

APPENDIX F: COST ESTIMATE

Oxon Run Trail Rehabilitation Project		Total Estimated Cost
Summary		
Phase 1		\$ 2,100,000.00
Phase 2		\$ 2,000,000.00
Phase 3		\$ 3,100,000.00
Phase 4		\$ 1,000,000.00
Phase 5		\$ 1,600,000.00
Phase 6		\$ 700,000.00
Phase 7		\$ 200,000.00
Total: ¹		\$ 10,700,000.00

¹ Includes Planning, Permitting, Design & Construction for all 7 Phases of Oxon Run Trail Rehabilitation Project.

Phase 2		Oxon Run Trail Rehabilitation Project					
Description: Proposed and rehabilitated trail segments primarily within Oxon Run Park on the east side of Oxon Run [Priority 2]							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Asphalt Surface Course [proposed trail] [10' width]	4,195	2" thickness	600	TON	\$ 60.00	\$ 36,000.00
2	Asphalt Surface Course [trail rehabilitation] (8' width)	4,850	1.5" thickness	400	TON	\$ 60.00	\$ 24,000.00
3	Concrete Sidewalk (Widen) [4' width]	130	4" thickness	600	SF	\$ 5.00	\$ 3,000.00
4	Asphalt Base Course [proposed trail] (10' width)	4,195	2" thickness	600	TON	\$ 60.00	\$ 36,000.00
5	Aggregate Base Course [proposed trail] (10' width + 1' extension)	4,195	6" thickness	900	CY	\$ 50.00	\$ 45,000.00
6	Aggregate Base Course [concrete sidewalk] (4' width + 1' extension)	130	4" thickness	100	CY	\$ 50.00	\$ 5,000.00
7	Excavation [concrete sidewalk] (4' width)	130	8" depth	100	CY	\$ 20.00	\$ 2,000.00
8	Excavation [proposed trail] (10' width)	4,195	10" depth	1,300	CY	\$ 20.00	\$ 26,000.00
10	Excavation [trail removal] (8' width)	2,205	12" depth	700	CY	\$ 20.00	\$ 14,000.00
10	Mill/Demolition [trail rehabilitaton] (8' width)	4,190	1.5" depth	1,300	SY	\$ 6.00	\$ 7,800.00
13	Trail Markings & Signage			8,200	LF	\$ 1.30	\$ 10,700.00
14	Trail Gateway & Wayside Areas			8	EA	\$ 10,000.00	\$ 80,000.00
15	Trail Amenity Area (Picnic, Horseshoe Pits & Gazebo) ³			1	LS	\$ 20,600.00	\$ 20,600.00
16	Low-Impact Development Area ²			3	LS	\$ 180,000.00	\$ 540,000.00
17	Trail Lighting ¹					Excluded	
18	Signal Improvements ⁴			3	EA	\$ 8,000.00	\$ 24,000.00
Subtotal							\$ 900,000.00
Phase 2: Supplemental Costs							
19	Drainage and E&S (Moderate - 10%)			1	LS	\$ 90,000.00	\$ 90,000.00
20	Maintenance of Traffic (Moderate - 8%)			1	LS	\$ 72,000.00	\$ 72,000.00
21	Utility Modifications (Low - 5%)			1	LS	\$ 45,000.00	\$ 45,000.00
22	Project Approvals & Permitting (Low - 5%)			1	LS	\$ 45,000.00	\$ 45,000.00
Subtotal							\$ 1,160,000.00
23	Mobilization (10%)			1	LS	\$ 116,000.00	\$ 116,000.00
Subtotal							\$ 1,280,000.00
Construction Contingency (25%)							\$ 320,000.00
Subtotal							\$ 1,600,000.00
Design & Planning Cost (Moderate - 20%)							\$ 320,000.00
Total Estimated Cost for Phase 2							\$ 2,000,000.00

¹ Trail Lighting has been excluded from the base cost estimate due to excessive costs. Utilizing traditional Washington Globe fixtures at 70-ft oc spacing, direct burial composite pole with poly-tech sleeve (\$1,400/pole + \$51/lf conduit) Phase 2 total: \$1,582,601.00. Solar light fixtures would potentially provide cost reduction, however at the time of cost estimate, solar fixtures similar to Washington Globe fixture were unavailable

² Low-Impact Development Areas - Assumed average area of 6,000 sf @ \$30.00/sf, based on the need for water control structures, curbing, and underdrains. (estimate excludes 2nd priority locations)

³ Trail Amenity Area - Assumed to consist of 1 Gazebo, 6 Picnic Tables, 1 Horseshoe Pit, 1 Pavilion & 3 Trash Receptacles

⁴ Intersection Improvements - Assumed upgrades or installation of new bicycle/pedestrian signal heads, push buttons, and signage.

Phase 1		Oxon Run Trail Rehabilitation Project					
Description: Proposed and rehabilitated trail segments primarily within Oxon Run Park on the west side of Oxon Run [Priority 1]							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Asphalt Surface Course [proposed trail] [10' width]	11,245	2" thickness	1,500	TON	\$ 60.00	\$ 90,000.00
2	Asphalt Surface Course [trail rehabilitation] (8' width)	5,275	1.5" thickness	400	TON	\$ 60.00	\$ 24,000.00
3	Asphalt Base Course [proposed trail] (10' width)	11,245	2" thickness	1,500	TON	\$ 60.00	\$ 90,000.00
4	Aggregate Base Course [proposed trail] (10' width + 1' extension)	11,245	6" thickness	2,300	CY	\$ 50.00	\$ 115,000.00
5	Aggregate Base Course [stonedust path] (4' width + 1' extension)	265	4" thickness	100	CY	\$ 50.00	\$ 5,000.00
5	Excavation [proposed trail] (10' width)	11,245	10" depth	3,500	CY	\$ 20.00	\$ 70,000.00
6	Excavation [trail removal] (8' width)	895	12" depth	300	CY	\$ 20.00	\$ 6,000.00
7	Excavation [stonedust path] (4' width)	265	8" depth	100	CY	\$ 20.00	\$ 2,000.00
8	Excavation [parking lot] (18" depth)	10,200 (sf)	18" depth	600	CY	\$ 20.00	\$ 12,000.00
9	Mill/Demolition [trail rehabilitaton] (8' width)	5,550	1.5" depth	1,700	SY	\$ 6.00	\$ 10,200.00
10	Loam [trail removal] (8' width)	11,095	4" depth	1,100	CY	\$ 25.00	\$ 27,500.00
11	Fill [trail removal] (8' width)	11,095	8" depth	2,200	CY	\$ 20.00	\$ 44,000.00
13	Fill [parking lot] (14" depth)	10,200 (sf)	14" depth	500	CY	\$ 20.00	\$ 10,000.00
14	Stonedust Surface (4' width)	265	4" thickness	100	CY	\$ 20.00	\$ 2,000.00
15	Trail Markings & Signage			20,000	LF	\$ 1.30	\$ 26,000.00
16	Trail Gateway & Wayside Areas			9	EA	\$ 10,000.00	\$ 90,000.00
17	Low-Impact Development Area ²			2	EA	\$ 150,000.00	\$ 300,000.00
18	Trail Lighting ¹					Excluded	
19	Intersection Improvements ³			4	EA	\$ 8,000.00	\$ 32,000.00
Subtotal							\$ 960,000.00
Phase 1: Supplemental Costs							
20	Drainage and E&S (Moderate - 10%)			1	LS	\$ 96,000.00	\$ 96,000.00
21	Maintenance of Traffic (Moderate - 8%)			1	LS	\$ 76,800.00	\$ 76,800.00
22	Utility Modifications (Low - 5%)			1	LS	\$ 48,000.00	\$ 48,000.00
23	Project Approvals & Permitting (Low - 5%)			1	LS	\$ 48,000.00	\$ 48,000.00
Subtotal							\$ 1,230,000.00
24	Mobilization (10%)			1	LS	\$ 123,000.00	\$ 123,000.00
Subtotal							\$ 1,360,000.00
Construction Contingency (25%)							\$ 340,000.00
Subtotal							\$ 1,700,000.00
Design & Planning Cost (Moderate - 20%)							\$ 340,000.00
Total Estimated Cost for Phase 1							\$ 2,100,000.00

¹ Trail Lighting has been excluded from the base cost estimate due to excessive costs. Utilizing traditional Washington Globe fixtures at 70-ft oc spacing, direct burial composite pole with poly-tech sleeve (\$1,400/pole + \$51/lf conduit) Phase 1 total: \$2,200,244.00. Solar light fixtures would potentially provide cost reduction, however at the time of cost estimate, solar fixtures similar to Washington Globe fixture were unavailable.

² Low-Impact Development Areas - Assumed average area of 5,000 sf @ \$30.00/sf, based on the need for water control structures, curbing, and underdrains. (estimate excludes 2nd priority locations)

³ Intersection Improvements - Assumed upgrades or installation of new bicycle/pedestrian signal heads, push buttons, and signage.

Phase 3 Oxon Run Trail Rehabilitation Project							
Description: Proposed and rehabilitated trail segments along Oxon Run primarily within Maryland and NPS lands.							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Asphalt Surface Course [proposed trail] [10' width]	7,050	2" thickness	900	TON	\$ 60.00	\$ 54,000.00
2	Asphalt Surface Course [trail rehabilitation] (8' width)	3,235	1.5" thickness	300	TON	\$ 60.00	\$ 18,000.00
3	Asphalt Base Course [proposed trail] (10' width)	7,050	2" thickness	900	TON	\$ 60.00	\$ 54,000.00
4	Aggregate Base Course [proposed trail] (10' width + 1' extension)	7,050	6" thickness	1,500	CY	\$ 50.00	\$ 75,000.00
5	Excavation [proposed trail] (10' width)	7,050	10" depth	2,200	CY	\$ 20.00	\$ 44,000.00
6	Mill/Demolition [trail rehabilitaton] (8' width)	3,235	1.5" depth	1,000	SY	\$ 6.00	\$ 6,000.00
7	Bridge: Stream Crossing at Oxon Run/ Oxon Cove Interface	120-ft 3 span		1	EA	\$ 470,000.00	\$ 470,000.00
8	Bridge: Audrey Lane Crossing	30-ft 1 span		1	EA	\$ 118,000.00	\$ 118,000.00
9	Bridge: Barnaby Run Crossing	145-ft 3 span		1	EA	\$ 570,000.00	\$ 570,000.00
10	Trail Lighting ¹				Excluded		
11	Trail Gateway & Wayside Areas			1	EA	\$ 10,000.00	\$ 10,000.00
12	Trail Markings & Signage			10,200	LF	\$ 1.30	\$ 13,300.00
						Subtotal	\$ 1,440,000.00
Phase 3: Supplemental Costs							
13	Drainage and E&S (Moderate - 10%)			1	LS	\$ 144,000.00	\$ 144,000.00
14	Maintenance of Traffic (Low - 5%)			1	LS	\$ 72,000.00	\$ 72,000.00
15	Utility Modifications (Low - 5%)			1	LS	\$ 72,000.00	\$ 72,000.00
16	Project Approvals & Permitting (Moderate - 10%)			1	LS	\$ 144,000.00	\$ 144,000.00
						Subtotal	\$ 1,880,000.00
17	Mobilization (10%)			1	LS	\$ 188,000.00	\$ 188,000.00
						Subtotal	\$ 2,070,000.00
						Construction Contingency (25%)	\$ 518,000.00
						Subtotal	\$ 2,590,000.00
						Design & Planning Cost (Moderate - 20%)	\$ 518,000.00
						Total Estimated Cost for Phase 3	\$ 3,100,000.00

¹ Trail Lighting has been excluded from the base cost estimate due to excessive costs. Utilizing traditional Washington Globe fixtures at 70-ft oc spacing, direct burial composite pole with poly-tech sleeve (\$1,400/pole + \$51/lf conduit) Phase 3 total: \$819,272.00. Solar light fixtures would potentially provide cost reduction, however at the time of cost estimate, solar fixtures similar to Washington Globe fixture were unavailable.

Phase 4 Oxon Run Trail Rehabilitation Project							
Description: Proposed sidewalks, trail improvements and pedestrian bridge along S. Capitol Street between Livingston & 1st Street							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Concrete Sidewalk (proposed) [6' width]	145	4" thickness	900	SF	\$ 5.00	\$ 4,500.00
2	Concrete Sidewalk (Widen) [4' width]	2,850	4" thickness	11,400	SF	\$ 5.00	\$ 57,000.00
3	Aggregate Base Course [concrete sidewalk] (4' width + 1' extension)	2,995	4" thickness	200	CY	\$ 50.00	\$ 10,000.00
4	Excavation [concrete sidewalk] (4' width)	2,995	8" depth	300	CY	\$ 20.00	\$ 6,000.00
5	Trail Lighting ¹				Excluded		
6	Trail Markings & Signage			900	EA	\$ 1.30	\$ 1,200.00
7	Trail Gateway & Wayside Areas			1	EA	\$ 10,000.00	\$ 10,000.00
8	Bridge: South Capitol Street Pedestrian Bridge			1	LS	\$ 295,000.00	\$ 295,000.00
9	Signal Improvements ¹				Excluded		
10	Streetscape (Landscaping) ¹				Excluded		
						Subtotal	\$ 384,000.00
Phase 4: Supplemental Costs							
11	Drainage and E&S (Low - 5%)			1	LS	\$ 19,200.00	\$ 19,200.00
12	Maintenance of Traffic (Moderate - 10%)			1	LS	\$ 38,400.00	\$ 39,000.00
13	Utility Modifications (High - 15%)			1	LS	\$ 57,600.00	\$ 58,000.00
14	Project Approvals & Permitting (Moderate - 10%)			1	LS	\$ 38,400.00	\$ 39,000.00
						Subtotal	\$ 540,000.00
15	Mobilization (10%)			1	LS	\$ 54,000.00	\$ 54,000.00
						Subtotal	\$ 600,000.00
						Construction Contingency (25%)	\$ 150,000.00
						Subtotal	\$ 750,000.00
						Design & Planning Cost (High - 25%)	\$ 187,500.00
						Total Estimated Cost for Phase 4	\$ 1,000,000.00

¹ Phase 4 improvements overlap current South Capitol Street Improvements Project by DDOT. Lighting, signal improvements, and streetscape plantings are assumed to be completed by others and excluded from Phase 4 Scope of Work.

² Bridge Improvements proposed consist of parallel pedestrian bridge. Potential bridge widening alternative may be feasible. Estimated costs includes only those items associated with the bridge widening, and does not include costs that may be required to upgrade structural elements for the remainder of bridge that are structurally deficient at the time construction takes place. (\$180,000)

Phase 5 Oxon Run Trail Rehabilitation Project							
Description: Proposed sidewalk improvements along Livingston Rd., Valley Ave. and Wayne Pl. with LID Areas [non-typical]							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Concrete Sidewalk (proposed) [6' width]	4,445	4" thickness	26,700	SF	\$ 5.00	\$ 134,000.00
2	Aggregate Base Course [concrete sidewalk] (4' width + 1' extension)	4,445	4" thickness	300	CY	\$ 50.00	\$ 15,000.00
3	Excavation [concrete sidewalk] (4' width)	4,445	8" depth	500	CY	\$ 20.00	\$ 10,000.00
4	Low-Impact Development Area ¹			2	EA	\$ 330,000.00	\$ 660,000.00
5	Streetscape (Landscaping) ²			1,400	LF	\$ 15.00	\$ 21,000.00
						Subtotal	\$ 840,000.00
Phase 5: Supplemental Costs							
6	Drainage and E&S (Moderate - 10%)			1	LS	\$ 84,000.00	\$ 84,000.00
7	Maintenance of Traffic (Low - 5%)			1	LS	\$ 42,000.00	\$ 42,000.00
8	Utility Modifications (Low - 5%)			1	LS	\$ 42,000.00	\$ 42,000.00
9	Project Approvals & Permitting (Moderate - 10%)			1	LS	\$ 84,000.00	\$ 84,000.00
						Subtotal	\$ 1,100,000.00
10	Mobilization (10%)			1	LS	\$ 110,000.00	\$ 110,000.00
						Subtotal	\$ 1,210,000.00
						Construction Contingency (25%)	\$ 310,000.00
						Subtotal	\$ 1,520,000.00
						Design & Planning Cost (Low - 10%)	\$ 152,000.00
						Total Estimated Cost for Phase 5	\$ 1,600,000.00

¹ Low-Impact Development Areas - Assumed average area of 11,000 sf @ \$30.00/sf, based on the need for water control structures, curbing, and underdrains. (estimate excludes 2nd priority locations)

² Streetscape (Landscaping) assumes deciduous street trees at 30-ft oc. Along park side of roadway with planting strips between tree pits.

Phase 6 Oxon Run Trail Rehabilitation Project							
Description: Proposed sidewalk improvements along Livingston Road, 4th Street, Atlantic Street, Wheeler Road, and Southern Avenue [typical]							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Concrete Sidewalk (proposed) [6' width]	7,875	4" thickness	47,250	SF	\$ 5.00	\$ 237,000.00
2	Concrete Sidewalk (Widen) [4' width]	9,855	4" thickness	12,302	SF	\$ 5.00	\$ 62,000.00
3	Aggregate Base Course [concrete sidewalk] (4' width + 1' extension)	17,730	4" thickness	1,054	CY	\$ 50.00	\$ 53,000.00
4	Excavation [concrete sidewalk] (4' width)	17,730	8" depth	1,749	CY	\$ 20.00	\$ 35,000.00
Subtotal							\$ 387,000.00
Phase 6: Supplemental Costs							
5	Drainage and E&S (Low - 2%)			1	LS	\$ 7,740.00	\$ 8,000.00
6	Maintenance of Traffic (Low - 5%)			1	LS	\$ 19,350.00	\$ 20,000.00
7	Utility Modifications (Low - 5%)			1	LS	\$ 7,740.00	\$ 8,000.00
8	Project Approvals & Permitting (Low - 5%)			1	LS	\$ 19,350.00	\$ 20,000.00
Subtotal							\$ 443,000.00
9	Mobilization (10%)			1	LS	\$ 44,300.00	\$ 45,000.00
Subtotal							\$ 488,000.00
Construction Contingency (25%)							\$ 122,000.00
Subtotal							\$ 610,000.00
Design & Planning Cost (Low - 10%)							\$ 61,000.00
Total Estimated Cost for Phase 6							\$ 700,000.00

Phase 7 Oxon Run Trail Rehabilitation Project							
Description: Proposed bike lane/share the lane markings along Mississippi Avenue and Southern Avenue							
Item No.	Item	Length (lf)	Thickness (")	Qty	Units	Unit Price	Total Price
1	Thermoplastic Pavement Symbols (Bike Lane/Sharrows Symbol)	13,670		200	EA.	\$ 300.00	\$ 60,000.00
2	Thermoplastic Pavement Markings	10,250	4" width	41,000	LF	\$ 1.50	\$ 62,000.00
Subtotal							\$ 122,000.00
Phase 7: Supplemental Costs							
3	Maintenance of Traffic (Low - 5%)			1	LS	\$ 6,100.00	\$ 7,000.00
4	Project Approvals & Permitting (Low - 5%)			1	LS	\$ 6,100.00	\$ 7,000.00
Subtotal							\$ 136,000.00
5	Mobilization (10%)			1	LS	\$ 13,600.00	\$ 13,600.00
Subtotal							\$ 149,600.00
Construction Contingency (25%)							\$ 38,000.00
Subtotal							\$ 187,600.00
Design & Planning Cost (Low - 10%)							\$ 19,000.00
Total Estimated Cost for Phase 7							\$ 200,000.00

Project:	Oxon Run Trails	By:	PC
Project No.:	08-D001	Date:	4/4/2010
Construction Cost Estimate		Sheet No.:	1 of 1

RATES	
\$/POLE	3300
\$/BOLLARD	1200
\$/CONDUIT + MANHOLE	51

HENRY ADAMS
Consulting Engineers

TRAILS	TRAIL TOTAL LENGTH	TOTAL CONDUIT LENGTH	TOTAL CONDUIT & MANHOLE COST	TOTAL NUMBER OF POLES/BOLLARDS	TOTAL COST OF POLES/BOLLARDS	LINE ITEM TOTAL
	LF	LF				
PHASE 1						
P1.1	4104	9811	\$500,336	58	\$191,400.00	\$691,736
P1.2	2100	5020	\$256,020	32	\$105,600.00	\$361,620
P1.3	1830	4375	\$223,103	26	\$85,800.00	\$308,903
P1.4	240	574	\$29,259	15	\$18,000.00	\$47,259
P1.5	411	982	\$50,107	6	\$19,800.00	\$69,907
P1.6	495	1183	\$60,348	8	\$26,400.00	\$86,748
P1.7	645	1542	\$78,635	10	\$33,000.00	\$111,635
P1.8	817	1953	\$99,604	10	\$33,000.00	\$132,604
P1.9	1110	2653	\$135,325	16	\$52,800.00	\$188,125
P1.10	1825	4363	\$222,494	29	\$95,700.00	\$318,194
P1.11	1762	4212	\$214,813	28	\$92,400.00	\$307,213
PHASE 2						
P2.1	915	2187	\$111,552	14	\$46,200.00	\$157,752
P2.2	2550	6096	\$310,881	38	\$125,400.00	\$436,281
P2.3	1335	3191	\$162,756	21	\$69,300.00	\$232,056
P2.4	578	1382	\$70,466	7	\$23,100.00	\$93,566
P2.5	847	2025	\$103,261	12	\$39,600.00	\$142,861
P2.6	3270	7817	\$398,660	50	\$165,000.00	\$563,660
P2.7	1580	3777	\$192,625	24	\$79,200.00	\$271,825
PHASE 3						
P3.1	5721	13676	\$697,472	87	\$287,100.00	\$984,572
TOTALS	32135	76818	\$3,917,716	491	\$1,588,800	\$5,506,516

TOTAL COST: \$5,506,516

- P1.1 Proposed trail (S. Capitol Street to Atlantic Ave.) [north side of Oxon Run]
- P1.2 Rehabilitated trail (Atlantic Ave. to 4th St.) [north side of Oxon Run]
- P1.3 Proposed trail (4th St. to Tennis Center)
- P1.4 Proposed trail (connecting Pool to Hart Middle School Path)
- P1.5 Rehabilitate path (along Tennis Center to Mississippi Ave. & 7th St.)
- P1.6 Proposed trail (connecting Wheeler Rd. & Mississippi Ave. intersection to Oxon Run Bridge) [east side of intersection]
- P1.7 Proposed trail (connecting Wheeler Rd. & Valley Ave. intersection to Oxon Run Bridge) [east side of intersection]
- P1.8 Proposed trail (connecting Mississippi Ave. & 13th St. to existing trail near Amphitheatre)
- P1.9 Rehabilitated & Proposed trail connections adjacent to Amphitheatre & Playground area (connecting to Mississippi Ave.)
- P1.10 Proposed trail (along Mississippi Ave. between 13th St. & 15th St.)
- P1.11 Proposed trail (along 13th St. from Valley Ave. to Southern Ave.)

- P2.1 Proposed trail (adjacent to UDC between S. Capitol St & Tennis Courts)
- P2.2 Rehabilitated trail (at UDC between Livingston Rd. & Atlantic St.)
- P2.3 Rehabilitated trail (Atlantic St. to 4th St.) [south side of Oxon Run]
- P2.4 Rehabilitated trail (Mississippi Ave. & 6th St. intersection to Oxon Run Bridge)
- P2.5 Rehabilitated trail (behind Tennis Center to Wheeler Rd.)
- P2.6 Rehabilitated trail (4th St. to Wheeler Rd.) [south side of Oxon Run]
- P2.7 Rehabilitated trail (Wheeler Rd. to 13th St. & Valley Rd. intersection)

- P3.1 Trail improvements from Oxon Cove Park to South Capitol Street (NPS & MNCPPC property) [new & rehabilitated]