	0.04	1.40	1.25	4373.83	0.38	3.17
Worker Vehicles	0.09	1.91	0.24	0.00	0.06	0.02	295.50	0.00	0.00
Truck Trips	0.02	0.10	0.38	0.00	1.41	0.29	303.76	0.01	0.00
Fugitive Dust					0.4914	0.103194			
Total 2028	**4.36**	**20.13**	**34.03**	**0.05**	**3.36**	**1.66**	**4973.09**	**0.39**	**3.18**

Year 14 (2029)	ROG tons (total)	CO tons (total)	NOX tons (total)	SOX tons (total)	PM10 tons (total)	PM2.5 tons (total)	CO2 tons (total)	CH4 tons (total)	N2O tons (total)
Contract 6 - River Relocation Bottom									
Heavy Construction Equipment	1.40	6.10	11.32	0.01	0.47	0.42	1342.29	0.13	1.08
Worker Vehicles	0.05	1.02	0.13	0.00	0.03	0.01	158.23	0.00	0.00
Truck Trips	0.01	0.03	0.11	0.00	0.40	0.08	85.49	0.00	0.00
Fugitive Dust					0.4914	0.103194			
Total 2028	**1.45**	**7.15**	**11.55**	**0.02**	**1.39**	**0.62**	**1586.01**	**0.13**	**1.08**

Note to Reader:

Coordination between the USACE and the TCEQ that produced this conformity determination and concurrence was based on the Proposed Action as presented in the Draft EIS (published April 2014) and therefore reflects terminology used in the Draft EIS.

Following publication of the Draft EIS, the USACE determined that the impacts were too similar between the two action alternatives to warrant their analysis as separate alternatives. Therefore, the USACE changed the names and structure of the alternatives analyzed in the EIS to as follows. The Draft EIS "Alternative 2" is now known as "Alternative 2: Proposed Action design anticipating potential Trinity Parkway construction." Similarly, the Draft EIS "Alternative 3" is now known as "Alternative 2: Proposed Action design without potential Trinity Parkway construction."

The USACE conformity determination and TCEQ concurrence uses the Draft EIS "Alternative 2" and "Alternative 3" language as the Final EIS was produced after receipt of the TCEQ concurrence. While the language and organization has been revised in the Final EIS, the analysis remains unchanged, and the modelling results included in this appendix and used as the basis of the conformity determination are similarly unchanged. The USACE conformity determination and TCEQ concurrence remains valid for the Proposed Action.

December 10, 2014

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

August 14, 2014

Regional Planning and Environmental Center

Holly Brightwell-Ferguson
Texas Commission on Environmental Quality
2309 Gravel Drive
Fort Worth, TX 76119-6951

Dear Ms. Brightwell-Ferguson:

The U.S. Army Corps of Engineers (USACE) is currently in the process of finalizing the Environmental Impact Statement in order to comply with the National Environmental Policy Act (NEPA) required for the Dallas Floodway Project within the Trinity River Corridor in Dallas, Texas. The project is expected to exceed the General Conformity thresholds set for the Dallas/Fort Worth area during the projects construction phase, which will begin in 2017. However, due to the attached evaluation of the proposed Dallas Floodway Project Alternative emissions, it is believed that the total estimated emissions of the NOx for these alternatives will be well within the emissions threshold for the 2007 DFW Eight-Hour Ozone Nonattainment Area Reasonable Further Progress SIP.

USACE is requesting Texas Commission on Environmental Quality's concurrence with these findings in the above referenced General Conformity Determination. For more information concerning this request, please contact Ms. Hollie Hunter, Environmental Engineer, (817) 886-1849.

Sincerely,

Rob Newman
Deputy Director, Regional Planning and
Environmental Center

Enclosures (1)
General Conformity Determination
Dallas Floodway Project

General Conformity Determination

Dallas Floodway Project

US Army Corps of Engineers, Fort Worth District

June 2014

INTRODUCTION

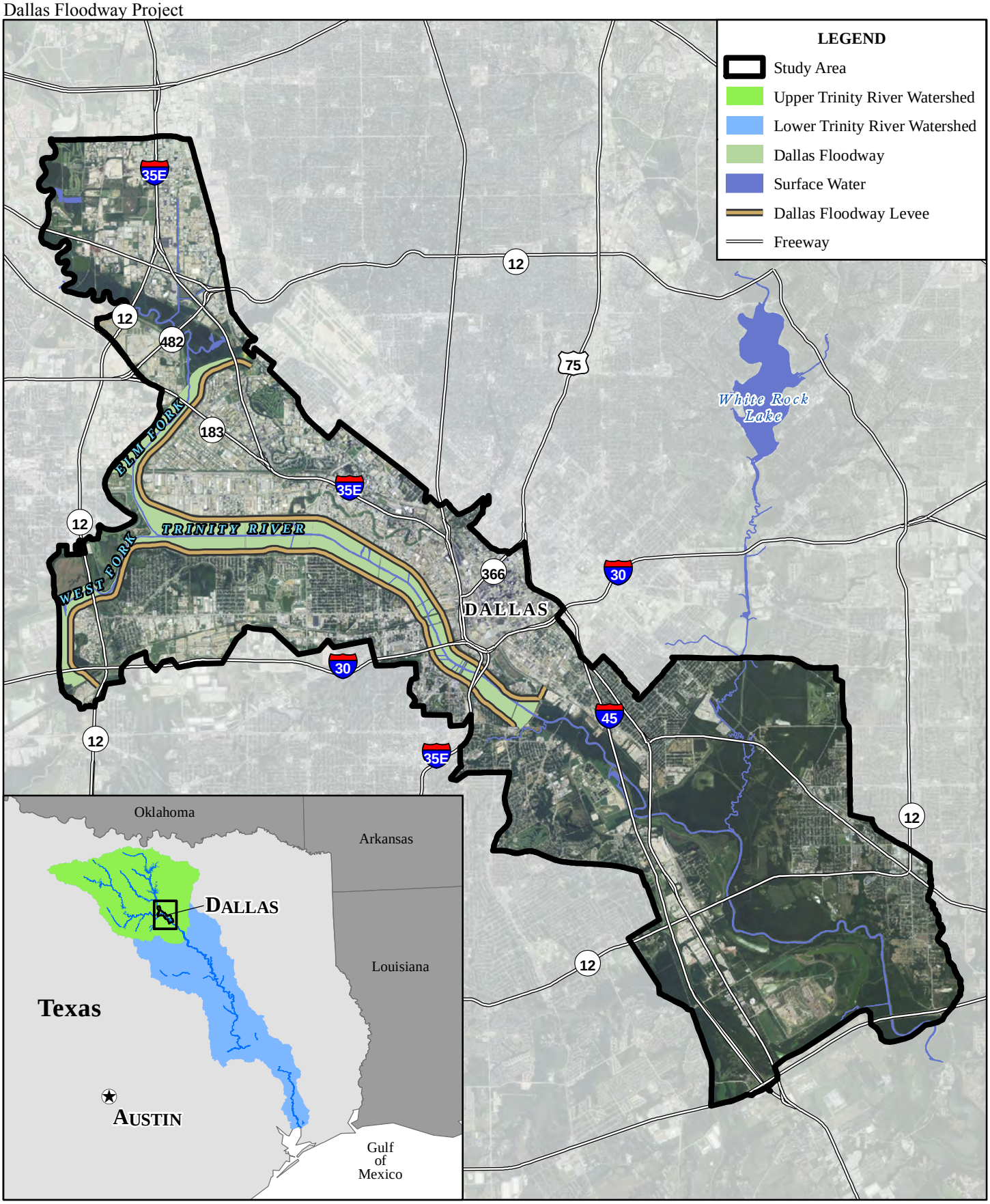
The U.S. Army Corps of Engineers (USACE) Fort Worth District is proposing the Dallas Floodway Project to reduce flood risk through flood risk management (FRM), enhance ecosystems, and provide greater recreation opportunities within the Trinity River Corridor in Dallas, Texas (See Figure 1). Flooding events on the Trinity River have historically caused loss of lives and damage to property and structures. Urbanization and past channelization and clearing of the Dallas Floodway have significantly degraded the natural terrestrial and aquatic habitat. The proposed Dallas Floodway Project will consist of several modifications to the existing floodway and will require different levels of construction for a period of approximately 14 years.

GENERAL CONFORMITY APPLICABILITY

The General Conformity Rule (GCR) was promulgated by the U.S. Environmental Protection Agency (EPA). The GCR rule mandates that the Federal government not engage in, support, or provide financial assistance for licensing or permitting, or approving any activity not conforming to an approved State Implementation Plan. In Texas, the applicable plan is the Texas State Implementation Plan (SIP), an EPA-approved plan for the regulation and enforcement of the National Ambient Air Quality Standards (NAAQS) in each air quality region within the state. The General Conformity Rule is applicable only to non-attainment and maintenance areas as described in 40 CFR Part 93.153.

A nine-county Dallas/Fort Worth (DFW) area was originally designated a moderate non-attainment area under the 1997 eight-hour ozone NAAQS and was subsequently reclassified as a serious nonattainment area in January 2011. Counties included are Dallas, Denton, Collin, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant. Based on monitoring data from 2007 through 2009, DFW did not attain the 1997 eight-hour ozone standard by its deadline of June 15, 2010. As a result, the DFW area was reclassified from moderate to serious, with a new attainment deadline of June 15, 2013. In addition, the state was required to submit new attainment demonstration and reasonable further progress SIP revisions and implement previously adopted contingency measures for the area. The revisions were adopted by the TCEQ in 2011. EPA proposed approval May 13, 2013 (70 FR 27257)

The project site is located within the DFW non-attainment area, Dallas, Texas, Dallas County (now classified as “serious” nonattainment area under the 1997 8-hour ozone standard). In the new “serious”



0 1 2 Kilometers

0 1 2 Miles

GIS Sources: City of Dallas 2008a, NCTCOG 2008

Dallas Floodway Project

Figure 1

ozone nonattainment area, a General Conformity Determination would be required if emissions exceed the threshold level of 50 tons per year (tpy) for either NOx or VOC for the project.

A general analysis of the project emissions was done to determine if the project construction would exceed the 50 tpy de minimis limits. The information used to determine the air quality impacts from project construction comes from supplied data on construction equipment usage and the projected quantities of material to be handled as developed from construction plans. Fugitive dust emissions were not considered in this report due to the fact that the Dallas Fort Worth area is in attainment for $PM_{2.5}$. Best Management Practices (BMP's) will be utilized to help prevent fugitive dust emissions during construction.

GENERAL CONFORMITY DETERMINATION

The proposed project considers three alternatives; Alternative 1 (No Activation Alternative), where regular maintenance activities will continue as they are currently, Alternative 2, and Alternative 3. Because Alternative 1 does not change any of the ongoing activities a General Conformity Determination would not be required. An alternative has not been officially chosen at this point therefore both Alternatives 2 and 3 will be analyzed for General Conformity compliance.

For the ongoing Dallas Floodway Project Environmental Impact Statement (EIS) and the General Conformity Determination, an air emissions inventory was prepared for the project related activities using the estimated project equipment hours (Appendix N from the EIS). Air emissions estimates were calculated using techniques appropriate for a specific emissions generating activity or source. The emission sources for the Alternatives 2 and 3 would include off-road equipment such as bulldozers, crawlers, cranes, and on-road construction vehicles such as dump trucks and haul trucks. The off-road and on-road construction equipment would consist primarily of diesel powered engines. Emissions of NOx and VOC were estimated in tons per year (tpy) for each piece of equipment based on the equipment horsepower, fuel type, and expected operating hours for each year of construction for which construction is projected to occur.

The analysis is divided between to emission sources; non-road and on-road engines. Non-Road emission sources include off-highway equipment, from 600 horsepower (hp) engines mounted on construction equipment to one hp string trimmers. This type of equipment in used in both proposed action alternatives.

On-road mobile emissions sources for the purpose of this analysis consist of workers vehicles and other motor vehicles traveling on public roadways.

The basis for emissions included the following;

- Preliminary project description and other information, as provided by the USACE for Alternatives 2 and 3. (See Attachment A for a description of the alternatives.)
- EPA, NONROAD emissions factors were used to predict emissions resulting from off-road construction equipment with inputs for assumed equipment usages developed for these alternatives, as well as appropriate On-road emission factors.

For comparison with the thresholds defined in the General Conformity Rule, the estimated annual emissions of NOx and VOC for both Alternatives 2 and 3 are summarized in Table 1 for each year of the anticipated construction activities. The other criteria pollutants, carbon monoxide, lead, nitrogen dioxide, particulate matter, and sulfur dioxide were are not considered in the General Conformity evaluation as this area is in attainment with the NAAQS for each of these pollutants. Table 1 and 2 show the emissions estimates for the life of the construction period by calendar year.

Table 1: Emission Estimations for Alternative 2 and Alternative 3

	Alternative 2		**Alternative 3**	
Construction Calendar Year	**VOC tons (total)**	**NOX tons (total)**	**VOC tons (total)**	**NOX tons (total)**
Total 2016	1.50	13.08	1.50	13.08
Total 2017	25.84	202.54	25.93	204.21
Total 2018	20.85	166.57	20.96	168.80
Total 2019	48.87	445.80	48.87	445.80
Total 2020	45.53	391.07	45.53	390.85
Total 2021	41.91	365.92	41.91	368.77
Total 2022	38.33	341.63	49.76	435.40
Total 2023	32.47	301.83	39.30	357.74
Total 2024	33.87	323.20	31.70	306.24
Total 2025	18.54	151.30	6.84	55.35

Total 2026	35.20	310.78	34.31	307.61
Total 2027	36.04	342.60	36.04	342.60
Total 2028	4.36	34.03	4.36	34.03
Total 2029	1.46	11.56	1.46	11.56

The estimate for VOC emissions for both Alternatives 2 and 3 would not exceed the conformity threshold of 50 tpy for any of the above listed years. Therefore, a General Conformity Determination for VOC emissions would not be required for either alternative.

The estimate for NOx emissions for both Alternatives 2 and 3 would exceed the General Conformity threshold of 50 tpy in years 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, and 2027. Therefore, a General Conformity Determination for NOx emissions is required for both alternatives.

The action alternatives listed above would conform to the applicable SIP if, for each pollutant that exceeds the threshold rates (50 tpy of NOx or VOC), the total emissions from the action is in compliance or consistent with all relevant requirements and milestones contained in the applicable SIP. Under the EPA 40 CFR Part 93, "Conformity of General Federal Actions to State Implementation Plan", a Federal action required to have a conformity determination for a specific pollutant would be determined to conform to the SIP if it meets one of several requirements in 40 CFR Part 93.158, "Criteria for Determining Conformity of General Federal Actions."

Based on evaluation of the proposed action alternatives, their descriptions and the estimated air quality emissions, it is believed that implementation of either of the action alternatives can meet the requirements of EPA 40 CFR Part 93.158(a)(5)(i)(A). This section of the General Conformity Rule applies to an ozone nonattainment area where the EPA has approved a revision to an area's attainment demonstration after 1990 and the state makes a determination that "the total of direct and indirect emissions from the action (or portion thereof) is determined and documented by the State agency primarily responsible for the applicable SIP to result in a level of emissions, which, together with all other emissions in the nonattainment (or maintenance) area, would not exceed the emissions budgets specified in the applicable SIP."

For purposes of comparing the project emissions to the applicable SIP, the general conformity regulations require that the most recent U.S. Environmental Protection Agency (EPA) approved SIP is used. For the

DFW area, this is the DFW Eight-Hour Reasonable Further Progress (RFP) SIP adopted by the TCEQ Commission on May 2007, and approved by EPA October 2008. The emissions budget is that portion of the total allowable emissions used as a basis for the latest approved revision of the SIP that is allocated to mobile sources; to any class of area sources; or to any subcategory of the emission inventory.

Mobile source emissions are disaggregated into on-road (e.g., cars, trucks, and motorcycles) and non-road emission categories. The non-road emissions result from the use of fuel in a diverse collection of vehicles and equipment including construction equipment. On-road vehicles will also be used during the construction of the proposed project alternatives as employee vehicles, and other on-road vehicles that are required. As stated for the DFW nonattainment area, the most recently approved SIP revision only projects emissions out to 2008 for 98.49 tons per day of Non-Road Emissions and 187.89 tons per day of on-road emissions (DFW Eight-Hour Ozone Nonattainment Area Reasonable Further Progress SIP, adopted May 2007). Table 2 compares the construction emissions of Alternatives 2 and 3 to the latest Non-Road Mobile Emission SIP budget, and Table 3 compares the On-Road Mobile Emission SIP budget.

Table 2: Non-Road Emission Estimates Compared to Current SIP Budget

	Alternative 2			Alternative 3		
Construction Calendar Year	**NOX (tpy)**	**NOX (tpd)**	**% of Non-Road Emission Budget (98.49 tpd)**	**NOX (tpy)**	**NOX (tpd)**	**% of Non-Road Emission Budget (98.49 tpd)**
2016	10.17	0.03	0.03%	10.17	0.03	0.03%
2017	190.49	0.52	0.53%	190.49	0.52	0.53%
2018	158.28	0.43	0.44%	158.28	0.43	0.44%
2019	434.94	1.19	1.21%	434.94	1.19	1.21%
2020	381.86	1.05	1.06%	381.86	1.05	1.06%
2021	362.83	0.99	1.01%	362.83	0.99	1.01%
2022	335.74	0.92	0.93%	422.66	1.16	1.18%
2023	297.23	0.81	0.83%	348.16	0.95	0.97%
2024	319.49	0.88	0.89%	302.98	0.83	0.84%
2025	147.68	0.40	0.41%	54.14	0.15	0.15%
2026	306.20	0.84	0.85%	303.19	0.83	0.84%
2027	339.31	0.93	0.94%	339.31	0.93	0.94%
2028	33.41	0.09	0.09%	33.41	0.09	0.09%

2029	11.32	0.03	0.03%	11.32	0.03	0.03%

Table 3: On-Road Emission Estimates Compared to Current SIP Budget

	Alternative 2			Alternative 3		
Construction Calendar Year	**NOX (tpy)**	**NOX (tpd)**	**% of Non-Road Emission Budget (187.89 tpd)**	**NOX (tpy)**	**NOX (tpd)**	**% of Non-Road Emission Budget (187.89 tpd)**
2016	10.17	0.03	0.01%	10.17	0.03	0.01%
2017	190.49	0.52	0.28%	190.49	0.52	0.28%
2018	158.28	0.43	0.23%	158.28	0.43	0.23%
2019	434.94	1.19	0.63%	434.94	1.19	0.63%
2020	381.86	1.05	0.56%	381.86	1.05	0.56%
2021	362.83	0.99	0.53%	362.83	0.99	0.53%
2022	335.74	0.92	0.49%	422.66	1.16	0.62%
2023	297.23	0.81	0.43%	348.16	0.95	0.51%
2024	319.49	0.88	0.47%	302.98	0.83	0.44%
2025	147.68	0.40	0.22%	54.14	0.15	0.08%
2026	306.20	0.84	0.45%	303.19	0.83	0.44%
2027	339.31	0.93	0.49%	339.31	0.93	0.49%
2028	33.41	0.09	0.05%	33.41	0.09	0.05%
2029	11.32	0.03	0.02%	11.32	0.03	0.02%

Although the NOx emissions are above the 50 tons de minimis threshold, when compared to the emission inventories of the SIP the DFW area, the project represents a very small percentage of the emission inventories in the SIP, at most 1.21% for the Non-road budget and less than 1% for the On-road budget. As a result, USACE believes that this project can be accommodated in the SIP allowed in 40 CFR 93.158(a)(5)(i)(A). This states that the State agency responsible for the SIP, TCEQ, can make a determination that the emissions from the federal action, together with all other emissions in the nonattainment area, would not exceed the emissions budgets specified in the applicable SIP.

CONCLUSION

Based on an evaluation of the proposed Dallas Floodway Project Alternative emissions, it is believed that the total estimated emissions of the NOx for these alternatives will be well within the emissions threshold for the 2007 DFW Eight-Hour Ozone Nonattainment Area Reasonable Further Progress SIP. It is

anticipated that the project would only contribute a very small percentage of the budget to DFW emissions during the construction period. This General Conformity Determination is being provided as an initial demonstration that either of the proposed Dallas Floodway action alternatives will comply with the requirements of the General Conformity Rule and the SIP. As specified in 40 CFR 93.158(a)(5)(i)(A), the State must make a determination and document that the total emissions of NOx or VOC from the action, or portion thereof, would result in a level of emissions, which together with all other emissions in the DFW nonattainment area, would not exceed the emissions budgets specified in the SIP. Best available information was used to prepare this determination. Therefore, it is requested that the TCEQ review this analysis and provide a formal determination and confirmation. In the event that the construction schedule is modified, a revised determination will be submitted to TCEQ for review.

ATTACHMENT A

ALTERNATIVES DISCRIPTION

For the purpose of this analysis the alternative descriptions are abbreviated. A more complete description can be found in the 2014 Final Trinity Parkway EIS (FWHA 2014). At this time Alternative 3 is the preferred alternative. As described in the General Conformity Analysis both Alternatives 2 and 3 were analyzed for completeness. Should the alternatives change or be significantly altered a new analysis will be preformed.

Alternative 1: The No-Action Alternative 1

The No-Action Alternative (or "Future Without-Project Condition") is an alternative that assumes the Proposed Action is not implemented. An analysis of the No-Action Alternative is included as required by Council on Environmental Quality regulations to identify the existing baseline conditions against which potential impacts can be evaluated. For planning purposes, the USACE used a 50-year planning horizon. Thus, for the purposes of this analysis, the "future" is defined as the year 2065; however, some resource areas use a different "future" year; these deviations are noted in their respective sections. The analysis and subsequent presentation of the Future Without-Project Condition will help the decision maker decide between action alternatives.

Alternative 2: Proposed Action with the Trinity Parkway

The Balanced Vision Plan (BVP) Study aimed to "seamlessly integrate" the Trinity Parkway and the Trinity Lakes Area by: (1) applying shared aesthetic goals, and (2) mitigating vehicle impacts in coordination with BVP Study features and functions. Thus, under Alternative 2, the Trinity Parkway is assumed to be constructed within the Dallas Floodway Project using the recommended Alternative 3C identified in the 2014 Final Trinity Parkway EIS (FWHA 2014). The BVP Study is the City of Dallas' plan to implement the Flood Risk Management Plan (FRM), ecosystem restoration and recreation features as defined in the City's report, *The Balanced Vision Plan for the Trinity River Corridor, Dallas, Texas,* dated December 2003, and amended in March 2004.

The Trinity Parkway proposed action includes excavation of fill material for support and berm building. To maximize construction efficiency, the North Texas Tollway Administration, the City of Dallas, and *the* USACE would coordinate to determine if the Trinity Parkway could take their fill material from the *proposed* lake sites. Thus, the excavation needs of the BVP would be decreased, because the Trinity

Parkway project would excavate a portion of the lakes for use in the parkway berm, thereby resulting in "double-use" for the lakes. All mitigation associated with impacts from construction of the Trinity Parkway would occur outside of the Floodway. Figure 2-10 (excerpt from the 2014 Final Trinity Parkway EIS (FWHA 2014)) presents an overview of Alternative 2.

Alternative 3: Proposed Action without the Trinity Parkway

While the Trinity Parkway is currently a "reasonably foreseeable" project, there is a possibility that the Trinity Parkway project would not be constructed within the Dallas Floodway. Therefore, the USACE and City of Dallas decided to develop an alternative that would provide NEPA flexibility for this potential outcome. Under Alternative 3, the Proposed Action would be implemented, but the Trinity Parkway project would not be constructed within the Dallas Floodway Project. Because Alternative 3 assumes that the Trinity Parkway is not in-place in the Dallas Floodway Project, certain BVP Study Ecosystem and Recreation features identified in Alternative 2 would be different under Alternative 3. Under Alternative 3, there would be no change to the FRM elements or IDP improvements described under Alternative 2. Table 1 shows the elements of the proposed action and Figure 2-11 (excerpt from the 2014 Final Trinity Parkway EIS (FWHA 2014)) presents an overview of Alternative 3.

Table 1. Proposed Action

Category	*Descriptive Action*
BVP Study Flood Risk Management	
Levees	Raise to 277,000 cubic feet per second Flood Height
AT&SF Railroad Bridge	Removal of Wood Bridge Segment
	Removal of Concrete Bridge Segment
	Removal of Embankment Segments
Levee Flattening	Flattening the Riverside Levee Side Slopes to 4:1
Nonstructural Flood Control Improvements	Develop revised inundation mapping to support EAP
	Install piezometers in the Floodway
BVP Study Ecosystem Restoration and Recreation Enhancements	
Lakes	West Dallas Lake
	Urban Lake
	Natural Lake
River	Relocation and Modification
Wetlands	Marshlands
	Cypress Ponds
	Corinth Wetlands
Athletic Facilities	Potential Flex Fields
	Playgrounds
	River Access Points
General Features	Parking and Public Roads
	Lighting
	Vehicle Access
	Pedestrian Amenities

	Restrooms
	Amphitheaters
Interior Drainage Outfall Modifications	Pump Station Outfalls
	Pressure Sewer Outfalls
Able Sump Ponds	Recreation and Ecosystem Enhancements
Interior Drainage Plan Improvements	
East Levee	Demolish Old Hampton Pump Station
	Construct New Hampton Pump Station
	Nobles Branch Sump Improvements
West Levee	Demolish Charlie Pump Station
	Construct New Charlie Pump Station
	Rehabilitate Existing Delta Pump Station
	Construct New Delta Pumping Station
	Eagle Ford and Trinity-Portland Sump Improvements
	Construct New Trinity-Portland Pumping Plant

Table 2 summarizes some of the notable changes to the BVP Study Ecosystem and Recreation features under Alternative 3, as compared to Alternative 2. These differences are a result of the new Floodway feature geometry, reflecting the absence of the Trinity Parkway in the Dallas Floodway.

Table 2. Comparison of Notable BVP Study Ecosystem and Recreation Features under Alternatives 2 and 3

Feature	*Alternative 2*	*Alternative 3*	*Change (from 2 to 3)*
Bike Path	0 miles	3.4 miles	+ 3.4 miles
Flex Fields	77.8 acres	88.1 acres	+ 10.3 acres
Amphitheaters	2	3	+ 1
Meadow	1,045.3 acres	998.3 acres	- 47 acres
Park Road	9.6 miles	11.8 miles	+ 2.2 miles
Planter Boxes (raised vegetation)	4.9 acres	14.7 acres	+ 9.8 acres
Secondary Pedestrian Path	17.5 miles	16.9 miles	- 0.6 miles
Wetlands	167.25 acres	169.01 acres	+ 1.76 acres
Parking Area	17.75 acres	19.75 acres	+ 2 acres
Number of Access Gateways	25	29	+ 4

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 3, 2015

Rob Newman, Deputy Director
Regional Planning and Environmental Center
U.S. Army Corps of Engineers
Fort Worth District
P.O. Box 17300
Fort Worth, Texas 76102-0300

Re: General Conformity Determination for the Dallas Floodway Project, Trinity River Corridor
United States Army Corps of Engineers (USACE), Fort Worth District

Dear Mr. Newman:

This letter concerns the General Conformity Determination for the Dallas Floodway Project received on August 14, 2014. We appreciate the opportunity to work with USACE in this project. The Texas Commission on Environmental Quality (TCEQ) reviewed the Dallas Floodway Project in accordance with Title 40 Code of Federal Regulations Part 93. The proposed project is located in the Dallas-Fort Worth area, which is currently classified as moderate nonattainment for the 2008 eight-hour ozone standard and serious for the 1997 eight-hour ozone standard. Nitrogen oxides (NO_X) emissions from the project are expected to be above the 50 tons per year *de minimis* threshold; therefore, a general conformity analysis is required.

TCEQ air quality staff reviewed the documents and determined that emissions from the proposed project will not exceed the emissions budgets specified in the most recent state implementation plan (SIP) revision approved by the United States Environmental Protection Agency (EPA). The most recently approved SIP revision, the Dallas-Fort Worth Reasonable Further Progress SIP Revision for the 1997 Eight-Hour Ozone Standard, was adopted by the TCEQ on March 23, 2007 and approved by the EPA on October 7, 2008. The TCEQ is satisfied that requirements have been met and general conformity has been demonstrated.

In support of the ozone National Ambient Air Quality Standard, the TCEQ suggests that USACE adopt pollution prevention and/or reduction measures in conjunction with this and future projects:

- encourage construction contractors to apply for Texas Emission Reduction Plan grants;
- establish bidding conditions that give preference to contractors who proactively limit air pollutant emissions;
- direct construction contractors to exercise air quality best management practices;
- direct contractors and operators to use clean fuels whenever possible;
- select equipment based on lowest NO_X emissions instead of lowest price; and/or
- purchase and permanently retire surplus NO_X offsets prior to commencement of operations.

Thank you for the opportunity to review, and for implementing the revisions necessary for our concurrence. We would also appreciate any appropriate updates as this project moves forward. We look forward to working with you in the future on any upcoming projects affecting air quality. If you require further assistance on this matter, please contact Holly Ferguson at 817-588-5866 or holly.ferguson@tceq.texas.gov.

Sincerely,

David Brymer, Director
Air Quality Division
Texas Commission on Environmental Quality

DB/HF/kb

cc: Ms. Hollie Hunter, U.S. Army Corps of Engineers