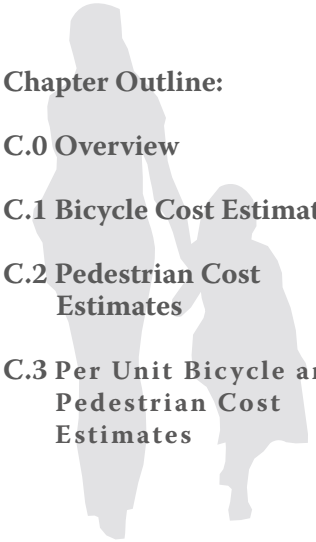
APPENDIX C: COST ESTIMATES



Chapter Outline:

C.0 Overview

This appendix provides general cost estimates for the Top 10 priority linear bicycle and pedestrian facilities recommended in this Plan (Section C.1 and C.2) and per unit costs for intersection and ancillary facilities (Section C.3). A number of factors can affect the actual costs for facility development. Whenever possible, the City of Jacksonville should construct bicycle and pedestrian facilities as part of an existing roadway reconstruction project or utility project. This will save a tremendous amount of money.

All cost estimates are subject to variation. Estimates for both linear and intersection/ancillary facilities were provided by the NCDOT Bicycle and Pedestrian Transportation Division in 2008. Costs may change over time and updated costs should be obtained when a project begins. The actual cost may also vary dependent upon the time of year and a contractor's schedule.

Exact recommendations for each network segment may also change based on a number of factors and should be re-evaluated with each project during the design and engineering phase (as discussed in Chapters 3-4).

C.1 Bicycle Cost Estimates

Corridor	From	To	*Facility Type*	Length	Existing Length	Recommended Length (ft)	Recommended Length (mile)	Recommendation**	Unit Cost (per linear mile)	Total Estimated Cost
Henderson Dr	River St	Doris Ave	*Bike Lanes*	4400		4400	0.83	Reconstruction/widening***	$300,000	$250,000
Henderson Dr	US 17	River St	*Bike Lanes*	3000		3000	0.57	Reconstruction/widening	$300,000	$170,455
Western Blvd	Gateway Dr N	US 17	*Multi-Use Trail*	6500	5600 (various widths less than 10')	6500*	1.23	Multi-use trail	$264,000*****	$325,000
Western Blvd	US 17	Huff Dr	*Bike Lanes*	7000		7000	1.33	Reconfiguration****	$48,000	$63,636
Gum Branch Rd	E. Doris Ave	US 17	*Bike Lanes*	5200		5200	0.98	Reconfiguration	$48,000	$47,273
Hargett St	HWY 24	Bell Fork Rd	*Bike Lanes*	7000		7000	1.33	Reconfiguration	$48,000	$63,636
E. Railroad St/Chaney Ave	College St	US 17	*Bike Lanes*	3100		3100	0.59	Reconfiguration	$48,000	$28,182
Gum Branch Rd	Indian Dr	E. Doris Ave	*Bike Lanes*	4700		4700	0.89	Reconfiguration	$48,000	$42,727
Johnson Blvd	Chaney Ave	Hargett St	*Bike Lanes*	2800		2800	0.53	Reconfiguration	$48,000	$25,455
Doris Ave	Henderson Dr	Gum Branch Rd	*Bike Lanes*	3400		3400	0.64	Reconfiguration	$48,000	$30,909

*Even though existing sidewalk can be found along much of this segment's length, an additional width of 5' is estimated for purposes of developing these cost estimates.

**Further analysis into upcoming roadway projects, City budget, and roadway reconstruction technicalities should occur to provide a more detailed recommendation and thus, more accurate cost estimates.

***Reconstruction/widening refers to a project that will require additional pavement and replacement of curb/gutter

****Reconfiguration refers to restriping travel lanes (adjusting widths) and adding bicycle lane stripes

*****Because existing sidewalk can be found along most of this corridor, this estimate was developed, assuming an additional 5' of concrete is added to the existing facility.

C.2 Pedestrian Cost Estimates

In addition to the previously-mentioned variability in actual costs, there are a number of other factors to consider when calculating the cost of sidewalks. For the Top 10 projects, estimates are generated with the assumption that curb and gutter are already in place. Within Jacksonville, the number of driveways and intersections may increase cost due to the need for curb ramps and marked crosswalks.

Specific factors to consider when calculating the cost of sidewalks include:

1. *Presence of curb and gutter*
The costs of providing curb and gutter, which presumes the need to also provide a street drain age system, run much higher than the cost of sidewalk alone.

2. *Number of driveways*
To comply with ADA, many existing driveways must be replaced with ones that provide a level passage at least 0.9 (3 ft) wide. It can also be advantageous to inventory all existing driveways to see if any can be closed, resulting in a cost-savings.

3. *Number of intersections*
While intersections represent a reduction in the sidewalk, curb ramps are required where sidewalks cross intersections and the cost of providing additional traffic control at each inter section should be considered.

4. *Obstacles to be removed*
The cost for moving or removing obstacles such as utility poles, signposts, and fire hydrants vary too much to be itemized here; however, they are required to be moved if they obstruct access. These costs must be calculated individually for each project.

5. *Structures*
While minor sidewalk projects rarely involve new structures such as a bridge, many projects with significant cuts and fills may require retaining walls and/or culvert extensions. The costs of retaining walls must be calculated individually for each project.

6. *Right-of-way*
Most sidewalk projects can be built within existing rights-of-way (especially infill projects); some projects may require limited acquisition of additional right-of-way easement. An alternative to acquiring right-of-way is to narrow the roadway, which should consider the needs of bicyclists (e.g., through bike lanes or

shoulders, at a minimum of 1.5 m (5 ft).

7. *Miscellaneous factors*
Planters, irrigation, benches, decorative lamp posts, and other aesthetic improvements cost money, but they are usually well worth it if the impetus for the project is to create a more pleasant and inviting walking environment.

When project costs appear to be escalating due to one or more of the above-listed items, especially retaining walls or acquiring right-of-way, consideration may be given to narrowing the sidewalk in constrained areas as a last resort. The full sidewalk width should be resumed in non-constrained areas—this is preferable to providing a narrow sidewalk throughout, or dropping the project because of one difficult section.

Pedestrian Cost Estimates

Corridor	From	To	*Facility Type*	Segment Length (linear foot)	Existing Sidewalk Single Side (linear foot)	Existing Sidewalk Double Side (linear foot)	Sidewalk Recommendation	Sidewalk Needed (linear foot)	Unit Cost (per linear foot)	Min. Width	Total Estimated Cost
US 17	Henderson Dr	Gum Branch Rd	*Sidewalks & Crosswalks*	4200	4200	4200	Both sides	0	50	5	$0
HWY 24	Sybil St	Chaney Ave	*Sidewalks & Crosswalks*	7000	750	2400	Both sides	10850	50	5	$542,500
Henderson Dr	River St	Doris Ave	*Sidewalks & Crosswalks*	4400	4400	4400	Both sides	0	50	5	$0
Henderson Dr	US 17	River St	*Sidewalks & Crosswalks*	3000	750	750	Both sides	4500	50	5	$225,000
Western Blvd	US 17	Huff Dr	*Sidewalks & Crosswalks*	7000	7000	2220	Both sides	4780	50	5	$239,000
Hargett St	HWY 24	Bell Fork Rd	*Sidewalks & Crosswalks*	7000	6550	(2280 total - 1880 existing)	One side; partial double side	850	50	5	$42,500
Western Blvd	Gateway Dr N	US 17	*Multi-Use Trail*	6500	5000	5600*	One side sidewalk; double side multi-use path	2400	50	5' (sw); 10 (multi-use path)	$120,000
Dewitt St	Onslow Dr	Gum Branch Rd	*Sidewalks & Crosswalks*	5200	4600	0	One side	600	50	5	$30,000
New River Greenway	Old Bridge St	Phillips Rd	*Multi-Use Trail*	5600	0	0	Multi-use trail (may need boardwalk)	5600	133	10	$744,800
Gum Branch Rd	E. Doris Ave	US 17	*Sidewalks & Crosswalks*	5200	5000	650	Both sides	4750	50	5	$237,500

*Existing stretch of double side is various widths currently between 5' and 8'

C.3 Per Unit Bicycle and Pedestrian Cost Estimates

General Pedestrian Facility Cost Estimates

Pedestrian Facilities

Facility	Unit	Unit Cost
*Sidewalk	Linear foot	$75 when curb and gutter is included $50 when curb and gutter is not included
High-Visibility Crosswalk (Thermoplastic)	Linear foot	$500
Parallel line Crosswalk (Paint)	Linear foot	$300
Raised Crosswalk (Speed Table)	Linear foot	$2,500
Speed Hump	Linear foot	$1,700-$2,000
Refuge Island	Per Location	$10,000-$40,000
Pedestrian Signal	Per Location	$40,000-$75,000
Pedestrian Signs	Single sign	$250-$350
Curb Extension	Per corner	$5,000-$10,000
Curb Ramp	Per corner	$1,200

Shared-Use Pedestrian and Bicycle Facilities

Facility	Unit	Unit Cost
*Construct 10-foot multi-use path	Linear foot Linear mile	$133 $700,000
*Construct 10-foot sidepath or widen existing sidewalk to 8 feet for ped/bike use	Linear foot Linear mile	$133 $700,000
Construct 10-foot crushed stone walkway	Linear foot Linear mile	$15-$25 $80,000-$106,000
Construct 6- to 8- foot wooden or recycled synthetic material boardwalk	Linear foot Linear mile	$200-$250 $1,000,000-$1,300,000

*Cost includes clearing, grubbing and grading. Geotextile cost or other major costs, including utility relocation, are not included in multi-use path or sidepath estimates. Multi-use paths and sidepaths are asphalt, with 2" asphalt and 6" aggregate base course.

General Bicycle Facility Cost Estimates

On-Road Bicycle Facilities

Facility	Unit	Unit Cost
Install bicycle route signs	Per sign	$250-$350
Install bicycle lanes (on existing pavement or during repaving)	Linear mile	$14,000
Restripe roadway for wide outside lanes	Linear mile	$14,000
Remove existing markings (lane removal or lane width reduction) and install bicycle lanes	Linear mile	$48,000
Install shared lane markings (on existing pavement or during repaving)	Linear mile	$8,000
Construct wide outside lanes (additional lane pavement added during roadway construction)	Linear mile	$300,000

Bicycle Parking Facilities

Facility	Unit	Unit Cost
Bicycle rack (purchase and install)	One rack	$700
Bicycle locker (purchase and install)	One locker	$2,000

Shared-Use Pedestrian and Bicycle Facilities

Facility	Unit	Unit Cost
*Construct 10-foot shared-use path	Linear foot Linear mile	$133 $700,000
*Construct 10-foot sidepath or widen existing sidewalk to 8 feet for ped/bike use	Linear foot Linear mile	$133 $700,000
Construct 10-foot crushed stone walkway	Linear foot Linear mile	$15-$25 $80,000-$106,000
Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot Linear mile	$200-$250 $1,000,000-$1,300,000