



## SAMPLE COST ESTIMATES

Below are approximate unit costs for the types of pedestrian projects proposed in this plan, based on some example project costs that have been recently implemented, along with costs of other pedestrian projects. Project cost estimations in Appendix G are based on these figures, and do not necessarily include extra costs involved in the project such as advanced grading issues, land acquisition, land clearing, etc.

### Sidewalks

- \$15 per foot for curb and gutter (plus 10% for design and administration)
- \$30 per square yard sidewalk (plus 10% for design and administration)
- 5' sidewalk – The nearby Town of Mooresville is spending \$119 - \$200 per linear foot (\$629,000 - \$1,056,000 per mile) for recent sidewalk projects. This figure includes all necessary costs design & administration, curb & gutter, various retrofitting costs, etc.

### Shared-Use Paths

- Floodplain paths, such as creek or sewer paths may require more site preparation. Floodplain costs usually involve drainage issues (i.e., need for culverts and bridges, or geotextiles), permitting issues, and boardwalk. Mecklenburg County Park and Recreation's greenways are typically constructed on creek corridors or sewer easements, and whose greenways therefore provide good cost examples for many of Albemarle's recommended shared-use paths.
- Rail Trails and sidepaths that have the advantage of being on a relatively cleared alignment with some existing grading and base work already complete can be constructed more economically.

### Typical Costs Associated with Floodplain Shared - Use Paths on Waterways or Sewer Lines

- \$120 per linear asphalt foot (installation including grading, clearing, construction, and a subbase with 18" on either side of asphalt for shoulder stabilization) 633,600 per mile + 10% administration and design = approximately \$700,000 per mile = \$132 per linear foot
- 10' Concrete walkway: \$300,000 - \$500,000 per mile (with design and administration – add 10%)
- 10' wide prefabricated "Steadfast" type Pedestrian Bridge: \$1,200 per linear foot with design, engineering, installation and administration costs. An 8' wide clearance can reduce this cost.
- 10' paved asphalt path (with two-foot margins and associated improvements): \$100 - \$125 per foot (\$528,000 - \$660,000 per mile.) Add 10% for design and administration.
- Boardwalk: Historically \$200 / linear foot (\$1,056,000 / mile), lately has increased to \$225 - \$250 per linear foot. Unit prices on bids can see boardwalks come in anywhere from \$150 - 350/LF. Boardwalk is 8' clear.
- Converted Culverts and Underpasses: \$60,000 - \$100,000. Varies according to width, lighting needs, if stream restoration is involved, and other circumstances.
- Mecklenburg County Park and Recreation's designers typically estimate \$120 per linear foot for construction of path (clearing, grading, subbase -- 14' wide, asphalt trail 10' wide).
- Mecklenburg County Park and Recreation routinely estimates \$1,000,000/mile for the design and construction of greenway paths in Mecklenburg County (10' wide asphalt



trail). This cost takes into account various factors including need for culverts, drainage and flood studies.

- Mecklenburg County Parks and Recreation recently spent \$615,000 for 1.6 miles of a new portion of Mallard Creek Greenway. Other recent construction costs: 1.9 miles (Four Mile Creek Greenway) Design: \$241,102 Construction: \$1,663,255. Irwin Creek Greenway (1.0 miles) Design: \$107,000, Construction: \$428,088. These costs do not include any funds for contingency (typically around 5% for construction and 10-15% for FFE -- i.e., signage, benches, trashcans, bike racks, water fountains, etc.)
- Mecklenburg County Park and Recreation recently paid \$128,000 for an 80' span on Briar Creek (included concrete approaches) and \$142,000 for an 80' span on Little Sugar Creek (approaches and railing included in costs) both bridges are 10' clear. Cost includes design, engineering and installation.
- Mecklenburg County Park and Recreation recently paid \$60,000 for a simple bridge underpass conversion for a greenway under Remount Road along Irwin Creek, \$150,000 for an underpass conversion on Toby Creek with a major stream restoration project included in the cost, and \$170,000 for NCDOT to design and install a Con-Span under a pre-existing bridge to build a greenway path.

### Costs Typical with Upland Multi-Use Paths on Rail Beds, Road Corridors, Gas, or Electric Lines.

- Construction is less expensive in upland areas, especially where grading is already complete or where a subbase is not needed.
- Rail Trail construction can be estimated at \$510,000 per mile, based on other North Carolina Rail Trail projects plus an additional 10% for design and administration. This plan uses \$106 per linear foot to calculate all costs estimations for paths built on roadway and other upland corridors.
- The American Tobacco Trail (a rail trail in the Raleigh-Durham area) cost \$330,000 per mile for construction costs in 2002. The City of Durham notes that they have seen a 10 – 11% increase in construction costs in later years, with a more moderate climb earlier. This cost included hauling away ballast and ties (not rails), filling in areas of bad soil, upfitting 12" and 18" drain pipes to 24" and 36" to meet new code requirements, grading, and paving.
- 10' Crushed Rock walkway: \$80,000 - \$120,000 per mile (with design and administration – add 10%). These greenways have high maintenance costs.
- Mecklenburg County Park and Recreation's most recent construction cost for a stand alone asphalt parking lot (34 spaces) at Four Mile Creek/Johnston Rd was \$173,000.
- Parking lot: \$18 per square yard. (Parking lots for greenways can typically be shared with shopping areas, parks, or other public destinations and more typically are not needed at all because they are neighborhood access points.)

### Intersections

- Crosswalk/Countdown signal: \$5,000 per intersection (this includes installation and an additional installed post). This cost can be up to \$15,000 per intersection if a retrofit is done with APS devices.
- Curb extensions: \$5,000 - \$25,000
- Simple neighborhood crosswalks with signs and markings: \$500 - \$1,500
- Enhanced crosswalk with special stencils, raised platforms, or special signage: \$5,000
- Raised crosswalks: \$2,000 – \$15,000
- Refuge island: \$10,000 – \$40,000
- In pavement illumination: \$25,000 – \$40,000 per crossing



- Pedestrian only traffic signal: \$40,000 - \$75,000
- Hawk signal: \$40,000
- Mid Block Flashing Crosswalk: \$20,000 for equipment and \$20,000 to install

### Lane Marking

- Bicycle or vehicle lane striping (thermoplastic): \$15,000/mile with design and administration for both sides of the road.
  - \$1.20 per linear foot of thermoplastic for line striping
  - \$350.00 for each set of performed thermoplastic bike symbols with arrows

### Lighting, Landscaping, and Signage

- Lighting: Varies widely depending on type of light and location. Lighting an underpass could be \$2,000 - \$5,000 for 3 to 4 lights. Mecklenburg County Park and Recreation recently paid approximately \$11,000 for the wiring and installation of 2 underpasses (8-12 lights under each).
- Landscaping: Contractor installed foliage costs around \$400 - \$500 per tree and \$25 - \$50 per shrub.
- Marking a route with signs: \$2,000 per mile with design and administration
- Signs: \$250 – \$350 each

### Streetscape Projects

- The City of Charlotte recently completed these streetscape projects:
  - Tuckaseegee Rd. Streetscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, 2 bicycle lanes, a turn lane, improved ADA curb cuts and crosswalks with safety islands.
    - Length = 1.3 Miles, Final Cost = \$2,500,000 (\$365 per linear foot)
  - East Blvd. Pedscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, 2 bicycle lanes, a turn lane, improved ADA curb cuts and crosswalks with safety islands.
    - Length = ½ Mile, Final Cost = \$1,050,000 (\$398 per linear foot)
  - Morehead Avenue Streetscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, a turn lane, paved shoulders, wide sidewalks, planting strips, pedestrian lighting, improved ADA intersections and crosswalks with safety islands.
    - Length = ½ Mile, Final Cost = \$3,000,000 (\$1,137 per linear foot)
- For simplicity, the cost of \$425.00 per linear foot is used for estimating streetscape project costs outlined in this report. This cost estimates only the basic cost for sidewalk and crosswalk infrastructure and not any roadway repaving or conflicting utility or drainage costs. Every project is very different, and a complete study would be necessary before it would be possible to adequately estimate the complete cost for any streetscape project.



## Albemarle Comprehensive Pedestrian Plan

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Some general cost estimates and other notes are included below from the United States Department of Transportation for traffic calming facilities:

Measure	Reduces Traffic	Noise	Loss of Parking	Restrict Access	Emergency Entrance	Maintenance	Cost
<b>Traffic Education Campaign</b>	Maybe	No change	None	None	None	No	Varies
<b>Speed Display</b>	Yes	No change	None	None	None	No	\$250/day
<b>Neighborhood Sign</b>	Maybe	No change	None	None	None	No	\$200/sign
<b>High Visibility Crosswalks</b>	Maybe	No change	None	None	None	Yes	\$1K-\$5K
<b>Police Enforcement</b>	Yes	No change	None	None	None	No	\$75/hour
<b>Narrowing Lanes</b>	Yes	No change	None	None	None	Yes	\$1K-\$3K
<b>Speed Limit Signing</b>	Maybe	No change	None	None	None	No	\$200/sign
<b>Stop Signs</b>	Maybe	Increase	None	None	None	No	\$200/sign
<b>Signing Restrictions</b>	No	No change	None	Yes	None	No	\$200/sign



Measure	Reduces Traffic	Noise	Loss of Parking	Restrict Access	Emergency Entrance	Maintenance	Cost
<b>Bike Lane</b>	Maybe	No change	Maybe	No	None	Yes	\$25K-\$75K/mile
<b>Sidewalk</b>	No	No change	Maybe	No	None	Yes	\$20-\$30/foot
<b>Median Island</b>	Maybe	Decrease	Maybe	Yes	Yes	No	\$10K-\$75K
<b>Gateway</b>	Yes	Decrease	Maybe	Yes	None	No	\$10K-\$20K
<b>Curb Extension</b>	Maybe	No change	Yes	None	Some	Yes	\$10K-\$20K
<b>Choker</b>	Yes	No change	Yes	None	Some	No	\$15K
<b>Speed Hump</b>	Yes	Increase	Maybe	None	Yes	Yes	\$5K
<b>Raised Crosswalk</b>	Yes	Increase	Yes	None	Some	Yes	\$5-\$10K
<b>Raised Intersection</b>	Yes	Increase	Yes	None	Yes	Yes	\$25K-\$50K
<b>Traffic Circle</b>	Yes	No change	Maybe	None	Some	Maybe	\$15-\$25K
<b>Intersection Channelizing</b>	Yes	No change	Yes	None	None	Maybe	\$15-\$20K
<b>Chicane</b>	Yes	Maybe	Yes	None	Yes	Maybe	\$20K-\$40K
<b>Entrance Barrier</b>	Maybe	No change	Maybe	Yes	Maybe	No	\$15-\$20K
<b>One-way Streets</b>	No	No change	None	Yes	Yes	No	\$5K



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