

Appendix C: Estimated Costs

Cost Estimates

Itemized below are some rough cost estimates that could be associated with trail development for the Rolesville greenway system. These costs are divided into major elements of the project. These prices are based on North Carolina greenway averages for similar projects currently in operation throughout the state and assume that the Town will employ professional contractors appropriate to build the project. Greenways Incorporated offers these estimates as a guide to future decision making and cannot guarantee their accuracy.

Because the greenways can be built using a variety of different trail widths, materials, and surfaces, the costs for installation can vary widely. Volunteer labor and donations of materials can help to significantly lower the price of trail installation. A representative sample of costs (in 2001 dollars) associated with trail types follows.

Greenways with No Facility Development (Type 1):

Vegetation	Unit cost
Trees (3" caliper)	\$ 350 each
Shrubs (3 gallon)	\$ 25 each

*Costs include plant and installation.

Streambank Stabilization (Bioengineering)

Range	\$ 25 - 75 / lin. foot
Average	\$ 45 - 60 / lin. foot

Greenways with Limited Facility Development (Type 2):

Trail Treads	Unit cost
4-foot Bare Earth Hiking/Mtn. Bike Trail	\$ 2 / lin. foot
10-foot Wood Deck/Boardwalk Trail	\$ 150 / lin. foot

*Costs include site preparation, clearing, grading, and mobilization.

Signage

Information Signs	\$ 250 each
Direction Signs	\$ 250 each
Warning Signs	\$ 250 each
Mile Markers	\$ 50 each

Greenways with Multi-Use Unpaved Trail Facility Development (Type 3):

Trail Treads	Unit cost
10-foot Aggregate/Stone Trail	\$ 12 / lin. foot
10-foot Wood Deck/Boardwalk Trail	\$ 150 / lin. foot
 Signage	
Information Signs	\$ 250 each
Direction Signs	\$ 250 each
Warning Signs	\$ 250 each
Mile Markers	\$ 50 each
 Furniture/Furnishings	
Benches	\$ 600 each
Trash Receptacles	\$ 200 each
Security Bollards	\$ 250 each
Bicycle Racks	\$ 550 each
Fencing (Board-on-Board)	\$ 20 / lin. foot
Gates	\$ 750 each
911 Emergency Phones (w/ infrastructure)	\$ 800 each
911 Emergency Phones (w/o infrastructure)	\$ 3,500 each
Pre-fabricated Steel Bridges	\$ 1,000 / lin. foot

Greenways with Multi-Use Paved Trail Facility Development (Type 4):

Trail Treads	Unit cost
10-foot Asphalt Multi-Purpose Trail	\$ 50 / lin. foot
10-foot Concrete Multi-Purpose Trail	\$ 75 / lin. foot
10-foot Wood Deck/Boardwalk Trail	\$ 150 / lin. foot
 Signage	
Information Signs	\$ 250 each
Direction Signs	\$ 250 each
Warning Signs	\$ 250 each
Mile Markers	\$ 50 each
 Furniture/Furnishings	
Benches	\$ 600 each
Trash Receptacles	\$ 200 each
Security Bollards	\$ 250 each
Bicycle Racks	\$ 550 each
Fencing (Board-on-Board)	\$ 20 / lin. foot
Gates	\$ 750 each
911 Emergency Phones (w/ infrastructure)	\$ 800 each
911 Emergency Phones (w/o infrastructure)	\$ 3,500 each
Pre-fabricated Steel Bridges	\$ 1,000 / lin. foot

The following estimate for developing the Rolesville Greenway trail system has been prepared based on the itemized costs above.

On-road trail construction estimates consist of establishing sidewalks in the Rolesville business district and as connectors between off-road trails.

Phase I (as delineated on the Rolesville Vision Map) trails are estimated to take 2-3 years to complete. These include approximately 7.70 miles of on-road bike routes, and 2.77 miles of on-road trail. It is estimated that two-thirds of the off-road trail will require an asphalt or concrete surface. Acquisition and development of the Main Street Park.

- Acquisition and development of Main Street Park (50/50 matching grant program).

Town of Rolesville	\$215,000
Matching Grant	\$215,000
- On-road trail (14,665 linear ft. @ \$25.00 per /ft.) \$293,300
- Signage allowance (1 sign per 1,000 linear ft. @ \$250 each) \$3750
- Furniture allowance (\$2,000 per mile of trail - off-road only) \$2000
- Design fees and Construction Documentation (@ 15% of Total Cost) \$45,607
- Total Cost \$774,657

Cost options for phase I bike routes:

Option 1: Share the road signage (6 signs per route @ \$250 each sign)	\$6,000
Option 2: Restriping (\$7200 per mile)	\$55,440
Option 3: Rural Bike Lanes (4' wide, both sides \$110,000 per mile)	\$847,000

Phase II trails are estimated to take 1-5 years to complete. These include approximately 9.07 miles of off-road trail. It is estimated that two-thirds of the off-road trail will require an asphalt or concrete surface.

- Natural surface trail (15,975 linear ft. @ \$12.00 per /ft.) \$191,700
- Paved asphalt trail (31,950 linear ft. @ \$50.00 per /ft.) \$1,597,500
- Signage allowance (1 sign per 1,000 linear ft. @ \$250 each) \$11,750
- Furniture allowance (\$2,000 per mile of trail) \$18,000
- Design fees and Construction Documentation (@ 15% of Total Cost) \$272,842
- Total Cost \$2,091,792

Facility Maintenance Costs

Phase III trails are estimated to take 5-10 years to complete. These include approximately 10.20 miles of off-road trail and 1.06 miles of on-road trail. It is estimated that two-thirds of the off-road trail will require an asphalt or concrete surface.

• Natural surface trail (17,943 linear ft. @ \$12.00 per /ft.)	\$215,316
• Paved asphalt trail (35,886 linear ft. @ \$50.00 per /ft.)	\$1,794,300
• On-road trail (5,611 linear ft. @ \$25.00 per /ft.)	\$112,220
• Signage allowance (1 sign per 1,000 linear ft. @ \$250 each)	\$14,750
• Furniture allowance (\$2,000 per mile of trail)	\$20,400
• Design fees and Construction Documentation (@ 15% of Total Cost)	<u>\$323,547</u>
• Total Cost	\$2,480,533

The following maintenance costs are provided as a guide to establishing a budget for the operation, maintenance and management of each trail segment within the greenway system. These costs are derived from national industry averages and have not been adjusted to reflect unique labor, material and cost issues specific to Rolesville.

It may be possible to lower the cost of maintaining one mile of paved trail through the development of an Adopt-a-Greenway Program. Volunteers have been proven effective in performing some of the routine maintenance activities that are listed below. Savings of 50% of the estimated cost per mile defined below are possible through a coordinated and well-run Adopt-a-Greenway Program, and some of these costs are already being covered along highways, roads and parks and other areas.

Typical Maintenance Costs (for a 1-mile paved trail)

Drainage and storm channel maintenance (4 x / year)	\$ 500
Sweeping/blowing debris off trail tread (20 x / year)	\$ 1,200
Pick-up and removal of trash (20 x./ year)	\$ 1,200
Weed control and vegetation management (10 x / year)	\$ 1,000
Mowing of 3-ft grass safe zone along trail (20 x / year)	\$ 1,200
Minor repairs to trail furniture / safety features	\$ 500
Maintenance supplies for work crews	\$ 300
Equipment fuel and repairs	<u>\$ 600</u>
Total Maintenance Costs per Mile of Paved Trail	\$ 6,500
 Re-surfacing of paved trail tread (20-year cycle)	 \$ 50 / lin. foot