

# Section VI

## Cost Estimates





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## Costs For Construction and Permitting

Cost estimates are based on construction and permitting. It does not include land acquisition costs, which can be significant and are hard to predict until land owner outreach is conducted. The goal should be to acquire right-of-way through donations of land or easements when possible to help manage cost.

Individual phases have detailed costs broken out in the following pages. Some of the bigger ticket items include:

- The greenway itself, with average construction costs of \$601,000 per mile
- A Sinking Creek bridge (~\$41,000)
- Cross Creek trailhead (~\$103,000)
- Other trailheads (Average ~\$20,000)
- Stormwater controls
- Fencing and retaining walls
- The cantilevered pedestrian walkway on the Solway Bridge (~\$560,000)

Planning, design, permitting, and engineering have been incorporated into these costs. However, not all costs can be predicted, and cost estimates are based on known issues and proposed design features. Connector routes were not figured into these costs unless an immediate crossing could be designed and built as part of the greenway.

## PHASING DIAGRAM



Figure 56—Potential Cost Per Phase

PHASE	TOTAL COST (Construction & Permitting)	COST PER LINEAR FOOT	COST PER MILE	TOTAL MILES
Phase 1: The Southeastern Corridor	\$3,415,000	\$116	\$610,000	5.6
Phase 2: The Central Corridor	\$1,212,000	\$104	\$551,000	2.2
Phase 3: The Northern Corridor	\$4,160,000	\$145	\$770,000	5.4
<b>TOTAL:</b>	<b>\$8,787,000</b> Total Cost For Construction & Permitting			<b>13.2</b>

# Phase 1: The Southeastern Corridor

Probable Cost Estimate January 2015

Cost estimates are preliminary and subject to change

	Units	Quantity	Cost Per Unit	Costs	Costs notes:
<b>Mobilization</b>					
Mobilization (includes mobilization for all work like grading, greenway, street crossings, drainage, etc.)	LS	1	\$51,386	\$51,386	2% of construction cost
			<b>SUB-TOTAL</b>	<b>\$51,386</b>	
<b>Grading &amp; Greenway Construction</b>					
12' asphalt new	LF	29506	\$60.00	\$1,770,360	includes base course & typical earthwork
6' concrete expansion (10' total sidewalk)	SF	6126	\$32.00	\$196,032	1,021 LF @ 6' wide
Excavation/ earthwork for sidewalk expansion	CY	226	\$7.00	\$1,582	1,021 LF @ 1' deep and 6' wide
Retaining Wall	SF	390	\$35.00	\$13,650	anticipated 3' avg. height
Stormwater BMPs/Storm drainage	MI	5.58	\$60,000.00	\$334,800	
			<b>SUB-TOTAL</b>	<b>\$2,316,424</b>	
<b>Street Crossings</b>					
Mid-block crossing (Cross Park Drive)	EA	1	\$770.00	\$770	
Mid-block crossing (Fox Lonas Road)	EA	1	\$770.00	\$770	
Mid-block crossing (Christian Academy Boulevard)	EA	1	\$770.00	\$770	
Mid-block crossing with island to connect to Parkwest Medical Center (Sherrill Boulevard)	EA	1	\$13,520.00	\$13,520	
Mid-block crossing (Mabry Hood Road)	EA	1	\$770.00	\$770	
Mid-block crossing (Investment Drive)	EA	1	\$770.00	\$770	
Four-way Crossing Improvements- Dutchtown Road/ Parkway Interchange	EA	2	\$3,000.00	\$6,000	Costing is for high visibility crosswalks
Intersection improvements for all crossings (truncated domes and ramps)	EA	12	\$3,500.00	\$42,000	Note: Dutchtown Road already has improvements
			<b>SUB-TOTAL</b>	<b>\$65,370</b>	
<b>Drainage Crossings</b>					
Bridge (Sinking Creek crossing)	SF	480	\$85.00	\$40,800	1 bridge @ 40' @ 12' clear deck
24" Culverts (2 crossings near Sinking Creek)	EA	2	\$1,200.00	\$2,400	
			<b>SUB-TOTAL</b>	<b>\$43,200</b>	
<b>Cross Creek Trailhead</b>					
Information/map kiosks	EA	1	\$7,500.00	\$7,500	
Paved parking lot for six cars	SF	3000	\$20.00	\$60,000	
Bollards or stone monuments (at intersections)	EA	16	\$1,250.00	\$20,000	
Landscape/Plantings Enhancements	LS	1	\$15,000.00	\$15,000	
Bicycle Rack	EA	1	\$800.00	\$800	
			<b>SUB-TOTAL</b>	<b>\$103,300</b>	
<b>Overlooks</b>					
Decking at major sinkhole	EA	1	\$20,000.00	\$20,000	
Interpretive Signage	EA	2	\$3,000.00	\$6,000	
Decking at pond near Dead Horse Lake Golf Course	EA	1	\$15,000.00	\$15,000	
			<b>SUB-TOTAL</b>	<b>\$41,000</b>	
<b>Planning, Design, Permitting &amp; Engineering</b>					
Permitting*	LS	1	\$3,000.00	\$3,000	
Flood study / No-rise permitting	LS	1	\$8,000.00	\$8,000	
Construction Documents & Engineering (includes everything but permitting and surveying)		12%		\$314,482	(12% of Construction)
Surveying	LF	29506	\$0.78	\$23,015	
			<b>SUB-TOTAL</b>	<b>\$348,496</b>	
				<b>SUBTOTAL</b>	<b>\$2,969,176</b>
				<b>15% Contingency</b>	<b>\$445,376</b>
				<b>TOTAL</b>	<b>\$3,414,553</b>

*Italicized cells indicate items considered as an element that will require design & engineering*

\*Anticipated permitting includes erosion control, right-of-way encroachments, regulatory environmental (buffer encroachment, stream crossing, etc),

### Units:

- EA= each
- LS= lump sum
- LF= linear foot
- TN= ton
- SY= square yard
- MI= Mile

Notes: 1.) Cost estimate does not include: landowner outreach, traffic impact studies, land acquisition, wetland determination/delineation, potential rock and unsuitable soils excavation, permitting fees, utility coordination, attorney costs, transactional fees and taxes 2.) Trail costs are based on historic project costs with varying conditions. Costs include clearing and grubbing, paving, base, geogrid, minor storm drain pipe, erosion control features, plantings, signs, pavement markings, minor modular retaining walls. 3.) This section includes estimates for major retaining walls (taken into account under "Grading" cost per unit).

## Phase 2: The Central Corridor

Probable Cost Estimate January 2015

Cost estimates are preliminary and subject to change

	Units	Quantity	Cost Per Unit	Costs	notes:
<b>Mobilization</b>					
Mobilization (includes mobilization for all work like grading, greenway, street crossings, drainage, etc.)	LS	1	\$18,243.50	\$18,244	2% of construction cost
			<b>SUB-TOTAL</b>	<b>\$18,244</b>	
<b>Grading &amp; Greenway Construction</b>					
12' asphalt new	LF	3616	\$60.00	\$216,960	From Dutchtown Road to Bob Gray Road. Includes base course & typical earthwork
10' asphalt new	LF	5707	\$45.00	\$256,815	From north of Bob Gray Road to existing Pellissippi Greenway. Includes base course & typical earthwork.
Retaining Wall (total for all of phase)	SF	3810	\$35.00	\$133,350	Anticipated 3' avg. height
Fencing (total fencing for all of phase)	LF	1260	\$100.00	\$126,000	
Stormwater BMPs/Storm drainage	MI	1.77	\$60,000.00	\$106,200	
			<b>SUB-TOTAL</b>	<b>\$839,325</b>	
<b>Street Crossings</b>					
Marked crossing (Dutchtown Road and Sanctuary Lane)	EA	1	\$770.00	\$770	1 bridge @ 40' @ 12' clear deck
Mid-block crossing (Sanctuary Lane)	EA	1	\$770.00	\$770	
Mid-block crossing (Bob Gray Road)	EA	1	\$770.00	\$770	
Marked crossing (Centervue Crossing Way)	EA	1	\$770.00	\$770	
Mid-block crossing (Carmichael Road)	EA	1	\$770.00	\$770	
Intersection improvements for all crossings (truncated domes and ramps)	EA	8	\$3,500.00	\$28,000	Sanctuary Lane at Dutchtown Road already has improvements
			<b>SUB-TOTAL</b>	<b>\$31,850</b>	
<b>Drainage Crossings / Bridges</b>					
24" Culverts	EA	1	\$1,200.00	\$1,200	
Bridge Retrofit- Bob Gray Road separated pedestrian lane and restriping	LS	1	\$16,500.00	\$16,500	Includes jersey barrier divider, restriping and fencing.
			<b>SUB-TOTAL</b>	<b>\$17,700</b>	
<b>Trailhead Near Covenant Health</b>					
Information/map kiosks	EA	1	\$7,500.00	\$7,500	
Landscape/Plantings Enhancements	LS	1	\$15,000.00	\$15,000	
Bicycle Rack	EA	1	\$800.00	\$800	
			<b>SUB-TOTAL</b>	<b>\$23,300</b>	
<b>Planning, Design, Permitting &amp; Engineering</b>					
Permitting*	LS	1	\$3,000.00	\$3,000	
Construction Documents & Engineering (includes everything but permitting and surveying)		12%		\$111,650.22	(12% of Construction)
Surveying	LF	11480	\$0.78	\$8,954	
			<b>SUB-TOTAL</b>	<b>\$123,605</b>	
<b>SUBTOTAL</b>				<b>\$1,054,023</b>	
<b>15% Contingency</b>				<b>\$158,103</b>	
<b>TOTAL</b>				<b>\$1,212,127</b>	

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### Units:

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 MI= Mile

Notes: 1.) Cost estimate does not include: landowner outreach, traffic impact studies, land acquisition, wetland determination/delineation, potential rock and unsuitable soils excavation, permitting fees, utility coordination, attorney costs, transactional fees and taxes 2.) Trail costs are based on historic project costs with varying conditions. Costs include clearing and grubbing, paving, base, geogrid, minor storm drain pipe, erosion control features, plantings, signs, pavement markings, minor modular retaining walls. 3.) This section includes estimates for major retaining walls (taken into account under "Grading" cost per unit).

## Phase 3: The Northern Corridor

Probable Cost Estimate January 2015

Cost estimates are preliminary and subject to change

	Units	Quantity	Cost Per Unit	Costs	notes:
<b>Mobilization</b>					
Mobilization (includes mobilization for all work like grading, greenway, street crossings, drainage, etc.)	LS	1	\$62,755.24	\$62,755	2% of construction cost
			<b>SUB-TOTAL</b>	<b>\$62,755</b>	
<b>Grading &amp; Greenway Construction</b>					
12' asphalt new	LF	19788	\$60.00	\$1,187,280	From Pellissippi State Community College to Solway Park. Includes base course & typical earthwork
10' asphalt new	LF	7400	\$45.00	\$333,000	From Solway Park to project terminus. Includes base course & typical earthwork.
Fencing (total fencing for all of phase)	LF	3985	\$100.00	\$398,500	
Stormwater BMPs/Storm drainage	MI	5.16	\$60,000.00	\$309,600	
			<b>SUB-TOTAL</b>	<b>\$2,228,380</b>	
<b>Street Crossings</b>					
Mid-block crossing (Solway Road near Greystone Apartments)	EA	1	\$770.00	\$770	
Mid-block crossing (Solway Road to Soccer Fields)	EA	1	\$770.00	\$770	
Marked crossing (George Light Road)	EA	1	\$770.00	\$770	
Mid-block crossing with island (Solway Road near Parkway interchange)	EA	1	\$13,520.00	\$13,520	
Marked crossing (Guinn Road)	EA	1	\$770.00	\$770	
Mid-block crossing (Sparks Road)	EA	1	\$770.00	\$770	
Intersection improvements for all crossings (truncated domes and ramps)	EA	12	\$3,500.00	\$42,000	
			<b>SUB-TOTAL</b>	<b>\$59,370</b>	
<b>Drainage Crossings / Bridges</b>					
24" Culverts	EA	2	\$1,200.00	\$2,400	
Solway Pedestrian Bridge Cantilever- Using an FRP (fiber reinforced polymer) Decking System, including steep support structure, deck, and railing	SF	8500	\$70.00	\$595,000	850' long x 10' wide. Price quoted to Equinox by manufacturer Composite Advantage in 2014
Solway access Ramp	LF	508	\$289.00	\$146,812	Anticipated 8' asphalt with 4' walls and rails
			<b>SUB-TOTAL</b>	<b>\$744,212</b>	
<b>Pellissippi State Community College Trailhead</b>					
Information/map kiosks	EA	1	\$7,500.00	\$7,500	
Landscape/Plantings Enhancements	EA	1	\$15,000.00	\$15,000	
Bicycle Rack	EA	1	\$800.00	\$800	
			<b>SUB-TOTAL</b>	<b>\$23,300</b>	
<b>Solway Trailhead</b>					
Information/map kiosks	EA	1	\$7,500.00	\$7,500	
Paved parking lot for six cars	SF	3000	\$20.00	\$60,000	
Landscape/Plantings Enhancements	LS	1	\$15,000.00	\$15,000	
			<b>SUB-TOTAL</b>	<b>\$82,500</b>	
<b>Planning, Design, Permitting &amp; Engineering</b>					
Permitting*	LS	1	\$3,000.00	\$3,000	
Flood study / No-rise permitting	LS	1	\$8,000.00	\$8,000	
Construction Documents & Engineering (includes everything but permitting and surveying)		12%		\$384,062.07	(12% of Construction)
Surveying	LF	28440	\$0.78	\$22,183	
			<b>SUB-TOTAL</b>	<b>\$417,245</b>	
<b>SUBTOTAL</b>				<b>\$3,617,763</b>	
<b>15% Contingency</b>				<b>\$542,664</b>	
<b>TOTAL</b>				<b>\$4,160,427</b>	

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