Appendix XX - Cost Estimation Values and Sources

RTC staff sought out costs from a variety of projects to inform the cost estimates in this report. Preference was given to more recent projects and projects in the West Virginia and Appalachian regions. Where recent and/or local examples were not available, estimates were taken from google searches or a spreadsheet compiled by the Pedestrian and Bicycle Information Center on Costs for Pedestrian and Bicycle Infrastructure Improvements. This spreadsheet compiled actual examples of costs from projects completed around the country, broken down into individual parts. Wherever this report uses costs older than 2015, additional dollars were added to account for inflation.

Trail Construction

	Price per mile (low)	Source (low)	Price per mile (high)	Source (high)
Asphalt	$283,272	MA, 2010 - Wareham Bike Path Feasibility Study	$1,084,000	VA, 2009 - Transportation & Mobility Planning Division Statewide Planning Level Cost Estimates
Crushed Stone	$105,191	WV, 2015 - Harrison County	$326,095	FL, 2011 - D-3 Preliminary Estimates Section Costs, Annual Roadway Construction Costs

Bridges

Bridges are the most difficult element of trail building to accurately estimate costs. Each bridge is unique in its length, width, and materials and requires significant engineering. Project managers should engage certified engineers as soon as possible to create more accurate cost estimates before and during the design process.

	Price per linear foot (low)	Source (low)	Price per linear foot (high)	Source (high)
Major Bridge	$3,531	VA, 2015 - Potterfield Bridge Cost	$7,062	VA, 2015 - Potterfield Bridge Cost
Minor Bridge	$2,400	WV, 2016 - Thrasher Estimate	$3,600	WV, 2016 - Thrasher Estimate
Retrofit Bridge	$558	WV, 2014 - Hatfield McCoy CSX Bridge Conversion	$872	WV, 2014 - Hatfield McCoy CSX Bridge Conversion
Boardwalk	$166.75	AL, 2010 - Bids.com	$496.62	AL, 2010 - Bids.com

	Price, each (low)	Source (low)	Price, each (high)	Source (high)
Large Creek Crossing	$91,014	VT, 2010 - Report on Shared and Sidewalk Unit Costs	$138,091	VT, 2010 - Report on Shared and Sidewalk Unit Costs
Small Creek Crossing	$45,507	VT, 2010 - Report on Shared and Sidewalk Unit Costs	$69,045	VT, 2010 - Report on Shared and Sidewalk Unit Costs

Street Crossings

Where trails cross public streets, treatments need to be provided to increase visibility and awareness of the crossing. These treatments include crosswalks, signs and bollards.

	Price, each (low)	Source (low)	Price, each (high)	Source (high)
Crosswalks	$384	OR, 2008 - Eugene Pedestrian and Bicycle Facility Design Toolkit	$1,500	NE, 2010 - Bids.com
Signs	$150	CA, 2010 - Lake Tahoe Region Bicycle and Pedestrian Plan	$2,000	CA, 2010 - Lake Tahoe Region Bicycle and Pedestrian Plan
Bollards	$500	KS, 2010 - Bids.com	$1,500	MA, 2010 - Bids.com

Trailheads

There are several trailheads along the Parkersburg to Pittsburgh corridor that could use a few additional improvements to become more usable to the public. New trailheads are also needed at several locations. These trailheads can be added or upgraded using a variety of elements, which are included in the cost estimates below.

	Price, each (low)	Source (low)	Price, each (high)	Source (high)
Directional Totems	$2,500	WV, 2014 - Mon River Trail Cost	$5,000	WV, 2014 - Mon River Trail Cost
Toilet	$20,000	WV, 2014 - Mon River Trail Cost	$25,000	WV, 2014 - Mon River Trail Cost

Benches	$600	NC, 2007 - Norwood Pedestrian Plan	$2,000	CO, 2011 - Wheat Ridge Bicycle and Pedestrian Conceptual Design and Cost Estimates
Trailhead Signage	$150	CA, 2010 - Lake Tahoe Region Bicycle and Pedestrian Plan	$2,000	CA, 2010 - Lake Tahoe Region Bicycle and Pedestrian Plan
Parking Area	$35,000	WV, 2014 - Mon River Trail Cost	$50,000	WV, 2014 - Mon River Trail Cost

Fencing

Where fencing is needed to assuage the concerns of a private property owner when a new trail is built adjacent to their property, it is typically constructed using chain link fencing at about 6 feet high, which is estimated below. More attractive fencing options are available for a higher price, and trail managers are encouraged to seek those options out for a more aesthetically-pleasing screening technique.

	Price per foot (low)	**Source (low)**	**Price per foot (high)**	**Source (high)**
Fencing (6' high, chain-link)	$15.25	IN, 2016 - bids.com	$48.50	IN, 2016 - bids.com

Resurfacing

The cost estimates for resurfacing asphalt trails and the high estimate for crushed stone trails are done on a per-mile basis. The low estimates for resurfacing crushed stone trails use a price per ton of crushed stone, which also includes delivery and compaction. The Deckers Creek Trail resurfacing project showed that approximately 315 tons of crushed stone were needed to resurface 1 mile of trail, which is how the estimates in this report were gathered.

	Price per mile (low)	**Source (low)**	**Price per mile (high)**	**Source (high)**
Asphalt - 10' wide	$118,093	NC, 2007 - Norwood Pedestrian Plan	$167,746	NC, 2007 - Norwood Pedestrian Plan
Asphalt - 12' wide	$141,711	NC, 2007 - Norwood Pedestrian Plan	$201,295	NC, 2007 - Norwood Pedestrian Plan

Crushed Stone	$27 (per ton, 315 tons per mile)	WV, 2016 - Deckers Creek Resurfacing	$83,333	WV, 2016 - North Bend Rail Trail Resurfacing

Physical Separation

Where the trail is directly adjacent to the roadway, some type of physical separation is strongly encouraged to increase the real and perceived safety for trail users. Curb and railing are two physical improvements that can be used to increase safety, depending on the height and location of the trail in relation to the road. Delineators are also an option, though they provide less protection from moving traffic as they are designed to bend on impact with a vehicle.

	Price per linear foot (low)	**Source (low)**	**Price per linear foot (high)**	**Source (high)**
Curb, concrete	$6.55	GA, 2010 - Bids.com	$13.37	IA, 2010 - Bids.com
Railing	$88.62	CO, 2010 - Bids.com	$200	ID, 2010 - Average Unit Prices for Standard Bid Items
	Price, each (low)	**Source (low)**	**Price, each (high)**	**Source (high)**
Delineators	$45	US, 2017 - Uline.com	$75	US, 2017 - Uline.com

Slope Stabilization

There are two sections along the corridor that will require slope stabilization before a trail can be constructed – one in Clarksburg and one in Parkersburg. Both sections are approximately 1,000 feet in length. Stabilization could be donated or provided at a discount from local construction or landscaping firms. The costs below are taken from a road stabilization project and are likely inflated compared to the actual costs of stabilizing a slope to construct a trail.

	Price per linear foot (low)	**Source (low)**	**Price per linear foot (high)**	**Source (high)**
Slope Stabilization	$323	WA, 2001 – Chelan County Road Project Estimate	$387	WA, 2001 – Chelan County Road Project Estimate

Other

	Price, each (low)	Source (low)	Price, each (high)	Source (high)
Relocate utility pole	$4,000	US, 2017 - gardenweb.com	$5,000	US, 2017 - gardenweb.com
Sharrows	$300	MD, 2015 - Rockville Bikeway Project Bids	$350	MD, 2015 - Rockville Bikeway Project Bids
	Price per linear foot (low)	**Source (low)**	**Price per linear foot (high)**	**Source (high)**
Widen roadway (additional 10')	$101.64	OH, 2010 - Bids.com	$813.13	OH, 2010 - Bids.com
Widen concrete path (additional 3')	$18.76	OH, 2010 - Bids.com	$58.97	OH, 2010 - Bids.com