

**Municipality:** East Goshen Township, Chester County, PA  
**Project Name:** Paoli Pike Trail Feasibility Study and Master Plan  
**Project Number:** 815048.11

**Plan Title:** Paoli Pike Trail Conceptual Design Exhibit  
**Roadway(s):** Paoli Pike (SR 2014)  
**Project Description:** Install a Multi-Use Trail along Paoli Pike

**Unit Costs Last Revised:** 10/7/2015  
**Source:** ECMS Bid Price History and Similar Project Experience

**Disclaimer:** McMahon Associates, Inc. has provided this opinion of cost as requested by the client. Please note that opinions of cost are subject to change based on plan/design revisions, fluctuations in unit costs, field conditions, and differences in locale. Opinions of cost are provided for use in budgeting, but in no way intended to be construed as a final cost for the project. Final costs are contingent only on actual bids from contractors. McMahon Associates, Inc. will not be held responsible for differences between this opinion of cost and contractor bid costs.

Segment No.	Description	Notes	Cost
A	Airport Road to Ellis Lane	Including improvements at Ellis Lane intersection	\$620,000.00
B	Ellis Lane to Reservoir Road	Including improvements at Reservoir Road intersection	\$2,375,000.00
C	Reservoir Road to Boot Road	Including improvements at Boot Road intersection	\$1,423,000.00
D	Boot Road to Goshen Village	Including improvements at Goshen Village intersection	\$397,000.00
E	Goshen Village to North Chester Road (SR 0352)	Including improvements at SR 0352 intersection	\$2,213,000.00
F	North Chester Road (SR 0352) to Existing Applebrook Trail		\$258,000.00
G	Connection of Existing Applebrook Trails		\$373,000.00
	<b>Total Project Cost</b>	-	<b>\$7,659,000.00</b>

General Notes:

1. Refer to the intersection spreadsheet details relating to cost calculations and individual intersection assumptions.
2. The contingency and inspection percentages are based on PennDOT Publication 352. Inflation is not included and costs provided are in 2015 dollars.
3. Further evaluation of the existing signalized intersections within the project limits is required during the preliminary engineering of the project. This evaluation may result in the identification of other improvements and costs not identified within this Engineer's Conceptual Opinion of Cost.
4. The Engineer's Conceptual Opinion of Cost does not include relocating or resetting existing underground utilities within the limits of the project or the provision of any future utilities. Impacts to existing underground utilities will need to be determined during the preliminary engineering of the project through subsurface utility engineering. **Due to visible evidence of subsurface utilities within the project area (underground electric, water, sewer, gas and telecommunication) it is recommended (and likely required by law) that utility test pits be performed during the preliminary engineering of the project.**
5. The Utility Relocations cost is a rough estimate based on relocating existing surface utilities (poles, hydrants, etc.) identified through aerial imagery and limited field views. **Underground utility relocations are not included in this estimate.** These costs are subject to change through the development of the project and based on the Utility owner's rights.
6. Estimates of existing and required right of way were developed based on GIS data obtained from Chester County. Existing legal right-of-way lines or property lines have not been independently verified through field survey or deed research. Existing legal rights-of-way and existing property lines, as well as the size and location of any required rights-of-way (temporary or permanent), will need to be determined during the preliminary engineering of the project.
7. The following costs are rough estimates for budgeting purposes only: Engineering and Permitting, Utility Relocations, and Right of Way. The costs associated with these items will need to be determined through the development of the project.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$10,000.00	\$10,000.00
2	Class 1 Excavation		CY	412	\$65.00	\$26,780.00
3	Foreign Borrow		CY	41	\$50.00	\$2,060.00
4	Saw cut existing pavement		LF	308	\$8.00	\$2,464.00
5	Grading (includes topsoil and seeding)	see below	SY	339	\$15.00	\$5,085.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	61	\$90.00	\$5,490.00
7	Driveway Adjustments		SY	218	\$60.00	\$13,080.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY		\$25.00	\$0.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF	114	\$30.00	\$3,420.00
12	Plain Cement Mountable Curb		LF	169	\$40.00	\$6,760.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS	1	\$20,000.00	\$20,000.00
14	6" Base Drain		LF		\$13.00	\$0.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$7,500.00	\$7,500.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF	850	\$8.00	\$6,800.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA	9	\$150.00	\$1,350.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	5	\$6,500.00	\$32,500.00
26	Detectable Warning Surface	at a driveway	EA	4	\$2,500.00	\$10,000.00
27	Traffic Signal Upgrades	Push Button upgrades	LS	1	\$20,000.00	\$20,000.00
28	Tree Replacement		EA	2	\$850.00	\$1,700.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	832	\$83.00	\$69,056.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$12,000.00	\$12,000.00
31	Plastic Ribbon Fence		LF		\$25.00	\$0.00
32	Split Rail Fence		LF	808	\$20.00	\$16,160.00
33	Wooden Boardwalk		SF		\$55.00	\$0.00
34	Miscellaneous Relocations	Liberty Bank Sign	LS	1	\$5,000.00	\$5,000.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA		\$3,600.00	\$0.00
35	Bench/Trash Receptacle		EA		\$3,250.00	\$0.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA	1	\$2,250.00	\$2,250.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$280,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 8% of Item 34				\$23,000.00
36	Erosion and Sediment Control	Approx. 5% of Item 34				\$14,000.00
37	Mobilization	5% of Item 34				\$14,000.00
38	Contingency	10% of Items 34 - 37				\$34,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$365,000.00</b>
40	Construction Inspection	15% of Item 39				\$55,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$420,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$92,000.00
43	Utilities		LS	1	\$15,000.00	\$15,000.00
44	Right-of-Way		LS	1	\$93,000.00	\$93,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$620,000.00</b>

Assumptions & Notes:

-Assumes 2' of ground restoration (grading) on each side of proposed trail alignment.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
	<b>Standard Items</b>					
1	Clearing and Grubbing		LS	1	\$100,000.00	\$100,000.00
2	Class 1 Excavation		CY	2,450	\$65.00	\$159,250.00
3	Foreign Borrow		CY	245	\$50.00	\$12,250.00
4	Saw cut existing pavement		LF	434	\$8.00	\$3,472.00
5	Grading (includes topsoil and seeding)	see below	SY	2,964	\$15.00	\$44,460.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	50	\$90.00	\$4,500.00
7	Driveway Adjustments		SY	150	\$60.00	\$9,000.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY		\$25.00	\$0.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF	138	\$30.00	\$4,140.00
12	Plain Cement Mountable Curb		LF		\$40.00	\$0.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS	1	\$30,000.00	\$30,000.00
14	6" Base Drain		LF		\$13.00	\$0.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$15,000.00	\$15,000.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF	580	\$8.00	\$4,640.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA	10	\$150.00	\$1,500.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	4	\$6,500.00	\$26,000.00
26	Detectable Warning Surface	at a driveway	EA	4	\$2,500.00	\$10,000.00
27	Traffic Signal Upgrades	Push Button upgrades	LS	1	\$20,000.00	\$20,000.00
28	Tree Replacement		EA	25	\$850.00	\$21,250.00
	<b>Special Items</b>					
29	Porous Bituminous Pavement Trail		SY	2,904	\$83.00	\$241,032.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$50,000.00	\$50,000.00
31	Plastic Ribbon Fence		LF	575	\$25.00	\$14,375.00
32	Split Rail Fence		LF	1,900	\$20.00	\$38,000.00
33	Wooden Boardwalk		SF	5,157	\$55.00	\$283,635.00
34	Miscellaneous Relocations	Segmental Stone Wall	LS	1	\$50,000.00	\$50,000.00
	<b>Streetscaping Items</b>					
34	Bicycle Parking		EA		\$3,600.00	\$0.00
35	Bench/Trash Receptacle		EA		\$3,250.00	\$0.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA		\$2,250.00	\$0.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$1,143,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 8% of Item 34				\$92,000.00
36	Erosion and Sediment Control	Approx. 5% of Item 34				\$58,000.00
37	Mobilization	5% of Item 34				\$58,000.00
38	Contingency	10% of Items 34 - 37				\$136,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$1,487,000.00</b>
40	Construction Inspection	12% of Item 39				\$179,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$1,666,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$372,000.00
43	Utilities		LS	1	\$15,000.00	\$15,000.00
44	Right-of-Way		LS	1	\$322,000.00	\$322,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$2,375,000.00</b>

Assumptions & Notes:

-Wooden Boardwalk unit cost based on material research provided by East Goshen Township.

-Ground restoration (grading) for 8' on front of trail and 2' on back of trail.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$15,000.00	\$15,000.00
2	Class 1 Excavation		CY	339	\$65.00	\$22,035.00
3	Foreign Borrow		CY	34	\$50.00	\$1,695.00
4	Saw cut existing pavement		LF	695	\$8.00	\$5,556.80
5	Grading (includes topsoil and seeding)	see below	SY	826	\$15.00	\$12,385.50
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	155	\$90.00	\$13,959.00
7	Driveway Adjustments		SY	150	\$60.00	\$9,000.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY	1,328	\$25.00	\$33,200.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF	700	\$30.00	\$21,000.00
12	Plain Cement Mountable Curb	see below	LF	150	\$40.00	\$6,000.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS	1	\$60,000.00	\$60,000.00
14	6" Base Drain		LF	379	\$13.00	\$4,927.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$7,500.00	\$7,500.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF	290	\$1.50	\$435.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF	993	\$8.00	\$7,944.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA	15	\$150.00	\$2,250.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	6	\$6,500.00	\$39,000.00
26	Detectable Warning Surface	at a driveway	EA	6	\$2,500.00	\$15,000.00
27	Traffic Signal Upgrades	Push Button upgrades	LS	1	\$30,000.00	\$30,000.00
28	Tree Replacement		EA	6	\$850.00	\$5,100.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	1,422	\$83.00	\$118,026.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$30,000.00	\$30,000.00
31	Plastic Ribbon Fence		LF		\$25.00	\$0.00
32	Split Rail Fence		LF	700	\$20.00	\$14,000.00
33	Wooden Boardwalk		SF	2,950	\$55.00	\$162,250.00
34	Miscellaneous Relocations		LS	1	\$0.00	\$0.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA	1	\$3,600.00	\$3,600.00
35	Bench/Trash Receptacle		EA	2	\$3,250.00	\$6,500.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA	2	\$2,250.00	\$4,500.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$651,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 10% of Item 34				\$66,000.00
36	Erosion and Sediment Control	Approx. 4% of Item 34				\$27,000.00
37	Mobilization	5% of Item 34				\$33,000.00
38	Contingency	10% of Items 34 - 37				\$78,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$855,000.00</b>
40	Construction Inspection	15% of Item 39				\$129,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$984,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$214,000.00
43	Utilities		LS			\$0.00
44	Right-of-Way		LS	1	\$225,000.00	\$225,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$1,423,000.00</b>

Assumptions & Notes:

- Assumes 2' of ground restoration (grading) on each side of proposed trail alignment and new grass areas.
- Per RC-64, plain cement concrete median paving is incidental to unit cost of mountable curb.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$5,000.00	\$5,000.00
2	Class 1 Excavation		CY	232	\$65.00	\$15,080.00
3	Foreign Borrow		CY	23	\$50.00	\$1,160.00
4	Saw cut existing pavement		LF		\$8.00	\$0.00
5	Grading (includes topsoil and seeding)	see below	SY	388	\$15.00	\$5,820.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY		\$90.00	\$0.00
7	Driveway Adjustments		SY		\$60.00	\$0.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY		\$25.00	\$0.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF		\$30.00	\$0.00
12	Plain Cement Mountable Curb		LF		\$40.00	\$0.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS		\$0.00	\$0.00
14	6" Base Drain		LF		\$13.00	\$0.00
15	Gabion Wall		CY	170	\$300.00	\$51,000.00
16	Guide Rail		LF	400	\$25.00	\$10,000.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$5,000.00	\$5,000.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF		\$8.00	\$0.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA		\$150.00	\$0.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	1	\$6,500.00	\$6,500.00
26	Detectable Warning Surface	at a driveway	EA		\$2,500.00	\$0.00
27	Traffic Signal Upgrades	Push Button upgrades	LS	1	\$23,000.00	\$23,000.00
28	Tree Replacement		EA		\$850.00	\$0.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	260	\$83.00	\$21,580.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$12,000.00	\$12,000.00
31	Plastic Ribbon Fence		LF	350	\$25.00	\$8,750.00
32	Split Rail Fence		LF		\$20.00	\$0.00
33	Wooden Boardwalk		SF		\$55.00	\$0.00
34	Miscellaneous Relocations		LS	1	\$0.00	\$0.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA		\$3,600.00	\$0.00
35	Bench/Trash Receptacle		EA		\$3,250.00	\$0.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA	1	\$2,250.00	\$2,250.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$168,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 8% of Item 34				\$14,000.00
36	Erosion and Sediment Control	Approx. 2.5% of Item 34				\$5,000.00
37	Mobilization	5% of Item 34				\$9,000.00
38	Contingency	10% of Items 34 - 37				\$20,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$216,000.00</b>
40	Construction Inspection	15% of Item 39				\$33,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$249,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$54,000.00
43	Utilities		LS	1		\$0.00
44	Right-of-Way		LS	1	\$94,000.00	\$94,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$397,000.00</b>

Assumptions & Notes:

-Wooden Boardwalk unit cost based on material research provided by East Goshen Township.

-Assumes 2' of ground restoration (grading) on each side of proposed trail alignment.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$10,000.00	\$10,000.00
2	Class 1 Excavation		CY	339	\$65.00	\$22,035.00
3	Foreign Borrow		CY	34	\$50.00	\$1,695.00
4	Saw cut existing pavement		LF	1,907	\$8.00	\$15,256.00
5	Grading (includes topsoil and seeding)	see below	SY	1,196	\$15.00	\$17,940.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	408	\$90.00	\$36,720.00
7	Driveway Adjustments		SY	816	\$60.00	\$48,960.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY	8,259	\$25.00	\$206,475.00
9	Variable depth milling of bituminous pavement	see below	SY	457	\$10.00	\$4,570.00
10	Leveling Course		TN	480	\$85.00	\$40,800.00
11	Plain Cement Concrete Curb		LF	1,726	\$30.00	\$51,780.00
12	Plain Cement Mountable Curb		LF		\$40.00	\$0.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS	1	\$120,000.00	\$120,000.00
14	6" Base Drain		LF	1,726	\$13.00	\$22,438.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$12,500.00	\$12,500.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF	1,352	\$1.50	\$2,028.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF	1,398	\$1.50	\$2,097.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF	580	\$2.00	\$1,160.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF	320	\$8.00	\$2,560.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF	6	\$16.00	\$96.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF	8	\$16.00	\$128.00
24	Signage		EA	25	\$150.00	\$3,750.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	5	\$6,500.00	\$32,500.00
26	Detectable Warning Surface	at a driveway	EA	14	\$2,500.00	\$35,000.00
27	Traffic Signal Upgrades	Push Button upgrades	LS	1	\$17,000.00	\$17,000.00
28	Tree Replacement		EA		\$850.00	\$0.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	1,422	\$83.00	\$118,026.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$55,000.00	\$55,000.00
31	Plastic Ribbon Fence		LF		\$25.00	\$0.00
32	Split Rail Fence		LF		\$20.00	\$0.00
33	Wooden Boardwalk		SF		\$55.00	\$0.00
34	Miscellaneous Relocations		LS	1	\$50,000.00	\$50,000.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA	1	\$3,600.00	\$3,600.00
35	Bench/Trash Receptacle		EA	1	\$3,250.00	\$3,250.00
36	Stamped Asphalt Median		SY	1,250	\$160.00	\$200,000.00
37	Kiosk		EA		\$2,250.00	\$0.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$1,138,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 12% of Item 34				\$137,000.00
36	Erosion and Sediment Control	Approx. 2.5% of Item 34				\$29,000.00
37	Mobilization	5% of Item 34				\$57,000.00
38	Contingency	10% of Items 34 - 37				\$137,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$1,498,000.00</b>
40	Construction Inspection	12% of Item 39				\$180,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$1,678,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$375,000.00
43	Utilities		LS	1	\$45,000.00	\$45,000.00
44	Right-of-Way		LS	1	\$115,000.00	\$115,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$2,213,000.00</b>

Assumptions & Notes:

- Variable depth milling assumes the milled material will remain property of the project to be used as subgrade, in lieu of complete excavation of existing pavement.
- Assumes 2' of ground restoration (grading) on each side of proposed trail alignment and new grass areas.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$10,000.00	\$10,000.00
2	Class 1 Excavation		CY	190	\$65.00	\$12,337.00
3	Foreign Borrow		CY	19	\$50.00	\$949.00
4	Saw cut existing pavement		LF	363	\$8.00	\$2,904.00
5	Grading (includes topsoil and seeding)	see below	SY	350	\$15.00	\$5,250.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	79	\$90.00	\$7,110.00
7	Driveway Adjustments		SY		\$60.00	\$0.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY		\$25.00	\$0.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF		\$30.00	\$0.00
12	Plain Cement Mountable Curb	see below	LF	350	\$40.00	\$14,000.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS	1	\$15,000.00	\$15,000.00
14	6" Base Drain		LF		\$13.00	\$0.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$5,000.00	\$5,000.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF		\$8.00	\$0.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA		\$150.00	\$0.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA		\$6,500.00	\$0.00
26	Detectable Warning Surface	at a driveway	EA		\$2,500.00	\$0.00
27	Traffic Signal Upgrades	Push Button upgrades	LS		\$0.00	\$0.00
28	Tree Replacement		EA		\$850.00	\$0.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	552	\$83.00	\$45,816.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$10,000.00	\$10,000.00
31	Plastic Ribbon Fence		LF		\$25.00	\$0.00
32	Split Rail Fence		LF		\$20.00	\$0.00
33	Wooden Boardwalk		SF		\$55.00	\$0.00
34	Miscellaneous Relocations		LS	1	\$0.00	\$0.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA		\$3,600.00	\$0.00
35	Bench/Trash Receptacle		EA		\$3,250.00	\$0.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA	1	\$2,250.00	\$2,250.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$131,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 8% of Item 34				\$11,000.00
36	Erosion and Sediment Control	Approx. 2.5% of Item 34				\$4,000.00
37	Mobilization	5% of Item 34				\$7,000.00
38	Contingency	10% of Items 34 - 37				\$16,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$169,000.00</b>
40	Construction Inspection	15% of Item 39				\$26,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$195,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$43,000.00
43	Utilities		LS	1	\$10,000.00	\$10,000.00
44	Right-of-Way		LS	1	\$10,000.00	\$10,000.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$258,000.00</b>

Assumptions & Notes:

-Per RC-64, plain cement concrete median paving is incidental to unit cost of mountable curb.

-Assumes 2' of ground restoration (grading) on each side of proposed trail alignment.

Item No.	Description	Comment	Unit	Quantity	Unit Cost	Cost
<b>Standard Items</b>						
1	Clearing and Grubbing		LS	1	\$10,000.00	\$10,000.00
2	Class 1 Excavation		CY	312	\$65.00	\$20,280.00
3	Foreign Borrow		CY	31	\$50.00	\$1,560.00
4	Saw cut existing pavement		LF	90	\$8.00	\$720.00
5	Grading (includes topsoil and seeding)	see below	SY	499	\$15.00	\$7,485.00
6	Full Depth Bituminous Pavement + Wearing Course (8" Bituminous Base Course & 8" Subbase)		SY	19	\$90.00	\$1,710.00
7	Driveway Adjustments		SY		\$60.00	\$0.00
8	Milling and Bituminous Overlay (including Tack Coat)		SY		\$25.00	\$0.00
9	Variable depth milling of bituminous pavement		SY		\$10.00	\$0.00
10	Leveling Course		TN		\$85.00	\$0.00
11	Plain Cement Concrete Curb		LF		\$30.00	\$0.00
12	Plain Cement Mountable Curb		LF	77	\$40.00	\$3,080.00
13	Drainage Upgrades	New Drainage Structures/Pipe	LS		\$0.00	\$0.00
14	6" Base Drain		LF		\$13.00	\$0.00
15	Gabion Wall		CY		\$300.00	\$0.00
16	Guide Rail		LS		\$0.00	\$0.00
17	Construction Surveying, Schedule, Equipment Package		LS	1	\$5,000.00	\$5,000.00
18	4" Yellow Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
19	4" White Pavement Markings, Hot Thermoplastic Paint		LF		\$1.50	\$0.00
20	6" White Pavement Markings, Hot Thermoplastic Paint		LF		\$2.00	\$0.00
21	24" White Pavement Markings, Hot Thermoplastic Paint		LF		\$8.00	\$0.00
22	Marking Legend, "ONLY", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
23	Marking Legend, "ARROW", Hot Thermoplastic Paint		LF		\$16.00	\$0.00
24	Signage		EA	5	\$150.00	\$750.00
25	ADA Accessible Curb Ramp at signalized intersection	at a signalized intersection	EA	3	\$6,500.00	\$19,500.00
26	Detectable Warning Surface	at a driveway	EA		\$2,500.00	\$0.00
27	Traffic Signal Upgrades	Push Button upgrades	LS		\$0.00	\$0.00
28	Tree Replacement		EA	4	\$850.00	\$3,400.00
<b>Special Items</b>						
29	Porous Bituminous Pavement Trail		SY	1,318	\$83.00	\$109,394.00
30	Post Construction Stormwater Management	Approx. 5% of Total	LS	1	\$10,000.00	\$10,000.00
31	Plastic Ribbon Fence		LF	200	\$25.00	\$5,000.00
32	Split Rail Fence		LF		\$20.00	\$0.00
33	Wooden Boardwalk		SF		\$55.00	\$0.00
34	Miscellaneous Relocations		LS	1	\$0.00	\$0.00
<b>Streetscaping Items</b>						
34	Bicycle Parking		EA		\$3,600.00	\$0.00
35	Bench/Trash Receptacle		EA		\$3,250.00	\$0.00
36	Stamped Asphalt Median		SY		\$160.00	\$0.00
37	Kiosk		EA		\$2,250.00	\$0.00
34	<b>Subtotal Trail Construction Cost</b>	<b>Items 1 - 37</b>				<b>\$198,000.00</b>
35	Maintenance and Protection of Traffic	Approx. 8% of Item 34				\$16,000.00
36	Erosion and Sediment Control	Approx. 2.5% of Item 34				\$5,000.00
37	Mobilization	5% of Item 34				\$10,000.00
38	Contingency	10% of Items 34 - 37				\$23,000.00
39	<b>Total Trail Construction Cost</b>	<b>Items 34 - 38</b>				<b>\$252,000.00</b>
40	Construction Inspection	15% of Item 39				\$38,000.00
41	<b>Total Trail Construction + Inspection</b>	<b>Items 39 - 40</b>				<b>\$290,000.00</b>
42	Engineering and Permitting	Approx. 25% of Item 39				\$63,000.00
43	Utilities		LS	1	\$20,000.00	\$20,000.00
44	Right-of-Way		LS	1		\$0.00
45	<b>Total Trail Project Cost (2015 Dollars)</b>	<b>Items 41 - 44</b>				<b>\$373,000.00</b>

Assumptions & Notes:

-Assumes 2' of ground restoration (grading) on each side of proposed trail alignment.