

# Town of Jamestown Comprehensive Pedestrian Transportation Plan



**Final Draft  
May 2010**







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# Town of Jamestown Comprehensive Pedestrian Transportation Plan

Adopted by the Jamestown Town Council June 15, 2010

## Town Council

Keith L. Volz , Mayor	Will Ragsdale
Georgia Nixon-Roney, Mayor Pro Tem	R. Brock Thomas
J. Frank Gray	

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### Policies and Programs

There are 6 policies and 8 programs recommended for Jamestown to support pedestrian transportation (pgs. 50-53). Many draft policies were worked into a development ordinance update completed in 2009. See pgs 28-31 for current ordinances related to pedestrian access and accommodation.

#### Policy recommendations include:

- (1) Establish a funding mechanism to share the cost of sidewalk improvements along existing development with private property owners,
- (2) Acquire public access easements along utility corridors as they are established,
- (3) Require pedestrian access for bridge replacement,
- (4) Adopt a Complete Streets policy,
- (5) Adopt a policy of access management that ensures pedestrian safety, and
- (6) Provide bicycle lanes on existing streets where needed.

#### Program recommendations include:

- (1) Conduct a streetlight inventory and gap study to identify areas where pedestrians may feel insecure walking in the evening or early morning,
- (2) Establish sidewalk maintenance agreements with property owners,
- (3) Build a Safe Routes to School program to encourage more parents and children to walk to school,
- (4) Fund a streetscape master plan of the downtown streets and important gateway corridors,
- (5) Establish regular walking programs coupled with community health education,
- (6) Create a Jamestown Trails Map,
- (7) Conduct a pedestrian law enforcement program with Sheriff and other partners, and
- (8) Fund a sidewalk gap closure program to address sidewalk gaps less than 1500 ft.

### Action Plan

The following action plan describes some of the steps necessary to advance the pedestrian transportation plan from a document into action in the first year. Sections and page numbers refer to the full plan document. The steps are not necessarily in sequential order.

2010 Action Items	Partners	More Information
<ul style="list-style-type: none"> <li>o Establish a pedestrian transportation implementation committee to advance high priority projects, policies and programs;</li> <li>o Fund 1 priority sidewalk project, 1 multi-use path project, 3 crossing improvement projects;</li> <li>o Fund a streetscape plan for one or multiple corridors, depending on resource availability</li> <li>o Establish a program to fund sidewalk gaps and a policy on how to equitably reward and fund the program, include guidance on sidewalk maintenance agreements for property owners</li> <li>o Establish a Complete Streets policy that explicitly includes accommodation of pedestrians and bicycles on new bridges</li> <li>o Establish Walking Wednesdays and Jamestown Trails Map</li> </ul>	<p>Members of the community, steering committee members and meeting attendees invited to participate</p> <p>Town Council, sub-contractor, High Point MPO</p> <p>Town Council and Planning Board</p> <p>Town Council, Jamestown Planning and Pedestrian Implementation committee</p> <p>Town Council</p> <p>Guilford County Health Department, Local Businesses and Pedestrian Implementation committee</p> <p>Town Council, Town of Jamestown Planning, Pedestrian Transportation Implementation committee, High Point MPO</p>	<p>See Section 4.1 pg. 54</p> <p>See Section 3.1 pgs. 32-47</p> <p>See Section 3.3 pg. 52</p> <p>See Section 3.3 pgs. 50 &amp; 53</p> <p>See Section 3.3 pg. 50</p> <p>See Section 3.3 pg. 42 &amp; 53</p> <p>See Appendix D pgs. 97-113</p>
<ul style="list-style-type: none"> <li>o Seek funding sources needed to build top priority projects;                             <ul style="list-style-type: none"> <li>• Establish grant writing schedule and seek grants for specific projects to achieve project building goals;</li> <li>• Provide matching money for grant applications;</li> <li>• Establish Jamestown Greenway Trust Fund;</li> <li>• Seek Safe Routes to School Funding;</li> <li>• Increase Capital Program funding for sidewalks;</li> <li>• Seek other funding sources;</li> </ul> </li> </ul>	<p>Town Council, Town of Jamestown, Intem, NCDOT, Pedestrian Transportation Implementation committee and Non-Profit Partners</p>	<p>See Section 3.3 pg. 52 &amp; Appendix D pgs. 97-113</p>

Limited staff resources necessitate the involvement of citizens and advocates in the implementation process. If you are interested in getting involved, please call the Planning Department at 454-1138 or email [mjohnson@jamestown-nc.gov](mailto:mjohnson@jamestown-nc.gov).

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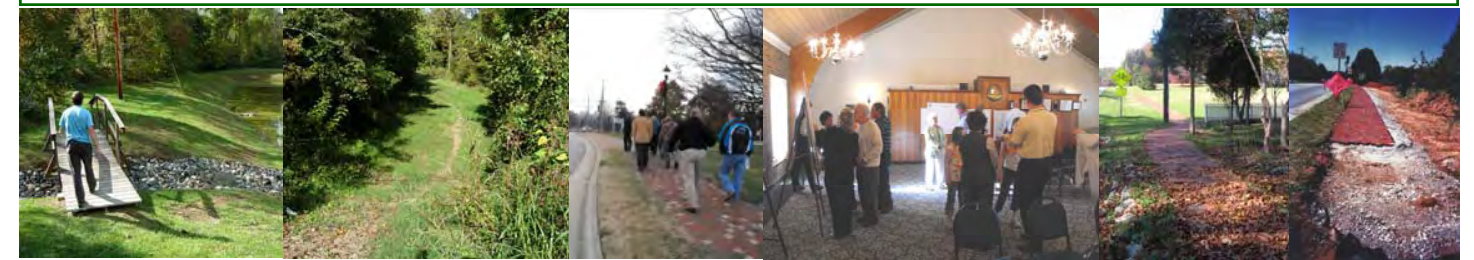
#### Plan Sponsors



Plan Author: Piedmont Triad Council of Governments

# Jamestown Comprehensive Pedestrian Transportation Plan

## Executive Summary



### Organization of the Plan

- CHAPTER 1: Introduction – Scope, Background, History, Vision and Goals
  - CHAPTER 2: Existing Conditions – Demographics, Crash Data, Local Planning Efforts, Community Outreach, Existing Facilities and Ordinances
  - CHAPTER 3: Pedestrian Network Plan – Project Recommendations, Cost Estimates, Policy and Program Recommendations
  - CHAPTER 4: Implementation – Action Plan
  - APPENDIX A: Pedestrian Facility Guidelines
  - APPENDIX B: Pedestrian User Survey
  - APPENDIX C: References
  - APPENDIX D: Funding Sources
  - APPENDIX E: Project Ranking Methodology
  - APPENDIX F: Deep River Trail Plan Summary
- ### Vision and Goals

Evidenced by recent planning efforts (Parks and Recreation Master Plan 2008 and Land Development Plan 2008), the Town of Jamestown has identified a number of goals related to improving pedestrian transportation (e.g. more trails, sidewalk construction, downtown crosswalks, increased river access, pedestrian connections to Gibson Park, etc.). See pg. 3 and 4 of the full report for a list of goals related to pedestrian transportation.

#### Vision for Pedestrian Transportation in 2030

*In the year 2030 the Town of Jamestown will have a pedestrian transportation system that is safe, welcoming and accessible. Greenway connectivity to neighboring Greensboro and High Point encourage walking for exercise and travel. Jamestown's downtown is aesthetic and welcoming, with wide sidewalks, on-street parking, outdoor dining and beautiful tree-lined streetscapes. Major truck traffic uses alternative routes around Jamestown enhancing the Main Street walking environment. Trail and sidewalk circuits connect downtown shops and stores with parks, rivers, community centers, medical facilities, residential areas, the elementary, middle and high school, Guilford Technical Community College and the YMCA. All major and minor roadways and bridges have pedestrian and bicycle access making it easy to get around by walking or bicycling.*

### Overview

Jamestown has a strong network of parks, open space and sidewalks, whether it is Gibson Park, the golf course, the meandering brick sidewalks of downtown or City Lake park, citizens and visitors will find great places to walk. More connections to cultural and recreational points of interest from neighborhoods, schools, downtown and other locations should be made to complete the network. This plan identifies the most critical projects needed to enhance the walking friendliness of Jamestown for personal health, quality of life and community enhancement. A strategy for building pedestrian connections and closing gaps is an important part of this plan as well.

### Implementation

Following adoption of the plan by the Town Council, the important step of implementing plan goals, objectives and action items will take place. See the 2010 and 2011 action plan (page 54) for more detail on steps staff, organizations and citizen volunteers can take to move the plan forward.

Appendix D includes a listing of public and private grant resources that will aid the development of the pedestrian transportation system (page 97-113). Depending on the type of project (e.g. sidewalk vs. multi-use path) and whether it is on public or private land, different funding sources may be appropriate.

Staff time and volunteer efforts from the community will be instrumental in creating the capacity to acquire grants and generate funding for sidewalks, multi-use paths and intersection improvements.

See the Jamestown Pedestrian Transportation Plan map inside showing the location of proposed sidewalks, intersection improvements and multi-use paths.

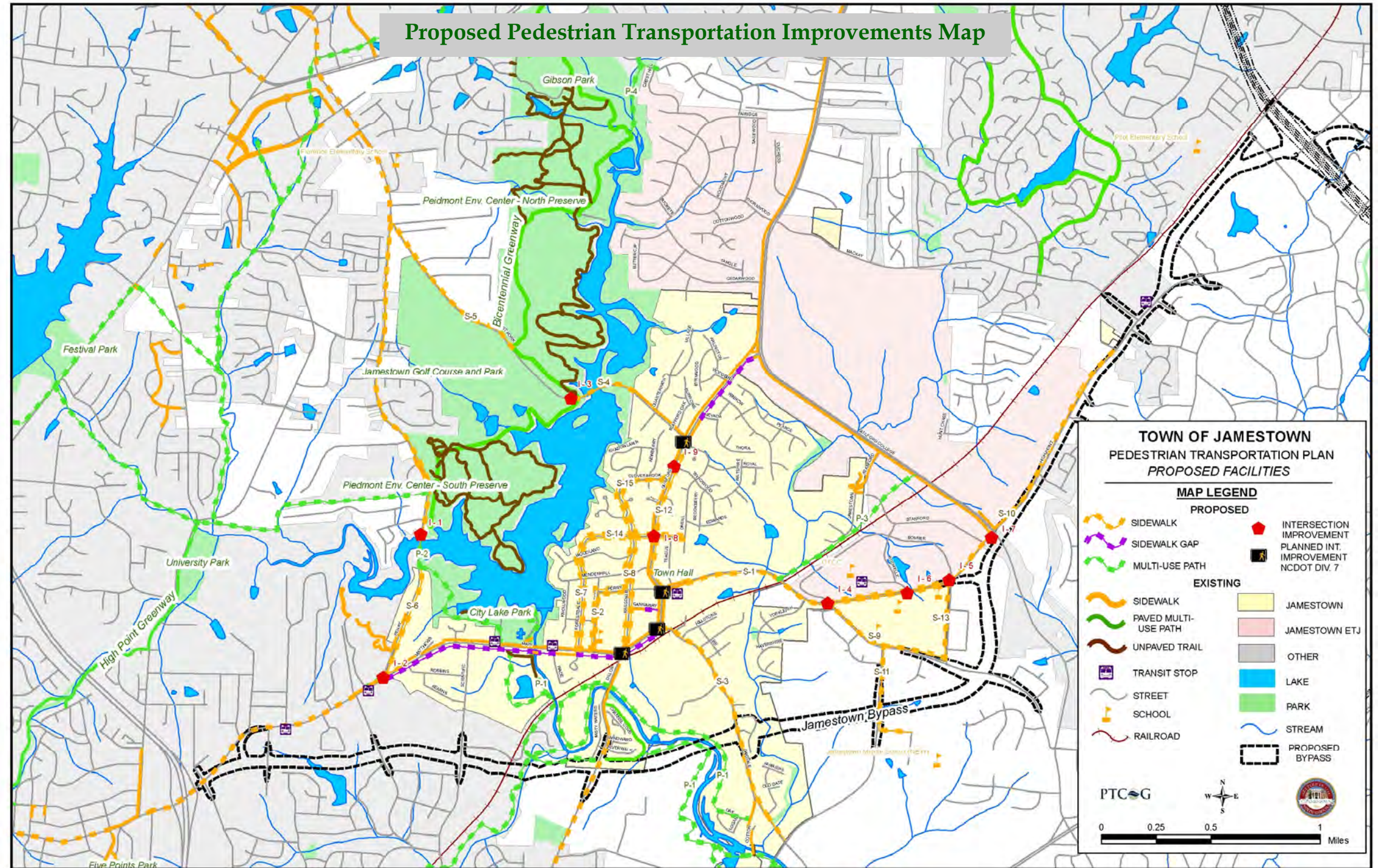


### Jamestown Pedestrian Transportation Network Plan

There are 15 sidewalk projects proposed for Jamestown. The projects have been assigned a priority score (pg. 34) and are based on a prioritization formula described in Appendix E (pg. 114). Cost estimates are calculated for each sidewalk project, excluding engineering and design costs (pg. 35). The length of sidewalk projects total over 14 miles. These improvements are shown in orange dashed lines on the map. Sidewalk gaps are shown as purple dashed lines.

There are 9 intersection improvements recommended (red pentagons), in addition there are 4 intersection projects (walk symbols) being completed in 2010 by the NCDOT Division office (pg. 39). The intersection recommendations may include sidewalks, pedestrian refuge islands, curb extensions, high visibility crosswalks, pedestrian signals or other treatments. Details on specific intersection improvements to enhance pedestrian safety and accessibility and cost is provided in the full report (pgs. 38-47).

Recommended multi-use path improvements are found on the Deep River from City Lake to Business 85, on Penny Road from the existing Bicentennial Greenway to City Lake Park, in Gibson Park to connect with neighborhoods to the northeast and along the NC Railroad from Main Street to Guilford College Road. The length of the 4 multi-use path recommendations total 3.7 miles (pg. 37). These improvements are shown in green dashed lines on the map. Also shown in the map are proposed multi-use paths and sidewalks in the City of High Point. Cost estimates for multi-use paths, sidewalks and intersection improvements will vary based on pavement surface, slope, hydrology, right of way, market trends and engineering obstacles.



Multi-Use Path Cost Estimates

Description	Unit	Unit Cost
Construct 10-foot shared-use path	Linear foot	\$133
	Linear mile	\$700,000
Construct 10-foot crushed stone walkway	Linear foot	\$15-\$25
	Linear mile	\$80,000-\$106,000
Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot	\$200-\$250
	Linear mile	\$1,000,000-\$1,300,000
Trail markers - Flat fiberglass pole 4" wide x 1/8 inch thick.	EA	\$50
1	All items listed include installation costs.	
2	All items reflect 2008 pricing.	
3	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.	

Sidewalk Cost Estimates

Description	Unit	Unit Cost	Notes & Assumptions
Sidewalk Only	LF	\$50 (cost varies widely throughout state)	\$75 when curb and gutter is included \$50 when curb and gutter is not included
Concrete Curb and Gutter Only	LF	\$25 (cost varies widely throughout state)	
1	All items listed include installation costs.		
2	All items reflect 2008 pricing.		
3	Cost for sidewalks and paths includes clearing, grubbing and grading.		
4	Add \$25 per linear foot for brick sidewalks (5ft wide) or \$5 sq/ft to the cost of concrete construction.		





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# 1. INTRODUCTION

## 1.1 SCOPE AND PURPOSE

The Town of Jamestown is situated in the North Carolina Piedmont Triad. Located in the southwestern portion of Guilford County, Jamestown is bounded by Greensboro to the northeast, High Point to the north and west and Business 85 to the south and east. The planning area encompasses the current boundaries of the Town, the extra territorial jurisdiction (ETJ) and annexation agreement area. The area within the Town limits encompasses nearly three (2.98) square miles.

This planning document outlines a strategy for enhancing the walkability or walking friendliness of the Town of Jamestown. The plan looks ahead 20 years, outlining projects, policies and programs that achieve the goal of a safe, comfortable and accessible pedestrian system for all Jamestown residents. Specific objectives are outlined that increase opportunities for daily physical activity, encourage and invite walking in the downtown area, connect parks and open space to residential neighborhoods via trails and sidewalks and make it safe for pedestrians to cross the street. Small, but continued investments in bicycle and pedestrian transportation can provide dividends to the community through increased transportation choices, downtown revitalization, cleaner air and an improved quality of life.

## 1.2 BACKGROUND

The way people move around in their local communities has dramatically changed over the last 60 years. American lives have become increasingly dominated by the automobile and marked by a distinct pattern of physical inactivity. Providing additional safe and accessible places to walk and bicycle will help Jamestown reduce automobile trips and traffic congestion, and in turn, reduce air pollutants and increase the overall health of the community. In addition, providing a wider mix of land uses in close proximity to each other can reduce travel distances, encourage more foot traffic and reduce car trips. Well-designed neighborhoods with ample opportunities for walking and biking can increase quality of life and foster a greater sense of community.

### **Elements of well-designed bicycle and pedestrian-friendly communities**

- Safety - (addressing issues of traffic speed and volume, crime, sidewalk buffering, lighting);
- Access - (well designed sidewalks, bicycle lanes, parking, curb ramps, crossing treatments, connected streets); and
- Comfort - (lighting, benches, ample sidewalk width, compatible land uses, shade).

### **Common design characteristics that serve as some of the basic building blocks of bicycle and pedestrian-friendly communities**

- Connectivity (bicycle routes/lanes, no sidewalk gaps, build cul-de-sac paths and connections between different land uses e.g. residential and commercial);
- Separation from traffic (bike-lanes, planting strips, landscaping, bulb-outs);
- Supportive land-use patterns (mixed use, higher density, design for the pedestrian);
- Designated space (5ft+ sidewalks in residential areas and 8-12ft sidewalks in downtown and around schools);
- Accessibility (curb ramps, crosswalks, ped-head signals, reduced travel lanes);
- Street furniture (places to sit, drinking fountains, trash receptacles); and
- Security and visibility (lighting, landscaping and ample site distance).

Source: US DOT/Federal Highway Administration

Jamestown cannot achieve a walkable community by itself. Cooperation with state and regional organizations, as well as buy-in from neighboring jurisdictions is integral to improving transportation options, while encouraging mixed land use, aesthetic public spaces to walk, transport and recreate.

### **1.3 HISTORY**

Walking is not as prevalent as it once was in our country. In 1969, an average of 42% of school children walked or bicycled to school nationwide. By 2001 only 16% of school children walked or bicycled to school (CDC, 2005). About 2.7% of Jamestown residents walk or bicycle to work, compared with 2.1% statewide (Census, 2000). The change in walking to school is partly due to increased distance from school but is also influenced by the lack of a pedestrian or bicycle-friendly transportation system.

More and more communities are taking steps to update their land development regulations, provide walking and bicycling trails and improve road construction that includes bicycle and pedestrian accommodation. Jamestown has recently written a Comprehensive Land Development Plan, updated the Development Ordinance and has conducted a downtown marketing study. Neighboring communities have also begun to address bicycle and pedestrian transportation issues by conducting comprehensive planning studies, including High Point (Greenway Plan 2008), Greensboro (Bicycle, Pedestrian and Greenway Plan 2006) and Thomasville (Bicycle Plan 2009).

### **1.4 VISION AND GOALS**

The plan steering committee outlined a vision and set of goals for Jamestown's pedestrians in 2030. The vision statement and goals were refined using public comments, meetings and survey input. The vision and goals serve to frame the development of the comprehensive pedestrian transportation plan recommendations found in Chapter 3.

#### **Vision Statement**

In the year 2030 the Town of Jamestown will have a pedestrian transportation system that is safe, welcoming and accessible. Greenway connectivity to neighboring Greensboro and High Point encourage walking for exercise and travel. Jamestown's downtown is aesthetic and welcoming, with wide sidewalks, on-street parking, outdoor dining and beautiful tree-lined streetscapes. Major truck traffic uses alternative routes around Jamestown enhancing the Main Street walking environment. Trail and sidewalk circuits connect downtown shops and stores with parks, rivers, community centers, medical facilities, residential areas, the elementary, middle and high school, Guilford Technical Community College and the YMCA. All major and minor roadways and bridges have pedestrian and bicycle access making it easy to get around by walking or bicycling.



The following goals are divided into a) short term and b) mid to long term. As each goal is achieved, Jamestown will take steps towards its pedestrian transportation vision. See Chapter 3 project, policy and program recommendations for specific recommendations related to each goal.

### **SHORT TERM GOALS (0-5 YEARS)**

#### **Intersection Safety and Accessibility**

- Build crosswalks and improve safety and accessibility at heavily traveled intersections and
- Improve driveway design on Main St. to accommodate pedestrian travel.

#### **Sidewalk and Trail Network Expansion and Connectivity**

- Provide accessible sidewalks to, around and between schools (elem., middle, high and GTCC);
- Construct walkways along all main streets and thoroughfares;
- Connect sidewalks to walking trails;
- Put sidewalk project on ground for E. Fork Rd.;
- Build sidewalks on routes people are currently walking to improve safety;
- Develop Guilford Rd. Park with benches and passive recreation activities for pedestrians; and
- Provide a comprehensive signed pedestrian network in the downtown area.

#### **Streetscape Enhancement**

- Strategically place park benches and trash containers downtown;
- Improve lighting along sidewalks and
- Plant trees along sidewalks.

#### **Policy and Program Development**

- Seek funding opportunities & partnerships;
- Develop capital improvement program funding for pedestrian transportation;
- Establish priority list of trail and sidewalk needs with regular review schedule;
- Create a greenway map (trail map) for Jamestown; and
- Develop a maintenance plan for sidewalk replacement and repair.

#### **Other**

- Add bicycle lanes to existing arterials.

## **MID TO LONG TERM GOALS (6-20 YEARS)**

### **Intersection Safety and Accessibility**

- Provide comprehensive handicapped accessibility.

### **Sidewalk and Trail Network Expansion and Connectivity**

- Complete pedestrian bridges over City Lake (e.g. Penny Road and E. Fork Road), creating a 5 mile circuit around the lake and access to the Piedmont Environmental Center and High Point;
- Complete network of sidewalks and trails to GTCC, YMCA and the schools;
- Build sidepath to the new middle school;
- Build well-defined bicycle paths;
- Develop the multi-use path network to connect with adjacent municipalities; and
- Complete sidewalks on all collector streets.

### **Streetscape Enhancement**

- Make downtown attractive and pedestrian friendly with outside dining, benches and landscaping;
- Well-known active downtown with walking, shopping and dining and
- Expand street trees, plantings, benches and trash bins.

### **Policy and Program Development**

- Revisit this plan for reprioritization, revamping and evaluation every 5 years;
- Establish street standards that are 32' wide to allow for bicycle lanes, which will increase the buffer of vehicular traffic for pedestrians;
- Acquire properties or easements to construct trails/sidewalks; and
- Improve older sidewalks to make them more accessible and inviting.

### **Traffic Calming**

- Re-direct truck traffic around downtown and
- Implement traffic calming measures on Town streets. (e.g. bulb-outs in front of Town Hall and other key intersections on Main Street)

### **Other**

- Develop mixed-use areas as town expands that promote walking to businesses & services and
- Market popular historic walking tour and offer horse-drawn carriage rides.



## 2. EXISTING CONDITIONS

### 2.1 OVERVIEW

This chapter analyzes the existing conditions in Jamestown that relate to the pedestrian transportation system. A review of relevant demographic factors, existing plans, existing sidewalk system, crash data and a summary of community concerns and issues are discussed.

### 2.2 DEMOGRAPHICS

#### SUMMARY OF PRIMARY DEMOGRAPHICS

Table 2.1 - Town of Jamestown Demographic Overview

Demographic Feature	Statistic
Population, 2007	3,369
Land Area, 2007 (square miles)	2.98
Persons per Square Mile, 2007	1,130.5
Population gained, 2000-2007	281
Population Growth Rate (2000-2007)	9.1%
Percent Minority Residents	13.2%
Median Age	40.2
Average Household Size	2.51
Homeownership Rate (2000)	74.8%
Percentage of Adults with a High School Diploma	91.1%
Median Household Income	\$ 57,331
Poverty Rate	5.3%

Sources: NC Office of State Budget and Management, State Demographer, 2007 estimates released in September 2008; US Census Bureau, 2000 Census of Population and Housing, SF1 and SF3 file, US Census Bureau.

#### POPULATION AND GROWTH

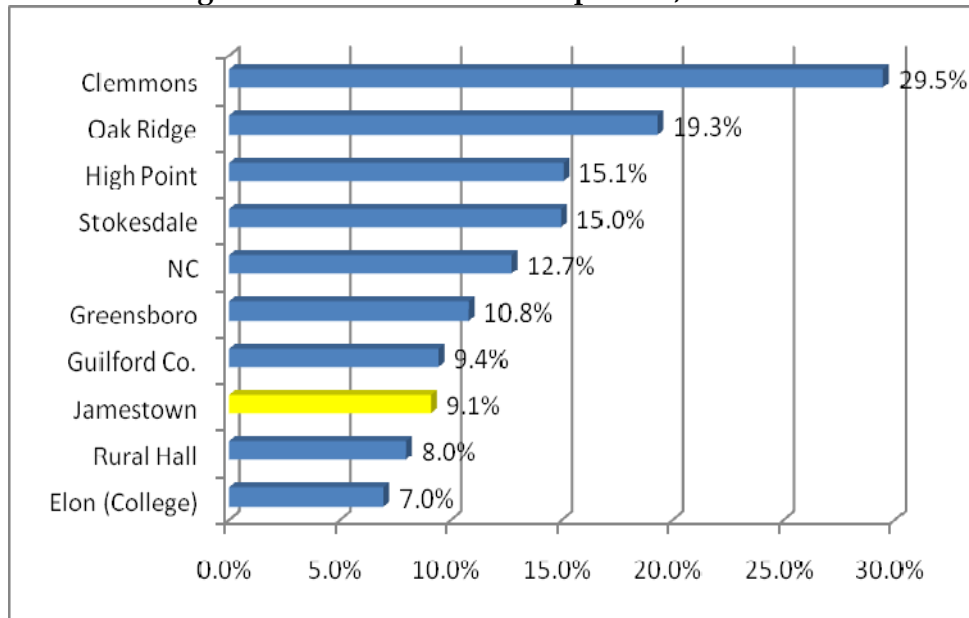
Jamestown was founded in 1816 and officially incorporated in 1947. Jamestown’s current population is 3,369 residents, making it the seventh largest municipality in Guilford County and the 174th largest in NC. The land area of Jamestown is just under 3 square miles. In some of the demographics found below, Jamestown is compared to peer communities. These peer communities reflect development trends in similar sized communities in the Piedmont Triad. Each of the peer communities are considered residential (bedroom) communities in which most residents work in neighboring urban areas. In the last 20 years, Jamestown’s growth has lagged behind the comparison areas, particularly cities with an abundance of open land area for residential housing. So far this decade Jamestown has seen slightly lower growth rates than the county overall.

**Table 2.2 - Population Comparison**

	2007	2000	1990	1980	1970	1960	1950
Clemmons	17,902	13,827	6,020	4,842	n/a	n/a	n/a
Elon (College)	7,219	6,748	4,448	2,873	2,150	1,284	1,109
<b>Jamestown</b>	<b>3,369</b>	<b>3,088</b>	<b>2,662</b>	<b>2,148</b>	<b>1,297</b>	<b>1,247</b>	<b>748</b>
Oak Ridge	4,758	3,988	n/a	n/a	n/a	n/a	n/a
Rural Hall	2,660	2,464	1,652	1,336	1,289	1,503	n/a
Stokesdale	3,756	3,267	2,134	n/a	n/a	n/a	n/a

Source: US Census Bureau, 1950 and the NC Office of Budget & Management, 2007.

**Figure 2.1 - Growth Rate Comparison, 2000-2007**



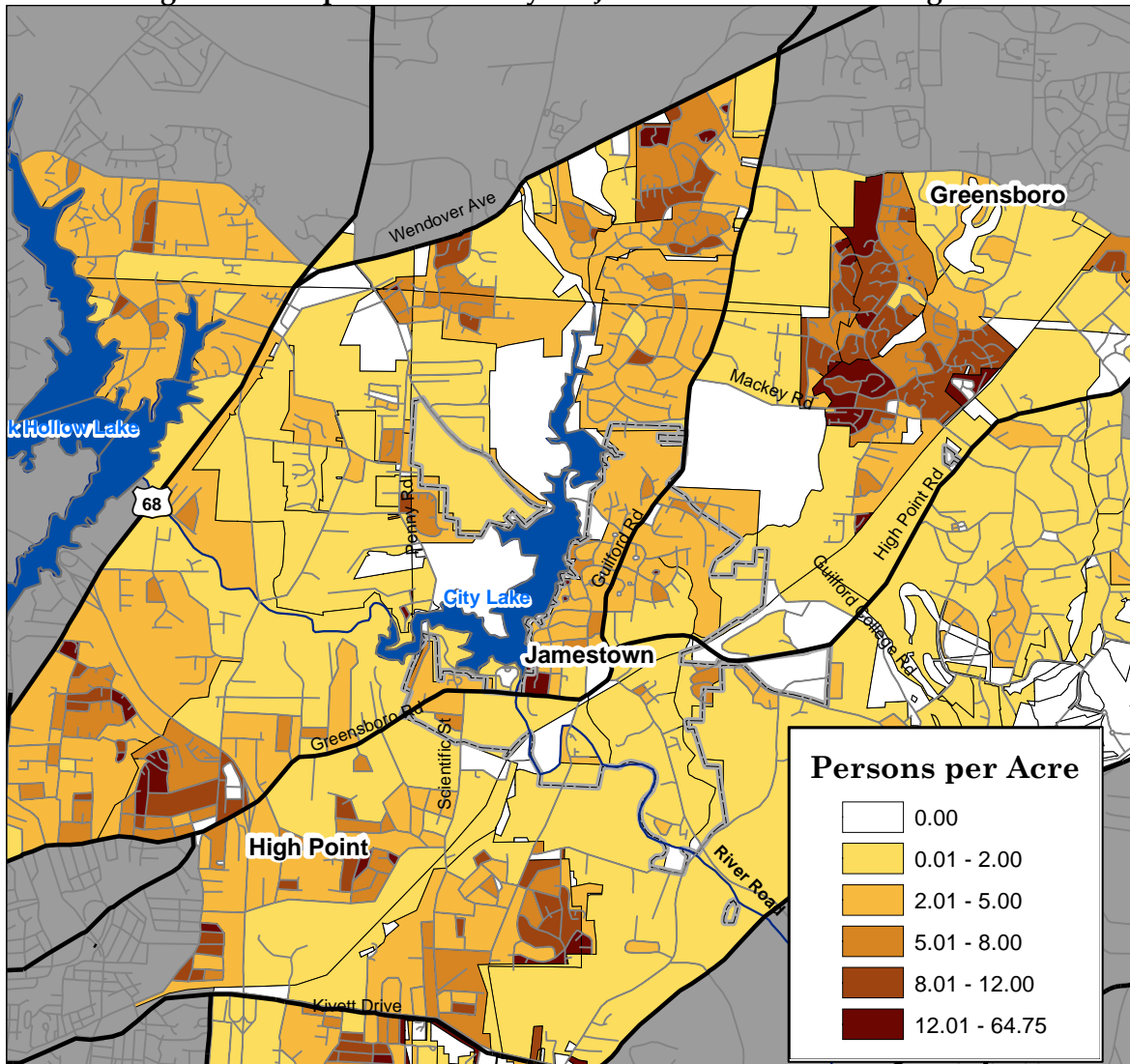
Source: NC Office of Budget & Management, State Demographer, 2007.



## POPULATION DENSITY

Most areas within Jamestown typically have about the same density (1-5 people per acre), with areas around Guilford Road and some multi-family housing areas on Main Street showing the highest densities. Densities are substantially higher in areas of Greensboro and High Point, particularly in the Adams Farm Community and along Bridford Parkway in Greensboro and along Kivett Drive in High Point.

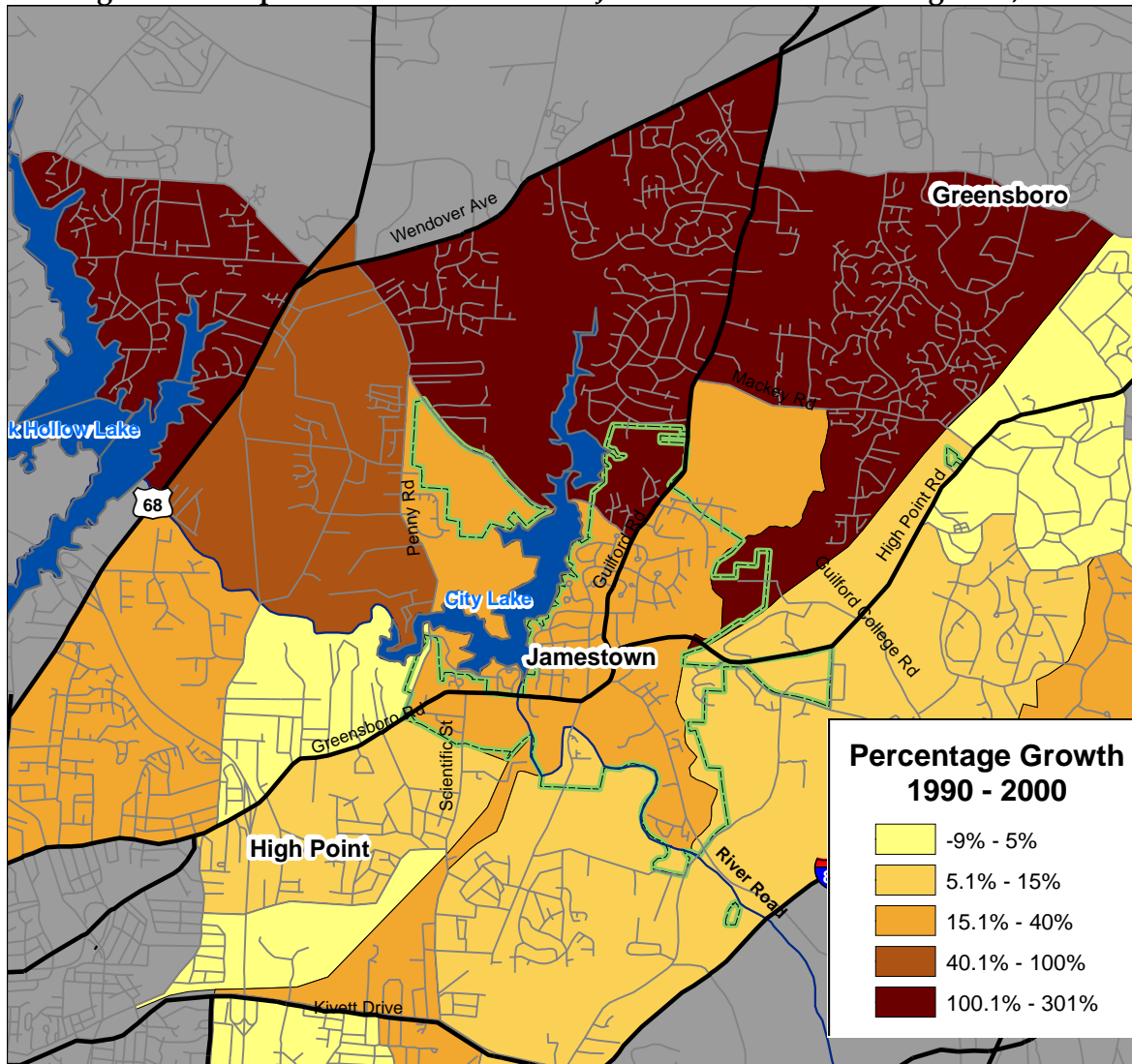
**Figure 2.2 - Population Density for Jamestown & Surrounding Area**



Source: 2000 Census of Population & Housing, SF1 File.  
Data mapped at the block level by the PTCOG Regional Data Center.

Most areas around the Jamestown community saw moderate growth in the 1990s. Population growth was highest in areas just north of the town limits up to Wendover Avenue. Population growth was substantially lower on the western side of town - the more urbanized portions of High Point - and in areas to the south of Jamestown to Business 85.

**Figure 2.3 - Population Growth Rate for Jamestown & Surrounding Area, 1990-2000**



Source: 1990 and 2000 Census of Population & Housing, SF1 and STF1 Files.  
Data mapped at a block group level by the PTCOG Regional Data Center.



**RACE AND ETHNICITY**

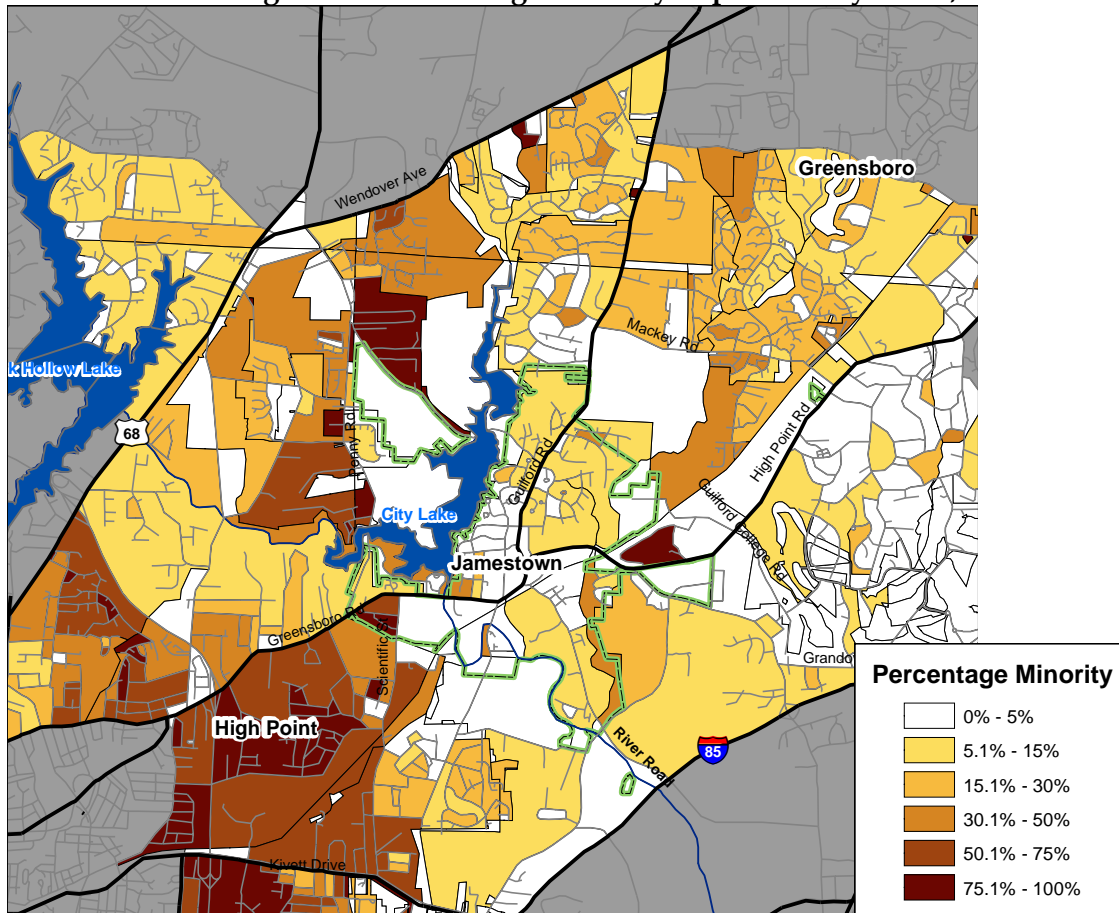
Relatively few minorities live in Jamestown. Almost 88% of residents are non-Hispanic whites. Similarly, most of the comparison areas also have few minority residents.

**Table 2.3 – Jamestown Population by Race and Ethnic Origin, 2000**

RACE	
White alone	87.6%
Black or African American alone	7.4%
American Indian or Alaska Native alone	0.2%
Asian alone	2.3%
Native Hawaiian or Pacific Islander alone	0
Some other race alone	0%
Multi-racial	0.6%
ETHNICITY	
Hispanic or Latino origin (of any race)	1.8%

Source: 2000 Census of Population & Housing, SF1 File.

**Figure 2.4 – Percentage Minority Population by Block, 2000**

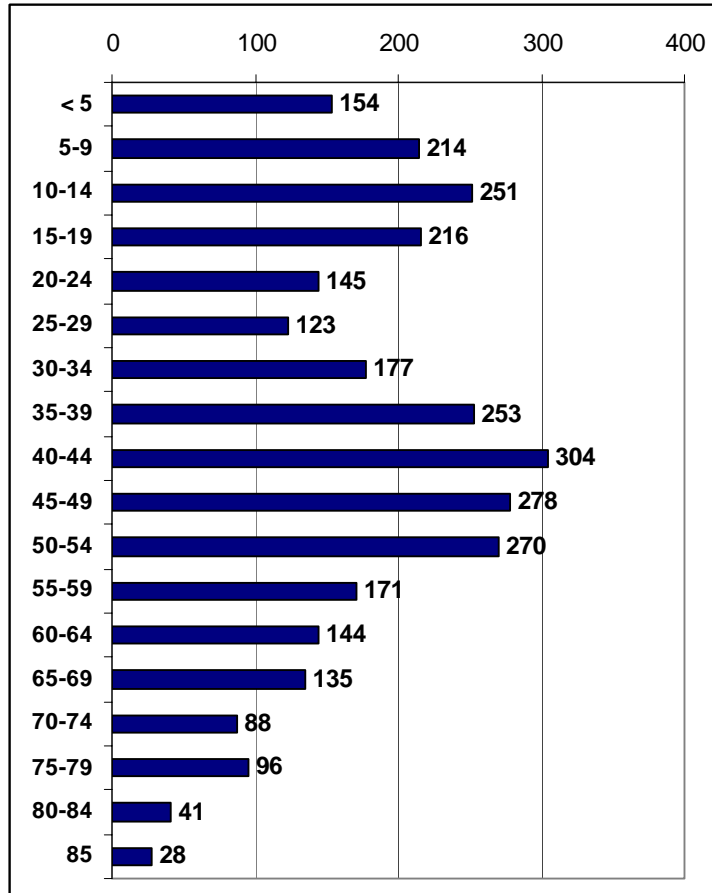


Source: 2000 Census of Population & Housing, SF1 File.

**AGE**

The largest single age group within Jamestown is persons age 40-44, followed by persons age 45-49, and 50-54. Between 1990 and 2000, the only age groups to lose population were 20-24 and 25-29.

**Figure 2.5 – Jamestown Age Group Distribution, 2000**

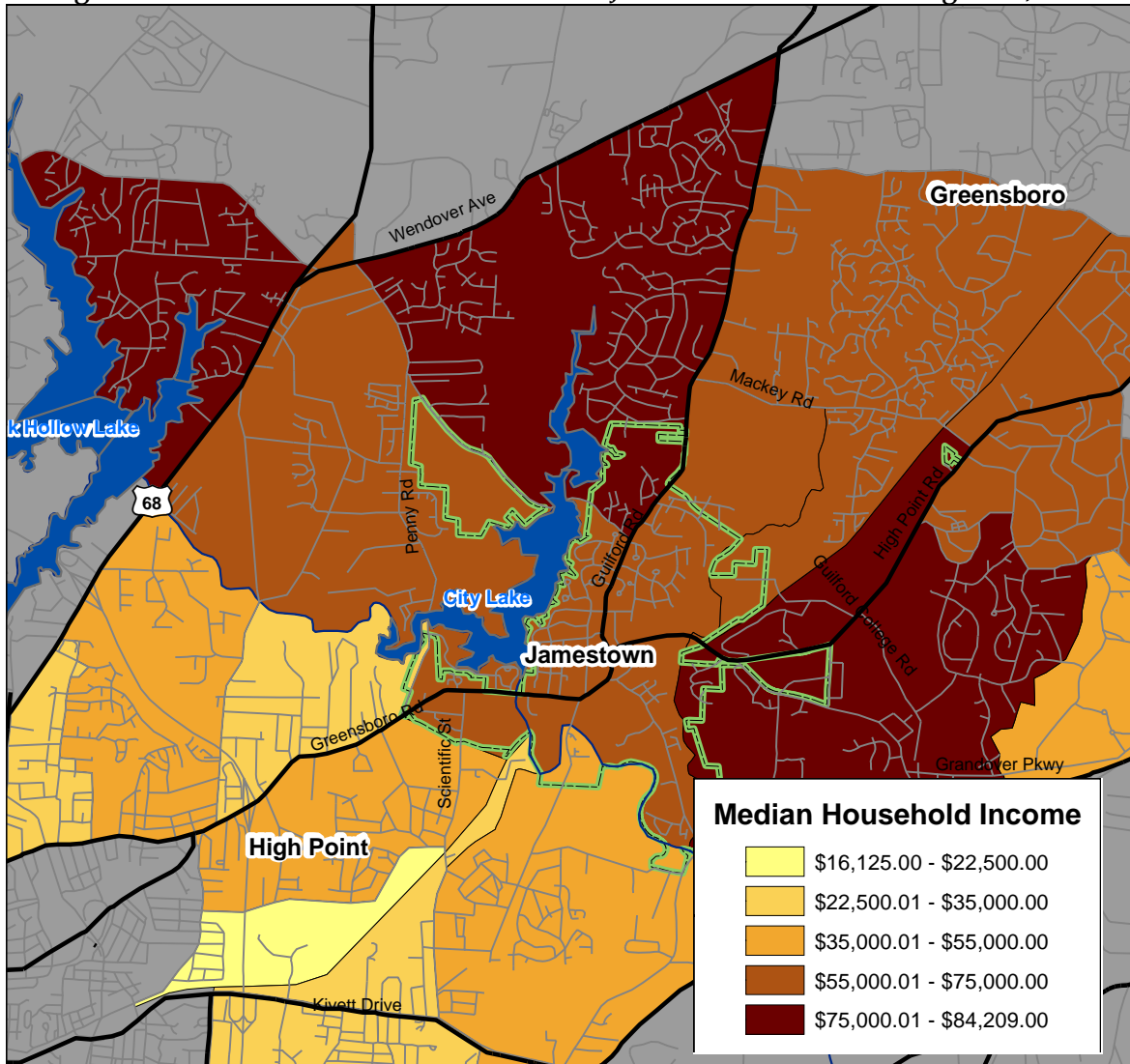


Source: 2000 Census of Population & Housing, SF1 File.





Figure 2.7 - Median Household Income for Jamestown & Surrounding Area, 2000



Source: 2000 Census of Population & Housing, SF3 File.

The overall poverty rate in Guilford County is twice as high as the poverty rate in Jamestown. The poverty rate of persons age 65 and older is the lowest among the comparison areas.

**Table 2.5 – Poverty Rate Comparison, 2000**

	<b>Overall</b>	<b>Children</b>	<b>Elderly</b>
Clemmons	3.5%	3.6%	8.5%
Elon	20.9%	6.5%	9.9%
<b>Jamestown</b>	<b>5.3%</b>	<b>6.9%</b>	<b>1.3%</b>
Oak Ridge	3.8%	3.6%	3.8%
Rural Hall	8.9%	10.9%	9.8%
Stokesdale	5.3%	5.7%	12.9%
Guilford County	10.6%	13.8%	9.9%
NC	12.3%	15.7%	13.2%

Source: 2000 Census of Population & Housing, SF3 File.

The disability rate of Jamestown residents is less than that of North Carolina in all categories.

**Table 2.6 – Disability Status, 2000**

Jamestown residents by Age Range	with a disability	% Disabled Jamestown	% Disabled North Carolina
Age 5 - 20	26	4.3%	8.5%
Age 21-64	209	12.0%	21%
Age 65+	91	23.6%	46%
Total	326	11.9%	21%

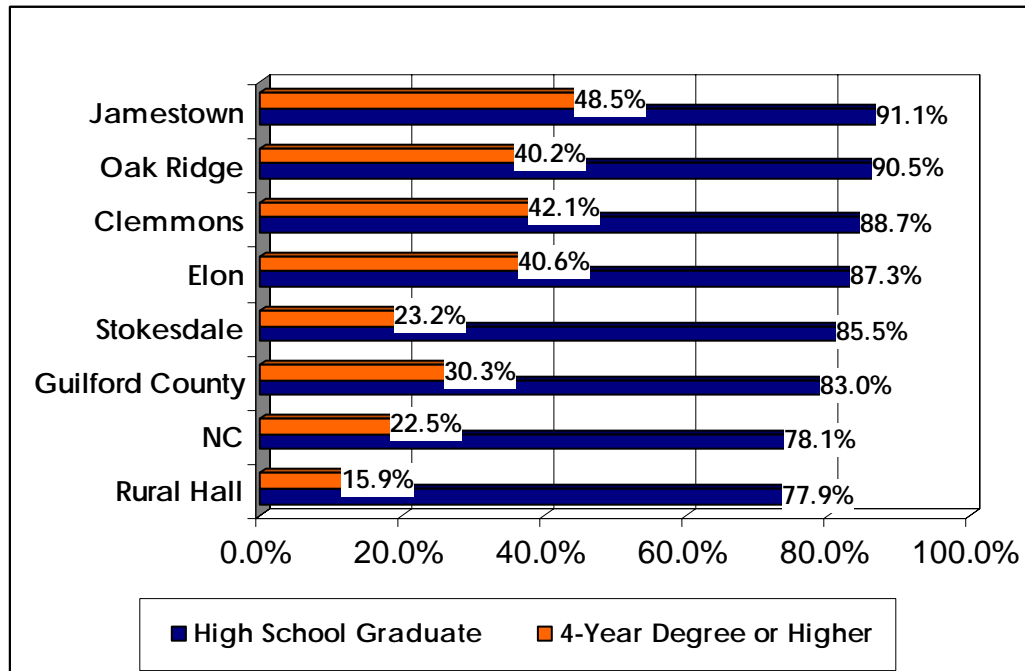
Source: 2000 Census of Population & Housing, SF3 File.

**EDUCATIONAL ATTAINMENT**

Jamestown’s educational attainment rates among adults are the highest among the comparison areas and among the highest throughout the state. In fact, the percentage of Jamestown adults with a college degree is the 27<sup>th</sup> highest in the state, and the 2<sup>nd</sup> highest in the 12-county Piedmont Triad Region. Only Bermuda Run, an exclusive gated community in Davie County, has higher educational attainment rates in the Piedmont Triad region.



**Figure 2.8 - High School & College Graduation Comparison, 2000**



Source: 2000 Census of Population & Housing, SF3 File.

**TRANSPORTATION TO WORK, OUT-MIGRATION AND TRAVEL TIME**

Almost 73% of adults in Jamestown (1,659 people) are in the labor force. Many of Jamestown residents drive to work, more than the average for North Carolina. The number of residents who work from home is also higher than the state average.

**Table 2.7 - Journey to Work Mode Share and Travel Time**

Mode	Jamestown	NC
Car, truck, or van -- drove alone	85.9%	79.4%
Car, truck, or van - carpoled	5.9	14
Public transportation (including taxicab)	0.0	2.6
Walk or Bicycle	2.7	2.1
Worked at home	5.6	2.7
Mean travel time to work (minutes)	20	34

Most Jamestown residents do not work in Jamestown, but more than 2/3 work in Guilford County, primarily High Point or Greensboro.

Figure 2.9 - Cities Where Jamestown Residents Work, 2006

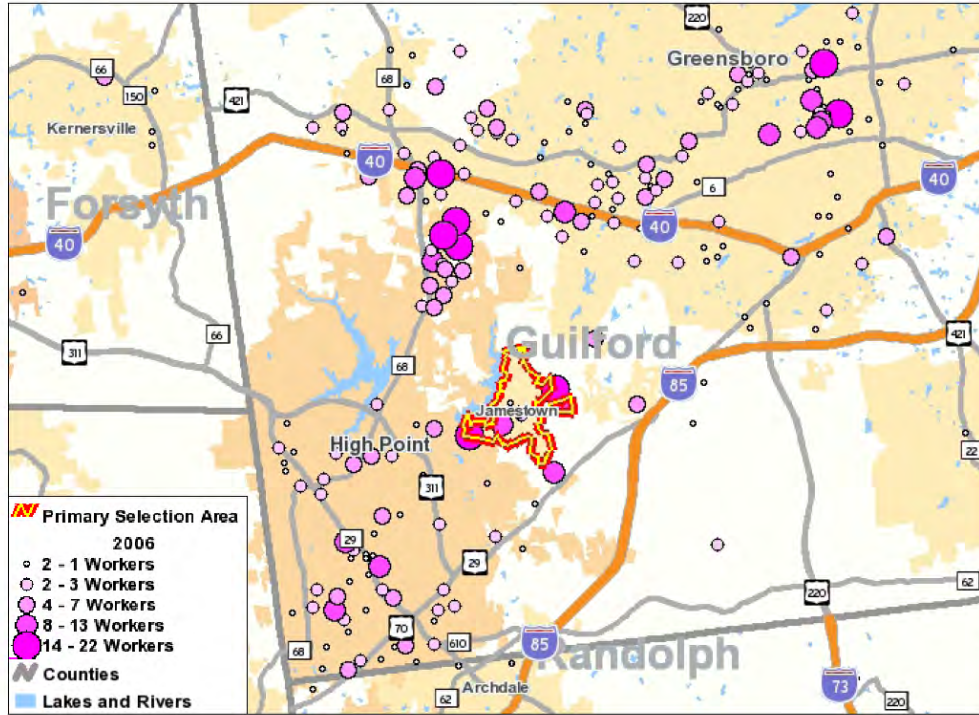


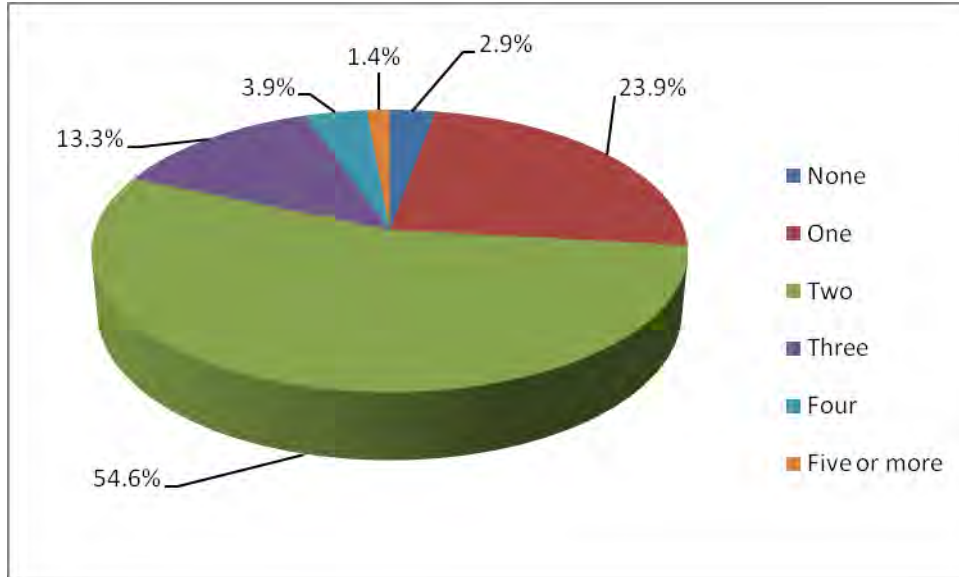
Table 2.8 - Job Counts in Cities Where Jamestown Residents are Employed, 2006

Municipality	# of Residents	% of Residents
Greensboro, North Carolina	713	38.8%
High Point, North Carolina	423	23.0%
Winston-Salem, North Carolina	88	4.8%
Charlotte, North Carolina	62	3.4%
Jamestown, North Carolina	55	3.0%
Thomasville, North Carolina	27	1.5%
Raleigh, North Carolina	26	1.4%
Kernersville, North Carolina	22	1.2%
Archdale, North Carolina	18	1.0%
Durham, North Carolina	17	0.9%
All Other Locations	385	21.0%

Source: 2006 Census Commute Shed Report

Less than 3% of households in Jamestown do not have access to a vehicle. Another 24% have one vehicle available, while almost 73% have access to two or more vehicles.

**Figure 2.10 - Vehicles available Per Household**



Source: 2000 Census of Population & Housing, SF3 File

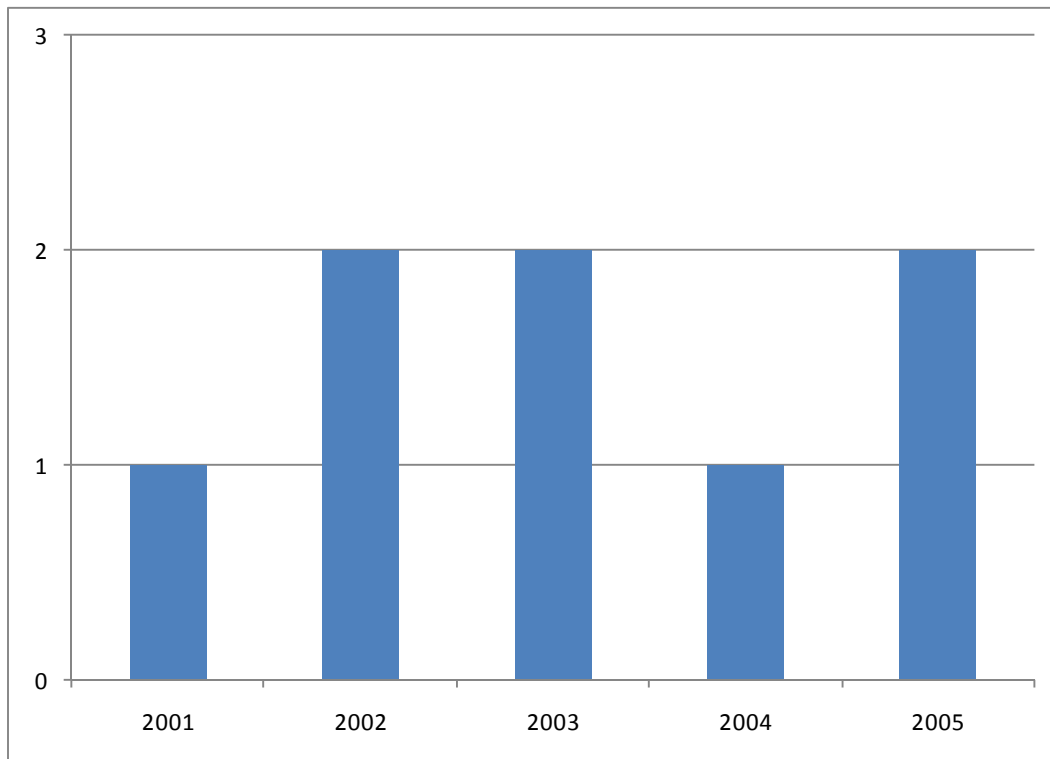


## 2.3 CRASH DATA

Crash data provides insight into problem areas or dangerous locations for pedestrians. However, it does not tell the whole story. Unsafe pedestrian or bicycle transportation environments discourage bicycle or pedestrian use and may reduce the total number of crashes, but through less use of non-motorized transportation. Specific pedestrian or bicycle safety improvements will reduce the likelihood of crashes, while encouraging more non-motorized transportation.

A review of the Highway Safety Research Center crash database and the North Carolina Department of Transportation Bicycle Pedestrian Program's information reveals 8 pedestrian crashes between 2001 and 2005 and one bicycle crash in the same time period in the city limits of Jamestown. The crash data that has location information has been mapped (see Figure 2.6.1) and includes 3 bicyclist crashes in the 1990s. Figure 2.11 shows the number of pedestrian crashes by year between 2001-2005.

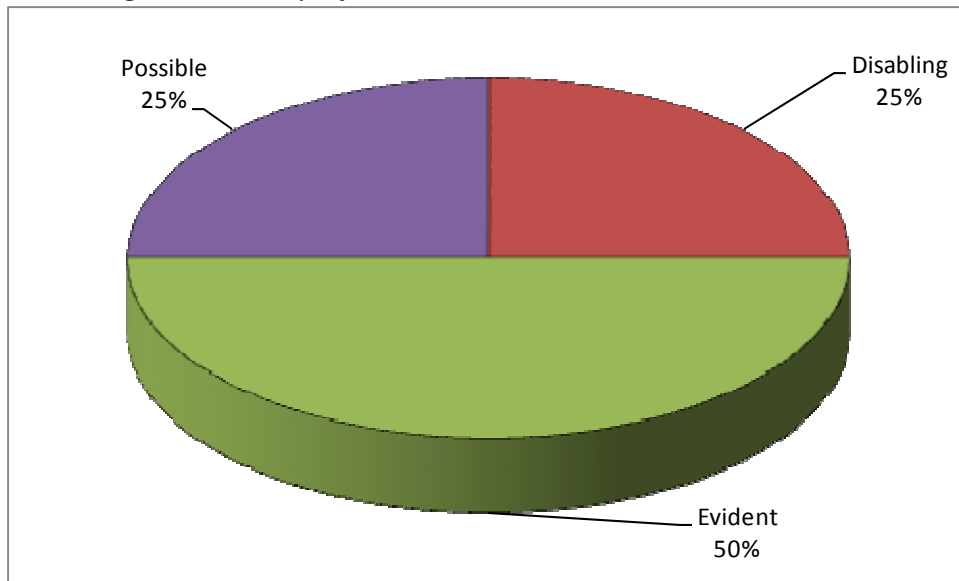
**Figure 2.11 - Number of Pedestrian Crashes by Year, 2001-2005**



Source: NCDOT Bicycle and Pedestrian Crash Database (Highway Safety Research Center, UNC)

Two of the 8 pedestrian crashes between 2001 and 2007 had “disabling injury” or 25% and 4 out of 8 or 50% had “evident injury”.

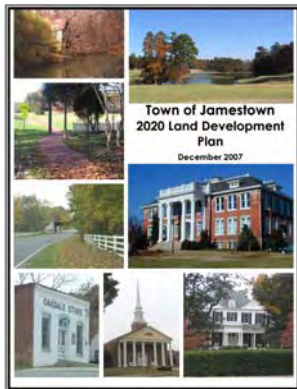
**Figure 2.12 - Injury Level of Pedestrian Crashes, 2001-2007**



## 2.4 LOCAL AND REGIONAL PLANNING EFFORTS

Pedestrian elements from previous planning efforts in Jamestown support providing a walkable community environment, an overarching part of Jamestown’s vision. Regardless of the planning effort, community interest consistently points towards sidewalk or trail improvements along busy road corridors and connections to existing or future parks.

The Urban Design Assistance Team (UDAT) Plan (1997) identified specific pedestrian improvements, including pedestrian connections over City Lake, sidewalks in downtown and trail development in the existing parks system. The plan catalyzed investment in the sidewalk system, which began in 1996 and now totals 3.6 miles in length.



The Land Development Plan (2007) outlines strategies for influencing how future land development may preserve the small town character of Jamestown. Many of the strategies include pedestrian elements, including sidewalk connectivity, sidewalk buffers, ordinances supporting walkability and the Deep River corridor water and land trail development, etc.

The Parks and Recreation Master Plan (2007) explored improvements to Jamestown’s well utilized parks and recreation system. A public survey and community meeting was conducted as part of the planning process. The top two priorities reported by the 409 parks and recreation master plan survey respondents include 1) addition of greenway/hiking trails and 2) pedestrian connectivity. There are currently over 13 miles of multi-use and hiking trails in Jamestown.

Ongoing planning efforts include the development of the Deep River Trail Plan. This planning effort includes the identification of potential water access points for canoes and kayaks and a land based trail. Contact with landowners and landscape architecture sketches of potential access sites is part of the Deep River Trail Plan. These access site locations will be logical connection points for a future land based trail along the Deep River.

Jamestown is a member of the High Point MPO. The High Point MPO completed a Long Range Transportation Plan (LRTP) update in February 2009. The plan is not fiscally constrained and includes projects through the year 2035. Section 4.3 of the LRTP, the Bike and Ped Element, explores bicycle and pedestrian transportation issues and the transportation system. The plan outlines sidewalk improvements along Penny Rd and East Fork Road across key bridges and a sidewalk along Dillon Road. In addition trail improvements along the south side of City Lake and along the Deep River are also identified. The LRTP also includes important general objectives for pedestrian transportation (p. 1 and 2 of Section 4.3):



### **Economic Development**

- Provide good walk access to transit stops and park and ride lots on both the Hi-Tran system and the PART system; and
- Provide good non-motorized connectivity to key educational and training campuses within the High Point Metropolitan Area.

### **Safety**

- Provide safe and convenient off-road or near road facilities for recreation and commuting;
- Improve the safety of transit riders by providing safer walk access to the transit system; and
- Improve the safety of disabled users by meeting the intent of the Americans with Disabilities Act.

### **Accessibility**

- Improve the accessibility to key destinations by adding bike lanes, sidewalks, and trails linking major destinations such as shopping malls, libraries, athletic fields, schools, and historic sites; and
- Improve accessibility to key destinations by providing good walk and bicycle access to transit routes.

### **Environmental Protection and Quality of Life**

- Improve the quality of life by connecting schools to neighborhoods using sidewalks, bicycle lanes, and trails;
- Improve the quality of life by providing good outdoor recreational activities using sidewalks, bicycle lanes, and trails; and
- Improve the quality of life by connecting key local destinations using sidewalks, bicycle lanes, and trails.

### **System Preservation**

- Make use of abandoned or unused rail rights-of-way as new multi-purpose transportation facilities.

There are other objectives in the LRTP relating to improving intermodal connectivity and improved project delivery time.

## 2.5 COMMUNITY OUTREACH AND INVOLVEMENT

The Jamestown Comprehensive Pedestrian Transportation Plan steering committee convened in December of 2008 and has met 5 times during the planning process. The steering committee is comprised of a broad section of Jamestown residents and is charged with guiding the planning process. Project, policy and program ideas were generated by the steering committee and have informed staff about specific objectives (e.g. where projects should be built, what policies related to walkability fit in with the community of Jamestown). Five steering committee meetings were held:

Meeting 1: December 4, 2008 (Visioning and Goals)

Meeting 2: February 5, 2009 (Sidewalk and Trail Projects Workshop)

Meeting 3: April 2, 2009 (Policies and Programs Workshop)

Meeting 4: July 13, 2009<sup>1</sup> (Discussion of draft project, policy and program recommendations)

Meeting 5: October 21, 2009 (Discussion of final project, policy and program recommendations)



*Public Meeting Attendees Discuss and View Maps*

Two public meetings were held to solicit feedback and ideas for pedestrian transportation in Jamestown. The first meeting was held April 16, 2009 at Town Hall and featured a presentation on walkable communities. A series of maps and survey questions were posted on the wall to solicit ideas on sidewalk, trail and lighting projects, as well as specific policies or programs that would improve access and safety for pedestrians. There were 15 attendees at the April 16<sup>th</sup>, 2009 meeting. The second

public meeting was held September 14<sup>th</sup>, and there were 18 attendees. The draft plan and recommendations were presented and discussed. Important feedback on the plan recommendations was received and incorporated into the project, policy and program recommendations found in Chapter 3.

<sup>1</sup> Joint meeting of steering committee, planning board and City Council

In addition to steering committee and public meetings, the public involvement process included a pedestrian user survey. The survey consisted of 10 questions related to pedestrian transportation and was conducted from April to June 2009. There were paper surveys distributed at key community locations such as Town Hall and the Library. An identical survey was also available online and a link included with Jamestown’s water bill in May 2009. There were 71 responses to the pedestrian user survey. The summary results are provided here and full results of the survey with charts and comments can be found in Appendix B.

### ***Pedestrian User Survey Questions and Summary Results***

1. How *important* to you is the goal of creating a walking-friendly community?
  - **96% of respondents think the ‘goal of creating a walking-friendly community’ is ‘important’ or ‘very important’;**
2. How *often* do you walk or run now?
  - **83% of respondents walk a ‘few times per week’ (48%) or ‘5+ times per week’ (35%) ;**
3. For what *purpose* do you walk now and how far? If you do not walk now, for what purpose would you walk in the future?
  - **Over 50 respondents walk over a mile for ‘fitness or recreation’ and most trips ¼ mile or less are done for ‘transportation’ (15 responses);**
4. What is the biggest factor that *discourages* you from walking?
  - **34% report ‘lack of sidewalks and trails’, 19% report ‘pedestrian unfriendly streets/land use’ and 15% report ‘lack of time’ as the #1 ‘factor discouraging’ them from walking;**
5. What walking destination would you *most like* to get to?
  - **27% report ‘City Lake Park’ and 25% report ‘Gibson Park trails’ as the #1 walking destination they ‘would most like to get to’;**
6. What is the most important action you think is *needed to increase* walking in the community?
  - **43% report ‘New sidewalks’, 18% report ‘Improved greenway trail systems’ and 16% report ‘More pedestrian friendly land-uses’ as the #1 action ‘needed to increase walking in the community’;**
7. What is the most *important consideration* in determining locations for new sidewalks?
  - **26% report ‘Filling gaps of missing sidewalk’, 25% report ‘Pedestrian safety’, 21% report ‘Connecting to greenway trails’ and 21% report ‘Residential neighborhoods’ as the #1 ‘most important consideration for determining locations to develop future sidewalks’;**
8. Please indicate what you think should be the primary source of funding for sidewalk, multi-use trail and lighting improvements?
  - **31% report ‘Bond Referendum’, 26% report ‘Impact Fees on New Development’, 18% report ‘Public/Private Partnerships’ and 15% report ‘Property Tax’ as the #1 preferred ‘primary source of funding for sidewalks, multi-use trails and lighting in Jamestown’;**
9. What do you think are the *top roadway* corridors most needing pedestrian improvements?
  - **SIDEWALK/TRAIL: East Fork Rd (18 comments); Oakdale Rd (14); Penny Rd (8) and Main St to Schools/YMCA (4);**
  - **LIGHTING: Oakdale Rd (3 comments); East Fork Rd (3); Penny, Guilford College/Guilford Rd Int., Greenway and Downtown (2 each)**
  - **INTERSECTIONS: Oakdale Rd and Main St (8 comments); Dillon Rd and Main St (6); Mid-block on Main St between Guilford Rd and Oakdale Rd (4); Railroad crossings (4); Guilford Rd and East Fork Rd (3); Guilford Rd and Main St (3);**
10. To help us better understand the information we receive, please tell us about yourself (age, income, education level, address).



## 2.6 INVENTORY AND ASSESSMENT OF EXISTING FACILITIES

The Town is making important steps to plan for growth pressure, recently adopting a Land Development Plan in 2007 and an updated Development Ordinance in 2009. These documents set the framework for how future development will occur in Jamestown. Pedestrian elements played an integral role in both planning processes, receiving significant attention and comment by citizens of Jamestown. The Comprehensive Pedestrian Transportation Plan builds on these efforts and plays an important role in strategizing sidewalk and trail projects, and to advise future ordinance amendments that support walkability.



*Main Street*

The Town of Jamestown has 3.6 miles of existing sidewalk. In addition there are 8 miles of existing multi-use paved trail (Bi-Centennial Greenway) and 5 miles of unpaved hiking trails, primarily in Gibson Park. See Figure 2.6.1 on the following page for the location of existing sidewalks (orange line) and trails (green line).

The Town has worked to preserve its small town character amidst a growing metropolitan area. Enhancing the walking routes and pedestrian friendliness of the sidewalk and trail network is an investment in preserving the “small town feel” that characterizes Jamestown.

The existing sidewalk network beyond the downtown area took shape after 1996 when the town made a concerted investment by creating a brick sidewalk system along Main Street from Town Hall to City Lake Park and along Guilford Road. Key sidewalk and trail connections to the schools and neighborhoods along busy roads will be an important and beneficial outcome to implementing this plan. The Deep River (including City Lake) has been identified as a State Park, which will open up new opportunities for local governments along the river for conservation, multi-use trails or paddling accesses.

### ORIGINS AND DESTINATIONS

Parks, schools and commercial centers are community trip attractors or places where people visit or travel to and from daily. These locations are the origin or destination of many trips by Jamestown citizens that could be taken by bicycle or by foot. Twenty-five percent (25%) all trips – social, recreational, work - under a mile nationwide are taken on foot, while the automobile is used for seventy-five percent (75%) of trips one mile or less. Approximately forty percent (40%) of trips to visit friends and relatives and for other social and recreational purposes (e.g., to go to the gym, attend a movie, visit a park, or visit a library) totaling a mile or less are

accomplished by walking<sup>2</sup>. It is important to provide opportunities to safely walk and bicycle to local parks, schools, restaurants and shops. A goal of this plan is to reduce the number of car trips, by providing a strategy to create safe and inviting opportunities to walk to destinations.

## **EXISTING PROGRAMS**

### **Streetscape Enhancement Program**

The Town of Jamestown offers a streetscape sponsorship program enabling individuals or businesses to sponsor the purchase of benches, tree planters or decorative trash receptacles. The Town will provide installation assistance and a 50% match for the cost of each installation. More information can be found on the Town's website [www.jamestown-nc.us](http://www.jamestown-nc.us).

The following explores specific opportunities and barriers to pedestrian transportation in Jamestown.

## **OPPORTUNITIES**

- Deep River (designated as a State trail by legislation) Trail plan intersects with the Main Street sidewalk, City Lake Park, Mendenhall Plantation trails and Gibson Park creating passive recreation opportunities, (e.g. walking, jogging, cycling, paddling, environmental education);
- Jamestown's Main Street attractions include restaurants, elementary school, food and craft shopping, civic destinations and parks;
- Several trail and sidewalk connections exist along Guilford Road, Main Street, Dillon Road and East Fork Road; and
- Main Street and High Point Road are served by bus transit.
  - One bus line from Greensboro Transit Authority Route 11A connects GTCC to Greensboro and another line from High Point Transit connects GTCC, City Hall, Food Lion, City Lake Park and other locations along Main Street to High Point.

## **BARRIERS AND GAPS**

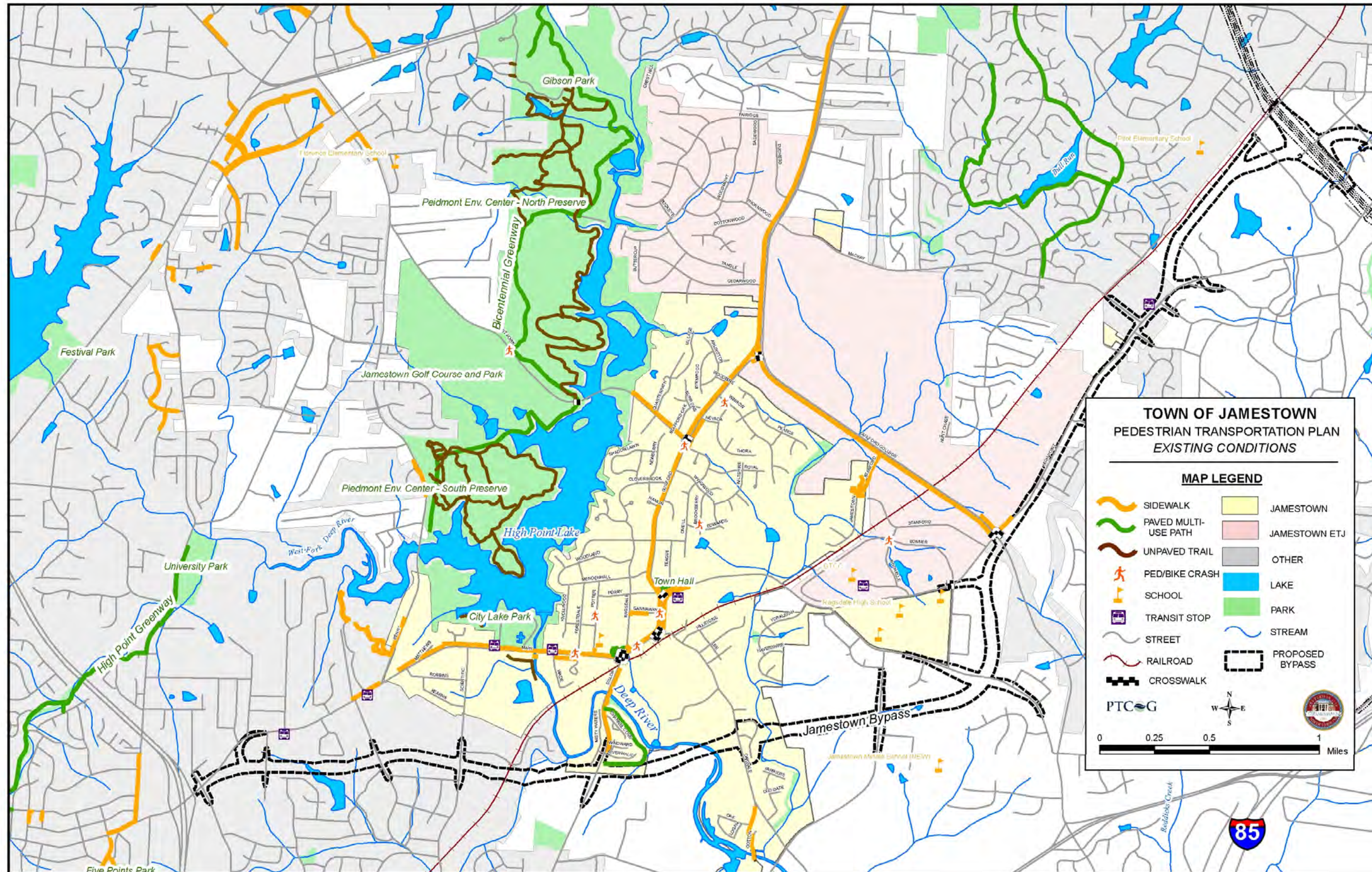
- Deep River Road bridge over City Lake needs a sidewalk to connect the Bicentennial Greenway and Piedmont Environmental Center;
- East Fork Road bridge over City Lake needs a sidewalk to connect existing East Fork Road sidewalks to Gibson Park trails and the Bicentennial Greenway;
- Short sidewalk gaps exist on the east side of Guilford Road, south side of Main Street, Gannaway Street, Ragsdale Drive and Penny Road near Main St;
- North Carolina Railroad right-of-way on Oakdale Road and Dillon Road creates procedural and fiscal barriers for Main Street connections;
- New middle school located on Harvey Road lacks sidewalk or trail connections to central Jamestown; and
- Guilford Technical Community College and Ragsdale High School are in close proximity to the downtown; however sidewalks and trails do not connect the two areas.

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<sup>2</sup> U.S. Dept. of Transportation, Bureau of Transportation Statistics, FHWA, January 2004, National Household Transportation Survey, <https://www.bts.gov/pdc/index.html>



Figure 2.6.1 - Town of Jamestown Sidewalk System, Transit Stops and Ped/Bike Crash Locations





## **2.7 TRANSPORTATION IMPROVEMENT PLAN PROJECT REVIEW**

The projects on the current 2009-2015 State Transportation Improvement Program within the Town of Jamestown include the Jamestown Bypass:

- U-2412 - Widening of Greensboro-High Point Road from Hilltop Road to the 311 Bypass. This is a multi-year construction project; right-of-way acquisition has begun and is scheduled to proceed through FY 2011, with construction to begin in FY 2012 according to the NCDOT STIP document. The completion date is scheduled for 2015, however this date may change. A new alignment of the road will be built in Jamestown south of the existing High Point Road/Main Street alignment, shown in Figure 2.6.1.

The completion the Jamestown Bypass will likely reduce the amount of vehicular traffic through the center of Jamestown on Main Street. The opening of the Jamestown Bypass may be an opportunity to make Jamestown’s downtown more walkable, with lower vehicular traffic needs resulting from the alternate highway around Jamestown.

The Land Development Plan and Land Development Ordinance provides for a Scenic Corridor Overlay district in Jamestown. The overlay district addresses safety, walking friendliness, signage, view buffers and other aesthetic and functional features along designated corridors. The overlay district could be applied to roadways that intersect with the future Jamestown Bypass, to address concerns of increased traffic.



## 2.8 PEDESTRIAN STATUTES AND LOCAL ORDINANCES

This section highlights guidelines and statutes supporting pedestrian transportation at the Federal, State and Local level.

### **FEDERAL AND STATE GUIDELINES**

The FHWA policy for mainstreaming nonmotorized transportation is a part of the current Federal Transportation Authorization Legislation SAFETEA-LU, an excerpt from the policy is shown here: (Source: <http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm>).

SAFETEA-LU confirms and continues the principle that the safe accommodation of non-motorized users shall be considered during the planning, development, and construction of all Federal-aid transportation projects and programs. To varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of SAFETEA-LU that all new and improved transportation facilities be planned, designed, and constructed with this fact in mind.

While these sections stop short of requiring specific bicycle and pedestrian accommodation in every transportation project, Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes. "Due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be accommodated in the design of new and improved transportation facilities. In the planning, design, and operation of transportation facilities, bicyclists and pedestrians should be included as a matter of routine, and the decision to not accommodate them should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

The NCDOT has a few policies that specifically support nonmotorized transportation, with specific guidance on how to support the pedestrian and bicycling-friendly policies:

- The Board of Transportation resolution on mainstreaming nonmotorized transportation [http://www.ncdot.org/transit/bicycle/laws/laws\\_resolution.html](http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html)
- NCDOT Pedestrian Policy and guidance for providing pedestrian accommodations on state maintained roadways. [http://ncdot.org/transit/bicycle/laws/laws\\_pedpolicy.html](http://ncdot.org/transit/bicycle/laws/laws_pedpolicy.html)
- NCDOT guidelines for accommodating greenways with road improvement projects [http://www.ncdot.org/transit/bicycle/laws/laws\\_greenway\\_admin.html](http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html)
- NCDOT's Traditional Neighborhood Development Street Design Guidelines
  - These guidelines are available for proposed TND developments and permits localities and developers to design certain roadways according to TND

guidelines rather than the conventional subdivision street standards. The guidelines recognize that in TND developments, mixed uses are encouraged and pedestrians and bicyclists are accommodated on multi-mode/shared streets. <http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>

## **LOCAL ORDINANCE REVIEW**

The Jamestown Development Ordinance was overhauled during the pedestrian planning process incorporating regulations based on the 2008 Land Development Plan and suggestions by staff and consultants during this pedestrian planning process. This section should be used for reference purposes only, consult the current Ordinance for up to date regulations.

**2.2 Street Frontage Required, p. 10 and 11.** Private drives serving uses in the Civic and Campus Overlay Districts shall be constructed in accordance with the standards for commercial streets as found in the Town of Jamestown Standards and Specifications Manual and sidewalks shall be provided on at least one side of the private drive.

**2.6-1. Lots Abutting More Than One Street, p. 12.** On lots that abut more than one street, building and lot shall generally front upon the more pedestrian oriented street, given the arrangement of existing and proposed streets and drives, and the orientation of buildings on adjoining lots.

**2.6-2 Multiple Buildings on a Lot, p. 12.** Where multiple buildings are permitted on a single platted lot, each building shall generally front upon a pedestrian oriented street, external or internal to the development; side and rear yard designations shall be determined on the basis of building orientation.

### **2.20 Sidewalks For New Development and Expansion/Improvement of Existing Development, p. 28 and 29**

**2.20-1 Sidewalks Required.** Sidewalks shall be required along new and existing streets fronting the following new development and expansions of and improvements to existing development:

- (A) All new commercial development
- (B) Expansions to an existing commercial development or use where the gross floor area of the expansion is equal to or greater than 50% of the gross floor area of the pre-expansion development or use.
- (C) Improvements to an existing commercial development or use when the cost of the improvement is equal to or greater than 50% of the value of the existing development (building) or use as determined by the Guilford County Tax Office.
- (D) All residential development with two (2) or more residential units.
- (E) One single family home on a single lot when the lot being developed is adjacent to a lot on which an existing sidewalk is located and the construction of a sidewalk on the lot being developed would be a logical extension of the pedestrian network.

**2.20-2 Sidewalks Along New Streets.** Sidewalks shall be required along both sides of new streets, except streets in the Agricultural (AG) District, where sidewalks are required only on one side of the new street.

**2.20-4 Standards for Sidewalks.** Sidewalks shall comply with the design and construction standards set forth in the Town of Jamestown Standards and Specifications Manual.

### **8.3 Description of Zoning Districts, p. 139-143**

**Residential/Main Street Transitional District** should be interconnected, with streets and sidewalks providing a connection from Jamestown’s downtown to the Single Family Residential districts.

**The Main Street Periphery District (MSP)** integrates retail, office, civic, educational, religious, and residential uses in an environment that is pedestrian friendly while acknowledging the role of the automobile as a means of transportation.

**Main Street District (MS)** provides for new development, revitalization, reuse, and infill development in Jamestown’s traditional downtown. The development pattern seeks to integrate shops, restaurants, services, work places, civic, educational, and religious facilities, and higher density housing in a compact, pedestrian-oriented environment.

**Civic District (CIV)** provides a location for large educational, medical, and public uses in a campus like environment. Institutional uses in the Civic District are required to provide pedestrian connections on their campuses and, to the extent possible, develop an internal street system with structures fronting on the streets.

**Bypass District (B)** is established to provide opportunities for compatible and sustainable development along the future Jamestown Bypass. The secondary street network is both auto-oriented and pedestrian oriented..

**Traditional Neighborhood Development Overlay District (TND)** provides for the development of new neighborhoods and the revitalization or extension of existing neighborhoods. These neighborhoods are structured upon a fine network of interconnecting pedestrian oriented streets and other public spaces.

**Scenic Corridor Overlay District** An easement for bicycle paths or multi-use paths are allowed in the Scenic Corridor Overlay District.

**Campus Overlay District (CO)** Pedestrian access and interconnected streets within the campus are guiding principles in the Campus Overlay District.

### **8.5-1 (G) Traditional Neighborhood Overlay District Streets, p. 165**

Pedestrian connections shall be provided as extensions of terminating streets or as public access easements where not precluded by topography or other physical constraints.

### **9 Building and Lot Type Standards, p. 181**

Descriptions of lot dimensions and building orientations support pedestrian transportation and access to buildings, including the provision of building facades oriented towards the sidewalk. In the Attached Lot Housing Type, awnings and balconies may encroach into the sidewalk ROW and provide sun or rain shelter for pedestrians. Shopfront and Urban Lot Types describe building orientation that supports “pedestrian-driven commerce”.

**11.6-5 (F) Multiple Parking Bays, p. 265**

When there are more than 4 bays of parking, an interior island with an average width of twenty (20) feet and a length equivalent to the parking bay shall be constructed. It shall include a pedestrian walkway five (5) feet or more wide and a planted strip on one or both sides. The median should be located in such a way as to enhance pedestrian circulation within the development, leading to the entrance or to an adjacent sidewalk.

**12.10-4 Pedestrian Corridors, p. 287**

Parking lots shall be designed to allow pedestrians to safely move from their vehicles to the building. On small lots, this may be achieved by providing a sidewalk at the perimeter of the lot. On larger lots, corridors within the parking area should channel pedestrians from the car to the perimeter of the lot or to the building(s). These corridors should be delineated by a paving material which differs from that of vehicular areas and planted to provide shade and an edge. Small posts or bollards may be used to define/protect the pedestrian corridors. The minimum width of the sidewalk or pedestrian corridor shall be five (5) feet, with vehicle encroachment is calculated as two (2) feet beyond curb or wheel stop.

**12.10-6 Interconnection of Parking Lots, p. 288**

To the extent practicable, adjoining parking lots serving non-residential buildings shall be interconnected. When vehicular connections are not practical, pedestrian walkways shall be provided to enable pedestrian connections between parking lots.

**Street Standards**

**13.2-2 Pedestrian Scaled, p. 298**

Be designed as the most prevalent public space of the town and, thus, scaled to the pedestrian.

**13.2-3 Bordered by Sidewalks, p. 298**

Be bordered by sidewalks with a minimum width of five (5) feet on both sides, with the exception of rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways. Sidewalks on one side of the road may be permitted in the Agricultural District to protect water quality. Sidewalks may be located in the street right-of-way, on private or public property, or in common areas. All sidewalks not located within the public right-of-way shall have a public access easement permitting public use of the sidewalk.

**Street Design**

**13.6-1. Street trees and sidewalks, p. 300**

Required on both sides of public streets except rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways except that sidewalks may be permitted on only one side of the street to accommodate low impact design in the Agricultural District. The street tree planting strip should be a minimum of 5' in width and sidewalks shall be a minimum of 5' in width unless otherwise provided. On commercial streets, sidewalks should be a minimum of 7' in width. A 10' minimum width sidewalk with tree grates or cut-outs is required and 12' is encouraged on commercial streets, on properties and streets adjacent to schools, and especially in the Main Street district. Generally, canopy trees shall be planted at a spacing not to exceed 40' on center. Where overhead utility lines preclude the use of canopy trees, small maturing trees may be substituted, planted 30' on center.



**13.6-5. Cul-de-sacs, p. 301**

Shall have a minimum 5' pedestrian access easement, and shall have paved pedestrian connections, where practicable to encourage pedestrian access connectivity. See Additional cul-de-sac standards in Article 16.2-7, Street Design.

**Article 17 Sign Regulations, p. 324**

This article regulates signage in Jamestown. There are a number of requirements related to signage placement, signage style and size as it relates to the sidewalk environment.

**24.5 Maintenance of Property and Premises, p. 482**

Sidewalks and driveways. All sidewalks, walkways, stairs, driveways, parking spaces, and similar areas shall be kept in a proper state of repair, and maintained free from hazardous conditions. Public sidewalks shall not be blocked by trees and other vegetation located on adjoining private properties and shall be kept clear of weeds, litter, and other potential obstructions by the adjoining private property owner.

## 3. PEDESTRIAN TRANSPORTATION NETWORK PLAN

The structure of the built environment including streets, sidewalks and entrance areas to destinations should provide safe, accessible and inviting pedestrian facilities. Every person is a pedestrian at some point during a trip to work, school or shopping. The safety and accessibility of street intersections influence how many people may walk along and across the street. The separation (via buffers or planting strip) of the pedestrian network from the street traffic plays an important role as to how enjoyable it is to walk along the roadway.

The pedestrian transportation system and the amount of walking in a community is influenced by 3 major forces: projects (e.g. sidewalk and trail construction), policies (e.g. ordinance changes supporting walkability) and programs (e.g. community events that encourage more walking). This chapter will explore recommendations for each of these 3 areas that support safe, accessible pedestrian transportation.

### 3.1 PEDESTRIAN TRANSPORTATION PROJECT RECOMMENDATIONS

Recommended projects are found in this section and include sidewalks, multi-use pathways and intersection treatments (e.g. refuge islands, crosswalks and pedestrian signal installations). The location of recommended sidewalks (orange dashed lines), sidewalk gaps (purple dashed lines), multi-use paths (green-dashed lines) and intersection improvements (red pentagons) are displayed in Figure 3.1.3 Proposed Pedestrian Transportation Improvements Map.

#### SIDEWALK PROJECT RECOMMENDATIONS

The sidewalk project recommendations were originally identified by citizens and staff through public involvement and plan development process totaling over 14 miles. In many cases, proposed sidewalks link to existing sidewalks and close gaps in the pedestrian network. The East Fork Road and Penny Road proposed sidewalks will require replacing or retrofitting existing bridges over High Point City Lake, however important links between open space, existing trail systems and the center of Jamestown will be made if these two bridges are retrofitted with sidewalks. The Oakdale Road proposed sidewalk will present significant grading challenges given the topography of the corridor as well as the railroad crossing near the intersection with Main Street. The long sidewalk connection along Main Street from the existing sidewalk at Town Hall to Guilford College Road will likely require a phased approach from Town Hall east; as this proposed improvement is nearly 3 times the distance of other proposed sidewalks. Important connections to GTCC, the High School and the YMCA will be made with the completion of this project, however. Parts of the Main Street sidewalk towards the schools area may be constructed as a wider sidepath to accommodate bicyclists and pedestrians. Many of the other sidewalk projects will close important gaps or connect neighborhoods to the downtown, schools or existing sidewalk.

Sidewalks and sidepaths are ranked objectively based on a number of factors including pedestrian crashes, proximity to downtown, connections to existing sidewalk, public comment,

proximity to parks, road type, existence of curb and gutter, compatible land uses and connections to public transit. The ranking methodology is explained in more detail in Appendix E. Figure 3.1.1 below describes the distance and width of each sidewalk project recommendation and ranking score related to prioritization factors, a higher score translates to a better ranking based on the factors used. The ranking will be helpful for project implementation and can be weighed against project cost estimates shown in Figure 3.1.2. The distance of gap projects on Main Street., Gannaway Street and Guilford Road are also included in the figures; these projects are not ranked, but should have a high priority for implementation as budget allows.

Figure 3.1.1 – Proposed Sidewalk and Sidepath Improvements Ranked by Factor Score

Map ID	Street	From	To	Distance (ft) one side	Width (ft)	Public Comments (3 to 10 = 2; 10 or more = 3)	Proximity to school zones (within 1/4 mile = 3)	Proximity to parks and recreation (within 1/4 mile = 3)	Crashes (1 crash 2001-2007)=3	Traffic Count (>2,000ADT)=2	(multi-family residential, commercial, institutional or	Curb and gutter existing=1	Connectivity to existing sidewalk=1	Intersects with Proposed Bypass	Proximity to Transit (Parallel to Route = 2; <1,000 ft from = 1)	High Score = Top Rank
S-1	E Main St/High Point Road <sup>1</sup>	Existing Sidewalk	Guilford College Road	7,875	5-8	2	3	3	0	2	2	0	1	0	2	15
S-2	Potter Drive/Perry Street	Main Street	Ragsdale Drive	2,005	5-8	0	3	3	3	0	2	1	1	0	1	14
S-3	Oakdale Road	Harvey Road	Main Street	5,515	5	3	0	3	0	2	2	0	1	1	1	13
S-4	East Fork Road <sup>1</sup>	Existing Sidewalk	Existing Trail	1,400	5	3	0	3	3	2	0	0	1	0	0	12
S-5	East Fork Road	Existing Trail	Town Limits	4,250	5	3	0	3	3	2	0	0	1	0	0	12
S-6	Penny Road	Main Street	Town Limits	3,120	5	3	0	3	0	2	2	0	0	0	1	11
S-7	Forestdale Drive	Main Street	Woodland Drive	2,165	5	0	3	3	0	0	2	1	1	0	1	11
S-8	Ragsdale Drive	Main Street	Forestdale Drive	2,645	5	0	3	3	0	0	2	1	1	0	1	11
S-9	Vickrey Chapel Road	Main Street	Millis Road	3,150	5	2	3	0	0	2	2	0	0	0	1	10
S-10	High Point Road	Guilford College Road	GSO City Limits	5,395	5	0	3	0	0	2	2	0	1	0	2	10
S-11	Harvey Road/Heathwood Drive	Vickrey Chapel Road	Middle School Entrance	2,830	5	2	3	0	0	2	2	0	0	1	0	10
S-12	Guilford Road	East Fork Road	Existing Sidewalk	3,475	5	0	0	0	3	2	2	1	1	0	1	10
S-13	Millis Road	Main Street	Vickrey Chapel Road	1,830	5-8	0	3	0	0	2	2	0	0	0	1	8
S-14	Forestdale Drive	Woodland Drive	Oneill Drive	2,990	5	0	0	3	0	0	0	1	1	0	0	5
S-15	Cloverbrook Drive	Forestdale Drive	Guilford Road	2,525	5	0	0	3	0	0	0	1	1	0	0	5
N/A	Gap Projects	Main St, Gannaway, Guilford Road	Existing Sidewalks	8,085												N/A

<sup>1</sup>Part of these sections should be explored as a sidepath allowing bicycling and walking considering there are few driveway conflicts.



**Figure 3.1.2 - Proposed Sidewalk and Sidepath Improvements with Cost Estimates**

Map ID	Street	From	To	Distance (ft) one side	Side	Curb and Gutter	Construction/Engineering Cost LF <sup>1</sup>	Additional Costs	Total Cost Estimate	Width	Ranking
S-1	E Main St/High Point Road <sup>2</sup>	Existing Sidewalk	Guilford College Road	7,875	See Note <sup>3</sup>	N	\$82.50	part 8' width at \$120/ft	\$1,106,055	5-8	15
S-2	Potter Drive/Perry Street	Main Street	Ragsdale Drive	2,005	Both	Y	\$55.00	part 8' width at \$95/ft	\$240,550	5-8	14
S-3	Oakdale Road	Harvey Road	Main Street	5,515	E	N	\$82.50		\$454,988	5	13
S-4	East Fork Road <sup>2</sup>	Existing Sidewalk	Existing Trail	1,400	N	N	\$82.50	Bridge Deck \$1,700/LF	\$455,500	5	12
S-5	East Fork Road	Existing Trail	Town Limits	4,250	N	N	\$82.50		\$350,625	5	12
S-6	Penny Road	Main Street	Town Limits	3,120	E	N	\$82.50	Bridge Deck \$1,700/LF	\$597,400	5	11
S-7	Forestdale Drive	Main Street	Woodland Drive	2,165	Both	Y	\$55.00		\$238,150	5	11
S-8	Ragsdale Drive	Main Street	Forestdale Drive	2,645	Both	Y	\$55.00		\$290,950	5	11
S-9	Vickrey Chapel Road	Main Street	Millis Road	3,150	N	N	\$82.50		\$259,875	5	10
S-10	High Point Road	Guilford College Road	GSO City Limits	5,395	N	N	\$82.50		\$445,088	5	10
S-11	Harvey Road/Heathwood Drive	Vickrey Chapel Road	Middle School Entrance	2,830	E	N	\$82.50		\$233,475	5	10
S-12	Guilford Road	East Fork Road	Existing Sidewalk	3,475	E	Y	\$55.00		\$191,125	5	10
S-13	Millis Road	Main Street	Vickrey Chapel Road	1,830	W	N	\$82.50	part 8' width at \$120/ft	\$169,475	5-8	8
S-14	Forestdale Drive	Woodland Drive	Oneill Drive	2,990	Both	Y	\$55.00		\$328,900	5	5
S-15	Cloverbrook Drive	Forestdale Drive	Guilford Road	2,525	Both	Y	\$55.00		\$277,750	5	5
N/A	Gap Projects	Main St, Gannaway, Guilford Road	Existing Sidewalks	8,085	N/A	Part	\$82.50		\$667,013		N/A

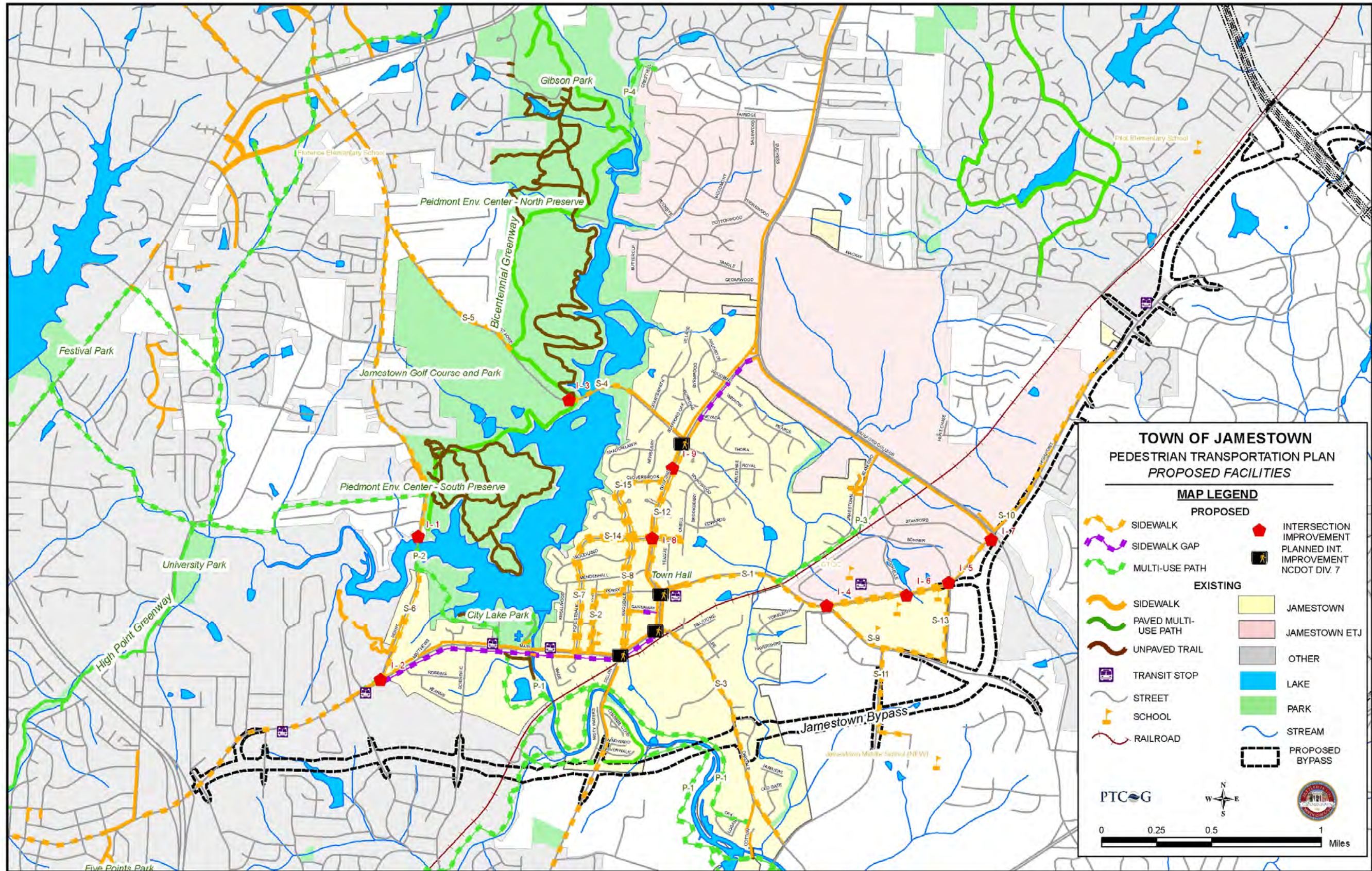
<sup>1</sup>Source: NCDOT Division of Bicycle and Pedestrian Transportation, see Section 3.2 for more information. Engineering is estimated to be 10% of construction costs. Add \$25 per linear foot (5ft wide) or \$5 sq/ft for brick sidewalk to the cost of concrete construction.

<sup>2</sup>Parts of these sections should be explored as a sidepath allowing bicycling and walking, considering there are few driveway conflicts.

<sup>3</sup> South side from existing sidewalk to Vickrey Chapel Road, both sides from Vickrey Chapel to Millis and North side from Millis to Guilford College Road.



Figure 3.1.3 - Proposed Pedestrian Transportation Improvements Map





## MULTI-USE PATH IMPROVEMENTS

There are four multi-use path improvements proposed in this plan and shown in Figure 3.1.3 above. There are other planned trail improvements in the City of High Point that are also shown in the proposed pedestrian transportation improvements map. The following multi-use paths may be a combination of natural surface, crushed stone, asphalt and where necessary boardwalk or bridge deck. A cost analysis, landowner agreements and further engineering will be necessary prior to the development of the multi-use paths proposed. General cost estimates are shown in Figure 3.1.4, however final construction costs will vary significantly based on trail surface type, engineering obstacles, trail amenities and variations in the cost of materials and labor. A natural surface trail should be at least 8ft wide and a paved trail at least 10ft wide.

**Figure 3.1.4 – Town of Jamestown Proposed Multi-Use Paths and General Cost Estimates**

Map ID	Name	Length	Description	Priority*	Average Cost ** Natural Surface \$25/ft+	Average Cost ** Paved \$133/ft+
P - 1	Deep River Trail	9,500ft	City Lake Park to Business 85	Highest	\$308,750	\$1,605,500
P - 2	City Lake/Penny Road Connector	900ft	Penny Road Bridge to City Lake Park Access Road	High	Bridge deck will need to be paved	\$543,000***
P - 3	Rail with trail	4,250ft	Main Street to Guilford College Road along NCRR right of way	Low	\$138,125	\$734,825
P - 4	Gibson Park Neighborhood Connector	2,500ft	A neighborhood connection from Jamesford Dr and Ivy Stone Dr to the Bicentennial Greenway	High	\$81,250 (not including bridge over East Fork of Deep River)	\$432,250 (not including bridge over East fork of Deep River)

\*Priority is based on steering committee feedback, public meeting comments and prior planning work

\*\*Average cost is \$25/linear ft for natural surface and \$133/linear ft for paved surface; in addition a 10% premium for engineering and design is added, not including amenity features (signs, benches, lighting, landscaping, etc.).

\*\*\*A bridge deck is required for this project and will cost an average of \$1,700/ft for a portion of the project length

A detailed trail planning effort for the Deep River corridor from City Lake to Oakdale Mill took place concurrent with this planning effort. The executive summary for the Deep River Trail Plan is included in Appendix F.

## **INTERSECTION IMPROVEMENTS**

The Town of Jamestown has been working with NCDOT Division 7 and the High Point MPO to develop plans and implement intersection improvements for pedestrians at 4 locations shown in Figure 3.1.3 above. Those intersections identified prior to this comprehensive planning effort include: Dillon Road and Main Street, Oakdale Road and Main Street, Guilford Road and Main Street and East Fork Road and Guilford Road. The Town staff and NCDOT engineers identified crossing improvements including: stamped or raised crosswalks and pedestrian crossing countdown signals at these locations. Some public comments regarding the above planned improvements included concepts of roundabouts, on-street parking, curb extensions, mid-block crossings on Main Street and others features to support a more walkable environment. A detailed streetscape plan for downtown is recommended to provide design level detail necessary for implementing improvements in the downtown area on Main Street.

The following intersections are recommended for pedestrian transportation improvements in addition to the 4 locations being addressed by NCDOT Division 7 and include similar enhancements as described above. Two sidewalk corridor projects intersect with the North Carolina Railroad, Dillon Road and Oakdale Road. Barriers or pedestrian gates can be used to control access and improve safety for pedestrians when these sidewalk projects are constructed. Please consult Appendix A - Pedestrian and Multi-Use Facility Guidelines when considering proposed improvements to roadway and railroad intersections.

Intersection improvement projects should be constructed in coordination with sidewalk corridor improvement projects to improve cost efficiency. Figure 3.1.5 shows each intersection improvement ID, a summary of recommended improvements and a planning level cost estimate for each intersection. The cost estimates for specific intersection treatments are shown in Figure 3.2.3 – Intersection Improvements Cost Elements.



**Figure 3.1.5 - Summary of Intersection Improvements with Planning Level Costs**

Map ID	Name	Summary of Recommendations	Cost Est.*
I-1	Penny Rd & Bicentennial Greenway	Construct a multi-use path along bridge (East side) and include a guard rail between the path and bridge traffic and connect with City Lake Park access road.	\$543,000 (sidepath included)
I-2	W. Main St and Penny Rd	Install crosswalks, ped-head, sidewalks and curb extension/radii reduction.	\$50,000
I-3	<b>East Fork Rd &amp; Bicentennial Greenway (high priority)</b>	<b>Extend guardrail and no parking signs; install a warning signal light for motorists; complete sidewalk connection to existing sidewalk on East Fork Road, including a multi-use path along bridge deck.</b>	<b>\$485,000 (sidepath included)</b>
I-4	E. Main St/High Point Rd & Vickrey Chapel Rd/Bonner Dr	Construct “pork chop” islands on Bonner Drive and Vickrey Chapel Road where painted lines exist now; move vehicle stop bars and add crosswalks, new sidewalk construction; curb extension and pedestrian push button countdown signals.	\$150,000
I-5	<b>High Point Rd &amp; Millis Rd/Bonner Dr. (high priority)</b>	<b>Install high visibility crosswalks with new sidewalk construction, pedestrian in crosswalk bollard on High Point Road, move vehicle stop bars and pedestrian push button countdown signal.</b>	<b>\$22,500</b>
I-6	High Point Rd & Ragsdale High School	Install mid-block crossing with high-visibility crosswalk and pedestrian refuge island west of Montgomery Circle intersection, reduce speed limit to 35mph and new sidewalks.	\$16,000
I-7	High Point Rd & Guilford College Rd	Install pedestrian refuge island on Guilford College Road and pedestrian push button countdown for refuge island and reduce curb radii to shorten crossing distance on north side.	\$82,500
I-8	<b>Guilford Rd &amp; Forestdale Dr (high priority)</b>	<b>Install in pavement yield to pedestrian bollard, crosswalks, curb ramps and sidewalk on east side of Guilford Road.</b>	<b>\$5,000</b>
I-9	Guilford Rd & Wyndwood Dr	Install in pavement yield to pedestrian signs, crosswalks, curb ramps and sidewalk on east side of Guilford Road.	\$5,000

*\*Estimated cost does not include sidewalks and may vary when examined by an engineer for improvement.*

The following pages show images of each intersection and more detail on suggested improvements for planning purposes. All recommendations are a planning level analysis. Recommended improvements to state maintained roads will require review and approval by NCDOT Division 7 engineers. See Appendix A for figure references corresponding to specific intersection improvement recommendations. Further engineering analysis is required to determine feasibility and cost of each of the recommendations.

## Penny Road and Bicentennial Greenway near Lakeview Heights ID: I-1

### Overview

Speed Limit: 45 MPH

Traffic Count: 8,900 AADT\*

### Recommendation

- Construct a multi-use path along bridge (East side) and include a guard rail between the path and bridge traffic and connect with City Lake Park access road

Pedestrian crossings of Penny Road should be monitored when bridge deck is accommodated for multi-use path traffic. If pedestrian crossings are significant, traffic calming treatments including stamped crosswalk and pedestrian present in roadway signage should be considered.



Bicentennial Greenway Terminus at Penny Road (looking south)



Penny Road at side entrance to City Lake Park (looking south)



Penny Road near side entrance to City Lake Park (looking north towards bridge over City Lake)



Mendenhall House and Mill historical marker on Penny Road

\*Average Annual Daily Traffic



## W. Main Street and Penny Road ID: I-2

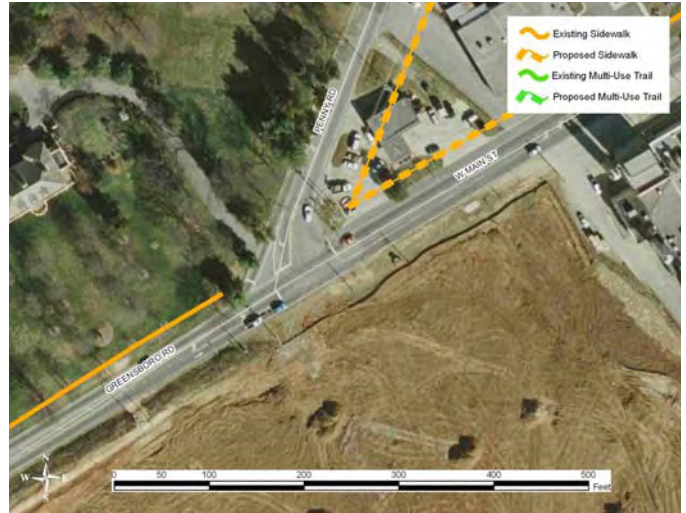
### Overview

Speed Limit: W Main Street 35 MPH; Penny Road 35 MPH

Traffic Count: High Point Road 18,000 AADT (west of the intersection); Penny Road 8,900 AADT

### Recommendations

- Crosswalks on all 3 legs of the intersection and curb extension on Penny Road to reduce crossing distance and retrofit slip-turn lane with curb radii reduction (see Figure A.6 in Appendix A);
- New sidewalk construction; and
- Pedestrian push button countdown signal (See Figure A.4).



This intersection is at the municipal boundaries with High Point. The NCDOT plans to re-align this intersection as indicated in the recommendations, creating a safer environment for all transportation users.



W Main Street at Penny Road (looking South)



Sidewalk ends along W Main Street (looking West)



W Main Street (looking East)



W Main Street at City Limits (looking West)



**East Fork Road and Bicentennial Greenway ID: I-3**

**Overview**

Speed Limit: 40 MPH

Traffic Count: AADT Unavailable

**Recommendations**

- Extend guardrail from East Fork Road bridge to discourage parking on the shoulder;
- Install a yellow warning signal light and signage for vehicles when trail users are present (see Figure A.5 & A.13);
- Install signage directing vehicle traffic to the Jamestown Golf Course parking area to encourage trail access from this location; and
- Complete sidewalk connection to existing sidewalk on East Fork Road.



Bicycling and hiking trail users are parking near the intersection of the Bicentennial Greenway and East Fork Road. Lack of room for parked vehicles creates site distance issues and conflicts. The parking area is not large enough to meet demand at peak trail use times. When the sidewalk is constructed along East Fork Road to connect existing facilities, the conflicts will increase unless parking area is expanded or no parking is enforced.



Bicentennial Greenway at East Fork Road (looking South)



Bicyclist crossing East Fork Road at Greenway



Crosswalk on East Fork Road for Bicentennial Greenway (looking South)



East Fork Road at Bicentennial Greenway showing gravel shoulder (looking East)



## E. Main Street/High Point Road and Vickrey Chapel Road/Bonner Drive ID: I-4

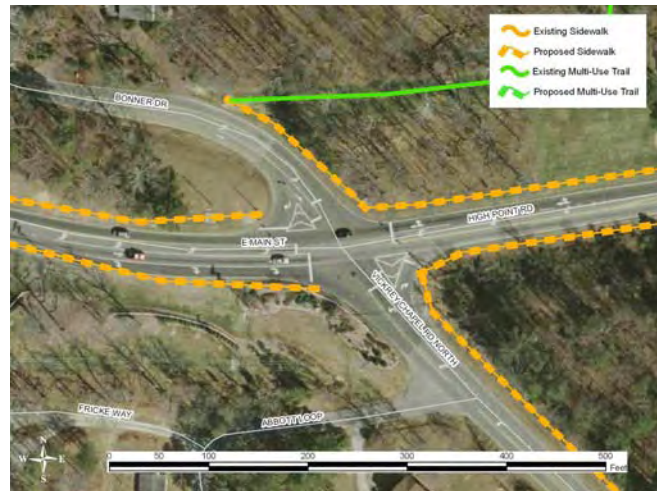
### Overview

Speed Limit: High Point Road 45 MPH; Vickrey Chapel Road 35 MPH

Traffic Count: High Point Road 12,000 AADT; Vickrey Chapel Road 5,300 AADT

### Recommendations

- New sidewalk construction;
- Construct “pork chop” islands on Bonner Drive and Vickrey Chapel Road where painted lines are included, with raised crosswalk in slip lane between future sidewalk and “pork chop (see **Figure A.3**);
- Crosswalk on all 4 legs of the intersection and relocate vehicle stop bars to accommodate crosswalk (see **Figure A.1-B**);
- Curb extension on southwest corner of intersection to narrow crossing distance (see **Figure A.6**); and
- Pedestrian push button countdown signal (see **Figure A.4**).



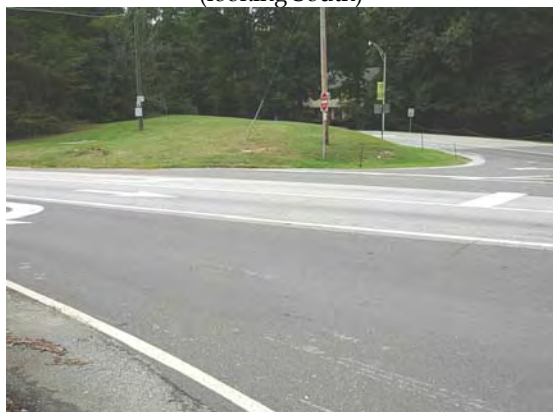
This intersection is the West entrance to GTCC. New sidewalk construction connected with the Town of Jamestown will encourage more pedestrian activity from GTCC and Ragsdale High School to downtown Jamestown. A sidewalk connection should be made to the aging multi-use trail on GTCC’s campus.



Narrow path at Bonner Drive and High Point Road/E Main St (looking South)



Vickrey Chapel Road at High Point Road (looking East)



High Point Road at Vickrey Chapel Road (looking North)



High Point Road (looking Southwest)



## High Point Road and Millis Road/Bonner Drive ID: I-5

### Overview

Speed Limit: High Point Road 45 MPH; Millis Road 35 MPH

Traffic Count: High Point Road 16,000 AADT; Bonner Drive and Millis Road AADT Unavailable

### Recommendations

- New sidewalk construction;
- Crosswalk on Bonner Drive, high visibility/ stamped crosswalk on the west side of the intersection, move stop bars for vehicles to improve sight distance (see **Figure A.1-B**);
- Pedestrian push button countdown signal (see **Figure A.4**); and
- Protected left turn arrow for vehicles on High Point Road turning onto Millis Road/Bonner Drive.



Bonner Drive/Millis Road is the eastern entrance to GTCC, Millis Road Elementary is across the street. High Point Road is very busy on the eastern side of GTCC’s campus.



High Point Road Crosswalk with Pedestrian in Roadway Sign (looking South towards Millis Road)



Bonner Drive at High Point Road (looking West)



Bonner Drive at High Point Road (looking East)



High Point Road West of Intersection at Ragsdale High School (looking East)

## High Point Road and Ragsdale High School near Montgomery Circle ID: I-6

### Overview

Speed Limit: High Point Road 45 MPH

Traffic Count: High Point Road 16,000 AADT

### Recommendations

- Mid-block crossing with high-visibility crosswalk west of intersection;
- Pedestrian refuge island in crosswalk (see **Figure A.3**);
- Speed limit reduced to 35 mph and
- New sidewalk construction.

Montgomery Circle is the main entrance to Guilford Technical Community College (GTCC). It is located across the street from the Ragsdale High School. To complement sidewalks that are constructed in this corridor, a mid-block crossing near Montgomery Circle and High Point Road should be constructed. Due to site distance issues, the crossing should *not* be constructed at Montgomery Circle. Assessment of site distance and further engineering analysis will help determine the best location for a pedestrian crossing.



High Point Rd in front of Ragsdale High (looking Southwest)



High Point Road at Montgomery Circle (looking Northeast)



High Point Road (looking Northeast)



GTCC Main Entrance off High Point Road



## High Point Road and Guilford College Road ID: I-7

### Overview

Speed Limit: High Point Road 45 MPH; Guilford College Road 45 MPH  
 Traffic Count: High Point Road 16,000 AADT; Guilford College Road 6,800 AADT

### Recommendations

- Pedestrian refuge island on Guilford College Road, which is 130 ft wide on the north side of the intersection (see **Figure A.3**);
- Pedestrian push button for refuge island (see **Figure A.4**)
- Reduce curb radii to shorten crossing distance on north side of intersection (see **Figure A.6**).



This large arterial intersection is a formidable barrier to pedestrian transportation. Pedestrian push button signals are in place on the northwest and northeast legs of the intersection. When pedestrian refuge islands are installed on Guilford College Road, an additional push button may be necessary for the island. The 6,800 AADT for Guilford College Road is likely outdated and should be recalculated when considering intersection treatments.



Guilford College Road Crosswalk is 130ft wide (looking East)



High Point Road Crosswalk (looking South)



Guilford College Road Crosswalk (looking West)



Sidewalk ends on High Point Road just West of Guilford College Road



## Guilford Road Crosswalks at Forestdale and Wyndwood Drive ID: I-8 and I-9

### Overview

Speed Limit: Guilford Road North of East Fork Road 35MPH, South of East Fork Road 25MPH

Traffic Count: Guilford Road 11,000 AADT

### Recommendations:

- Crosswalks and warning signs on Guilford Road at the intersection with Wyndwood and Forestdale Drive (see **Figure A.3**)
- In pavement yield to pedestrian bollard (see **Figure A.2**)
- Sidewalk on east side of Guilford Road



This corridor is primarily residential with some institutional land uses. There is significant level of walking for recreation and exercise. Safer and easier crossings at key intersections will improve pedestrian access along the corridor.



Guilford Road looking south near Wyndwood Drive



Guilford Road looking north towards East Fork Road near Wyndwood Drive



Guilford Road looking north at Forestdale Drive



Guilford Road looking south at Forestdale Drive

**3.2 COST ESTIMATES FOR TYPICAL INTERSECTION, SIDEWALK AND MULTI-USE PATH IMPROVEMENTS**

Depending on whether sidewalk improvements occur on streets with or without curb and gutter can have an influence on the cost of sidewalk installation. It is recommended in most cases to build curb and gutter with any sidewalk installation. This design improves safety for pedestrians and automobiles, reducing “run-off the road” crashes, but costs more to construct than ditch and swale.

The average cost per linear foot of new sidewalk can vary significantly due to variation in soils, slope, and other infrastructure needs (e.g. stormwater, sewer) along a project corridor. The base cost without design (design is estimated at 10% of the construction cost) is shown in Figure 3.2.1. The following cost estimates are based on figures compiled by the NCDOT Bicycle and Pedestrian Program in 2008.

**Figure 3.2.1 - Sidewalk Cost Elements**

Description	Unit	Unit Cost	Notes & Assumptions
Sidewalk Only	LF	\$50 (cost varies widely throughout state)	\$75 when curb and gutter is included \$50 when curb and gutter is not included
Concrete Curb and Gutter Only	LF	\$25 (cost varies widely throughout state)	
Bridge Deck 5ft wide	LF	\$1,700	Estimated cost of sidewalk portion of new bridges (Source: High Point MPO)
1	All items listed include installation costs.		
2	All items reflect 2008 pricing.		
3	Cost for sidewalks and paths include 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.		
4	Add \$25 per linear foot or \$5 sq/ft for brick sidewalk to the cost of concrete construction		

Similar to sidewalks, the cost of trails may vary due to differing requirements for surface type, grading, erosion control, culvert installations, stream crossings and other environmental factors. The estimates shown in Figure 3.2.2 do not include professional services such as design and administration or the acquisition of easements, land and legal fees.



**Figure 3.2.2 - Greenway Cost Elements**

Description	Unit	Unit Cost
Construct 10-foot multi-use path	Linear foot	\$133
	Linear mile	\$700,000
Construct 10-foot crushed stone walkway	Linear foot	\$15-\$25
	Linear mile	\$80,000-\$106,000
Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot	\$200-\$250
	Linear mile	\$1,000,000-\$1,300,000
Trail markers - Flat fiberglass pole 4" wide x 1/8 inch thick. Decal 4" in width or a sign applied to the pole. Name of facility, mile marker, feature of interest shown.	EA	\$50
1 All items listed include installation costs.		
2 All items reflect 2008 pricing.		
3 Cost for sidewalks and paths include 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.		

The average cost of intersection improvements may vary significantly with cost of materials, scope of work variables and engineering design constraints. The costs of intersection improvements are included as a guide for budgeting funds. It is suggested to develop an engineering level cost estimate if possible when budgeting for capital improvements. The following cost information was compiled from the Pedestrian and Bicycle Information Center and other sources.

**Figure 3.2.3 - Intersection Improvement Cost Elements**

Item	Cost Estimate	Cost Notes
Curb Ramps	\$1,500ea	Range of \$300-1500 ea
Refuge Island	\$15,000ea	Range of \$4,000-30,000 ea
Pedestrian Countdown Signals	\$5,000ea	\$20,000-40,000 for all four legs of intersection
Crosswalks - Horizontal Line	\$100ea	n/a
Crosswalks - Ladder Style	\$300ea	n/a
Crosswalk Stamped/Colored (15ftWx40ftL)	\$3,000ea	Brick inlay, raised surface increases cost
Sign and Post	\$250ea	Range of \$200-300 Additional cost for in pavement bollard signs
Curb Radii Reduction/Extension	\$30,000ea	Range of \$5,000-40,000
Remove Right-Turn Slip Lane Design	\$50,000ea	Range of \$50,000-200,000

## 3.3 POLICY AND PROGRAM RECOMMENDATIONS

This section will offer development regulation ordinances, internal policies and programs that will enhance the pedestrian transportation system. The ideas offered here are meant to complement existing policies and programs and are intended as a “menu” of options to pursue in the near term ensuring growth and development incorporate pedestrian safety, access and comfort.

### RECOMMENDED POLICY CHANGES

The following policy updates build upon those developed in the 2008 Land Development Plan and the 2009 Ordinance update. New policies have been suggested by steering committee members, citizens and staff.

#### **Issue 1: Pedestrian transportation along existing development**

**Recommended Policy:** Explore property assessments, impact fees and other funding sources to construct sidewalk along existing development, focusing on closing small sidewalk gaps of less than 1500 ft.

#### **Issue 2: Public access easements**

**Recommended Policy:** As new sewer lines are extended along existing proposed greenway corridors, acquire public access easements for both sewer line use and future trail use. Include a requirement in the subdivision ordinance that requires public access easements along proposed greenways when land is subdivided within the City Limits and ETJ.



*Sewer Easement Near River Walk along the Deep River*

#### **Issue 3: Pedestrian access for new bridges**

**Recommended Policy:** Require all non-interstate bridges within City limits and the ETJ to be equipped with sidewalks or multi-use paths. Include accommodation for planned multi-use paths or sidewalks under new bridges. NCDOT bridge policy:

<http://www.ncdot.org/doh/preconstruct/altern/value/manuals/bpe2000.doc>

#### **Issue 4: Complete Streets**

**Recommended Policy:** Adopt a Complete Streets policy, ensuring rebuilt or new streets will accommodate pedestrians, cyclists, transit users and automobiles. The Complete Streets policy can take different forms, depending on the context in which it is being adopted, for example, specific changes to particular subdivision or street design regulations and ordinances will also need to take place following the adoption of a general policy. This policy was adopted by the

North Carolina Board of Transportation in 2009:  
[http://www.bytrain.org/fra/general/ncdot\\_streets\\_policy.pdf](http://www.bytrain.org/fra/general/ncdot_streets_policy.pdf).

### **Issue 5: Access Management**

**Recommended Policy:** Adopt an access management policy that ensures vehicle traffic safety as well as pedestrian safety. The access management policy will work to improve safety on new and existing roadways by guiding the development of driveway locations, driveway curbs and reducing side slope for sidewalks across driveways. See Appendix A for more detailed access management recommendations.

### **Issue 6: Provision of Bicycle Lanes on Existing Streets**

**Recommended Policy:** Analyze the existing lane widths on arterial streets in Jamestown (e.g. Guilford Road, Main Street and others) and where possible reduce travel lane widths to 10-11ft and add 5-6ft bicycle lanes to streets through a restriping plan. This will achieve the goal of buffered sidewalks, reduced travel speeds and additional alternative transportation facilities. Installation of bicycle lanes on streets with on-street parking can be problematic, other alternatives such as sharrows or warning signage should be considered.

## **PROGRAM RECOMMENDATIONS**

### **Streetlight Inventory and Gap Study**

There is a need for additional streetlights in the Town of Jamestown as indicated in public meeting comments and survey responses. To identify those lighting gaps, a streetlight inventory should be conducted. This inventory may include analysis of the number of lights, distances between lights, lumens, foot candle and style of light. The study may also identify corridors where foot traffic exists, is on the increase and where and what type of decorative streetlights should be used.

Gaps in street lighting along the existing and future pedestrian infrastructure should be filled to maximize the use of sidewalks in the evenings so that evening automobile trips as well as daytime trips may be replaced by walking. The added streetlights will not only encourage more walking in the evenings, but also make walking safer, especially at street crossings.



### **Sidewalk Maintenance Agreements with Property Owners**

To clarify what sidewalk maintenance is required by adjacent property owners and what is required by the Town of Jamestown, a sidewalk maintenance agreement and program should be conducted. This agreement could be as simple or as extensive as necessary to address current issues with sidewalk disrepair.

The maintenance agreement may require property owners to cut back trees or shrubs that block the sidewalk right of way, and may also require the landowner to repair broken or damaged sidewalk. If repairs are not completed in a timely manner, the maintenance agreement may spell out the terms in which the Town would repair sidewalk and charge the property owner for the cost of repair or a percentage of the cost.

### **Safe Routes to School**

The Jamestown area elementary and middle schools, administrators, teachers, students and parents should continue to work on Safe Routes to School promotional efforts geared towards educating and encouraging children to walk to school. The Town coordinated a one day workshop on Safe Routes to School at Jamestown Elementary School in 2007 and applied for construction funding in 2008 to connect the center of Jamestown with the middle and high school. The construction grant was not awarded, however the Town staff is considering another application in future grant cycles.

Jamestown Elementary has sidewalks leading to the school, whereas the current Jamestown Middle and Millis Road Elementary do not have sidewalks leading to the school. Infrastructure of sidewalks or multi-use paths leading to schools is an integral part of the Safe Routes to School program, however education and encouragement around the benefits of walking and physical activity is an important component of the Safe Routes to School program. You can visit the NCDOT Safe Routes to School Program website here:

<http://ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html>. More information on Walk to School Day events, usually held in October can be found at [www.walktoschool.org](http://www.walktoschool.org).

### **Streetscape Master Plan**

A streetscape master plan provides specific landscape architecture and engineering detail improvements for a street corridor. Streetscape planning on key gateway and downtown corridors (e.g. West and East Main Street, Guilford, Oakdale, Dillon and East Fork Road) can provide aesthetic and functional improvements to important public street corridors. A streetscape plan takes a critical look at important streets and can provide a number of functional improvements including: better sidewalk spaces, traffic calming (e.g. curb extensions, enhanced mid-block crossings), stormwater infrastructure to reduce stormwater run-off, aesthetic street trees and plants, buried utilities, etc. The Town may choose to do a streetscape plan for one street or concurrently on multiple streets, depending on resources available.



*Main Street, Jamestown*

### **Historic Walking Wednesdays and Health Education**

Community associations, including the Jamestown Business Association, Churches and other interested members of the community should incorporate the benefits of walking and physical activity into a regular event once a week in downtown Jamestown. Different individuals could



be in charge of leading the walk around Jamestown each week (or every other week), provide a cultural, historical or health topic for individuals who join the walk. Another individual would be in charge of posting information about the walk every week through existing communication channels. Additional workshops and activities can be offered outside of the recurring events if interest is strong. There are number of communities in the Triad that provide regular walking events, including Burlington and Greensboro.

### **Jamestown Trails Map**

In coordination with the City of High Point, the Piedmont Environmental Center (PEC) and Guilford County's Gibson Park, create a map of existing and planned trails in Jamestown. Visitors to Jamestown could download and print this map that would combine the trails at the PEC, Gibson Park, City Lake Park and the rest of Jamestown. Existing sidewalks, transit stop locations, existing and future river accesses and other points of interest could be included on the map to promote pedestrian transportation and recreation in Jamestown.

### **Pedestrian Law Enforcement Program**

Use the training curriculum from NCDOT's A Guide to NC Bicycle and Pedestrian Laws – <http://www.ncdot.org/transit/bicycle/laws/resources/BikePedLawsGuidebook-Full.pdf> , and work with the Guilford County Sheriff's Department to re-establish the knowledge of pedestrian laws. The topics covered under the curriculum include right-of-way at crosswalks, right turn on red, yielding, walking on roadways without sidewalk, railroad crossings, school zone rules, etc. After completing the curriculum, encourage the County Sheriff to monitor school zones in Jamestown for enforcement during school pick up and drop off times.

### **Sidewalk Gap Closure Fund**

Create a capital improvement plan category to fund construction of sidewalk gaps (shown in purple dashed lines in Figure 3.1.3 above). The primary gap locations include Main Street and Guilford Road. As new development occurs on the south side of Main Street, for example, the gap closure fund could fill in the missing sections of sidewalk to create connectivity to existing sidewalk, making both sides of Main Street a walkable environment. This gap closure fund could also support a cost sharing agreement between property owners who want to construct sidewalk, but are not willing to pay the entire cost of sidewalk installation. In addition, minor intersection improvements including curb ramping, wheelchair landing areas and other small improvements could be eligible for this funding source.

## 4. IMPLEMENTATION

Effective implementation of recommended projects, programs and policies outlined in this plan will require the sustained, focused and coordinated efforts by Town leaders and Jamestown citizens. The planning efforts in this plan and previous plans have reinforced the interest of citizens in creating more trails, sidewalks, open space and safe road crossings. Continued effort in implementing action items will create the momentum needed to carry out projects, program and policies outlined for the next 20 years. The schedule of action items on the following page outlines how the highest priority action items can be implemented and the entities with primary responsibility for carrying out each action item.

The Town of Jamestown should capitalize on road projects or other unforeseen opportunities that may preclude action items shown in the table on the next page. The list of action items should be reviewed and evaluated by Town staff and reprioritized every 2 years. In addition to maintaining a list of completed projects, the Town should conduct an annual audit of pedestrian infrastructure, assets and needs to identify changing issues and re-focus limited capital efficiently.

### 4.1 ACTION PLAN

A step-by-step implementation process is detailed for the next 2 years and items are not necessarily in sequential order. The suggested party or parties who need to complete each action step is also included, with a reference where more info can be found in this document. Opportunities to implement certain action items may arise before others and these opportunities should be pursued.

One of the most important action items is the formation of a pedestrian transportation implementation committee, which may be a sub-committee of the Planning Board or Town Council. The implementation committee will advocate for implementation of the plan and assist in public outreach and grant writing, Town staff communication and other duties. There may be existing non-profit groups able to fulfill this role, members of the plan steering committee or individuals who signed up at the public meetings who would be willing to lead the implementation committee effort. The implementation committee would be involved in action items below, while looking to new volunteers to actively participate on an annual or bi-annual basis.

Funding opportunities from state and federal agencies and non-profits are listed in Appendix D. Applications for funding from the various resources will be integral to successful implementation of pedestrian transportation goals and objectives. When citizens were asked a question about funding pedestrian improvements in the pedestrian user survey (see Appendix B for full results) the #1 preferred 'primary source of funding for sidewalks, multi-use trails and lighting in Jamestown':

- 31% reported 'Bond Referendum',
- 26% reported 'Impact Fees on New Development',
- 18% reported 'Public/Private Partnerships',
- 15% reported 'Property Tax',

- 7% reported 'Local Sales Tax' and
- 3% reported 'Donations'.

These responses should be referenced when considering local funding for plan implementation. Many state and federal grants require a local cash match and these sources of funding can help fulfill that match.

In five years or 2015, a broader assessment and evaluation of efforts should be performed to both look at proposed changes to priorities and progress on implementing projects, programs and policies. New ideas, new challenges and opportunities should also be explored. The 2015 reassessment would serve as a Comprehensive Pedestrian Transportation Plan Update and may modify a number of sections of this current Pedestrian Transportation Plan.



**2 YEAR ACTION ITEMS**

2010 Action Items	Partners	More Information
<ul style="list-style-type: none"> <li>○ Establish a pedestrian transportation implementation committee to advance high priority projects, policies and programs;</li> </ul>	<p><b>Members of the community, steering committee members and meeting attendees invited to participate</b></p>	<p>See Section 4.1 pg. 54</p>
<ul style="list-style-type: none"> <li>○ Fund 1 priority sidewalk project, 1 multi-use path project, 3 crossing improvement projects;</li> </ul>	<p><b>Town Council, sub-contractor, High Point MPO</b></p>	<p>See Section 3.1 pgs. 32-47</p>
<ul style="list-style-type: none"> <li>○ Fund a streetscape plan for one or multiple corridors, depending on resource availability</li> </ul>	<p><b>Town Council and Planning Board</b></p>	<p>See Section 3.3 pg. 52</p>
<ul style="list-style-type: none"> <li>○ Establish a program to fund sidewalk gaps and a policy on how to equitably reward and fund the program, include guidance on sidewalk maintenance agreements for property owners</li> </ul>	<p><b>Town Council, Jamestown Planning and Pedestrian Implementation committee</b></p>	<p>See Section 3.3 pgs. 50 &amp; 53</p>
<ul style="list-style-type: none"> <li>○ Establish a Complete Streets policy that explicitly includes accommodation of pedestrians and bicycles on new bridges</li> </ul>	<p><b>Town Council</b></p>	<p>See Section 3.3 pg. 50</p>
<ul style="list-style-type: none"> <li>○ Establish Walking Wednesdays and Jamestown Trails Map</li> </ul>	<p><b>Guilford County Health Department, Local Businesses and Pedestrian Implementation committee</b></p>	<p>See Section 3.3 pg. 42 &amp; 53</p>
<ul style="list-style-type: none"> <li>○ Seek funding sources needed to build top priority projects;                     <ul style="list-style-type: none"> <li>▪ Establish grant writing schedule and seek grants for specific projects to achieve project building goals;</li> <li>▪ Provide matching money for grant applications;</li> <li>▪ Establish Jamestown Greenway Trust Fund;</li> <li>▪ Seek Safe Routes to School Funding;</li> <li>▪ Increase Capital Program funding for sidewalks;                             <ul style="list-style-type: none"> <li>• Seek other funding sources;</li> </ul> </li> </ul> </li> </ul>	<p><b>Town Council, Town of Jamestown Planning, Pedestrian Transportation Implementation committee, High Point MPO</b></p> <p><b>Town Council, Town of Jamestown, Intern, NCDOT, Pedestrian Transportation Implementation committee and Non-Profit Partners</b></p>	<p>See Appendix D pgs. 97-113</p> <p>See Section 3.3 pg. 52 &amp; Appendix D pgs. 97-113</p>

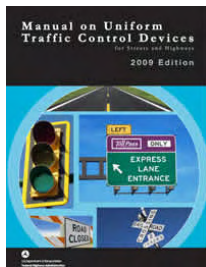
2011 Action Items	Partners	More Information
<ul style="list-style-type: none"> <li>○ Fund 2 additional sidewalk projects, complete multi-use path project, identify and fund another multi-use path project, 3 crossing improvement projects;</li> </ul>	<p><b>Town of Jamestown and sub-contractor, High Point MPO</b></p>	<p>See Section 3.1 pgs. 32-47</p>
<ul style="list-style-type: none"> <li>○ Adopt an Access Management Policy and include an assessment of streets where bicycle lanes may be feasible on existing streets in Jamestown</li> </ul>	<p><b>Town Council and Jamestown Planning</b></p>	<p>See Section 3.3 pg. 51</p>
<ul style="list-style-type: none"> <li>○ Work with Duke Energy to fund a streetlight inventory focusing on gaps, streetlight styles and foot candles</li> </ul>	<p><b>Public Services Department and Jamestown Planning</b></p>	<p>See Section 3.3 pg. 51 and Appendix A p. 81</p>
<ul style="list-style-type: none"> <li>○ Acquire public access easements along sewer lines on the Deep River and powerline north of Gibson Park</li> </ul>	<p><b>Town Council, Jamestown Planning and Pedestrian Transportation Implementation committee</b></p>	<p>See Section 3.1 pg. 37 for multi-use path locations and Section 3.3 pg. 50</p>
<ul style="list-style-type: none"> <li>○ Assess walking programs and decide which programs to discontinue or seek new volunteers to lead efforts;</li> </ul>	<p><b>Pedestrian Transportation Implementation committee and Non-Profit Partners</b></p>	<p>n/a</p>
<ul style="list-style-type: none"> <li>○ Complete a streetscape plan and begin construction;</li> </ul>	<p><b>Town Council, sub-contractor, NCDOT Division, High Point MPO</b></p>	<p>See Section 3.3 pg. 52</p>
<ul style="list-style-type: none"> <li>○ Continue to seek funding sources needed to build pedestrian projects;</li> </ul>	<p><b>Town Council, Town of Jamestown Planning Department, Pedestrian Transportation Implementation committee, High Point MPO</b></p>	<p>See Appendix D pgs. 97-113</p>
<ul style="list-style-type: none"> <li>▪ Establish grant writing schedule and seek grants for specific projects to achieve project building goals</li> <li>▪ Town to provide matching money for grant applications;</li> <li>▪ Renew Capital Program funding for sidewalks;</li> <li>▪ Seek other funding sources;</li> </ul>	<p><b>Town Council, Town of Jamestown Planning Department, Pedestrian Transportation Implementation committee and Non-Profit Partners</b></p>	<p>See Appendix D pgs. 97-113</p>

# APPENDIX A. PEDESTRIAN FACILITY GUIDELINES

The placement and design of new pedestrian facilities should vary somewhat depending on the make-up of the adjoining land uses. This is referred to as context sensitive-design, building facilities based on the existing environment. The following are overall guidelines for facility development (Mooresville Pedestrian Plan, 2005):

- Give transportation priority to the completion of pedestrian routes to schools, neighborhood shopping areas and parks.
- Incorporate the natural and historical aspects of the Town into pedestrian projects.
- Ensure that the safety and convenience of pedestrians are not compromised by transportation improvements aimed at motor vehicle traffic.
- Ensure that the pedestrian circulation system is safe and accessible to children, seniors and the disabled.
- Require storefront commercial development to be oriented to pedestrians.
- Street furniture, vendors, water fountains, bicycle racks, lighting, and other pedestrian necessities should be welcomed, but also be placed out of the immediate pedestrian travel area.
- Establish links between sidewalks, trails, parks, and the rest of the community.
- Retain public pedestrian access when considering private right-of-way requests.
- Support changes to existing policies that would enhance pedestrian travel.
- The pedestrian system should connect to residential, commercial, industrial, educational, and recreational areas.
- Off-site street improvements or enhanced multi-use path facilities may be required as a condition of approval for land divisions or other development permits.
- Aesthetics and landscaping shall be a part of the transportation system.
- Coordinate transportation planning and efforts with neighboring municipalities.

The basic principles of walkable communities (see Chapter 1) should guide the development of new facilities. These new facilities may be built by the Town of Jamestown, NCDOT or built as new development occurs by private contractors and individual property owners.

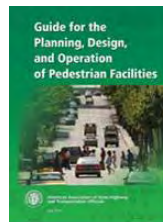


There are a number of ways to build the facilities called for in this plan. Many of the facility improvement recommendations will need further investigation and engineering before improvements and design are finalized. The designs and improvements to federally funded streets must follow Federal Highway Administration guidelines outlined in the Manual of Uniform Traffic Control Devices - MUTCD (see inset) or be in jeopardy of losing funding or adding liability. More flexibility is allowed for municipal owned streets where local or state funding is used.

Additional guidance for trails and sidewalks can be found in the following manuals:



American Association of State Highway and Transportation Officials (AASHTO) Guide to the Development of Bicycle Facilities (1999)



AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)



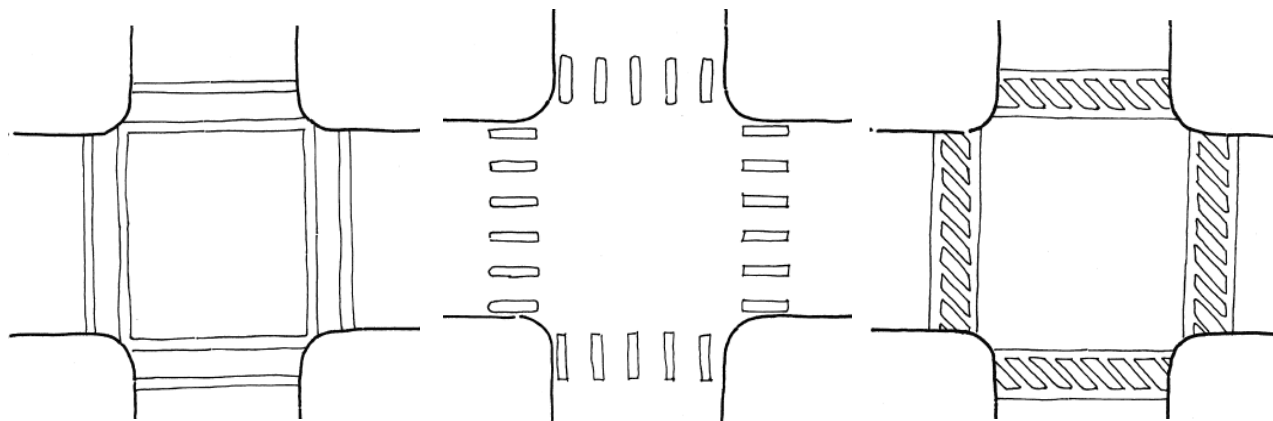
## INTERSECTIONS

Pedestrian-vehicular conflict occurs primarily at intersections. As shown by the intersection project recommendations, features that help pedestrians include: crosswalks, curb ramps, refuge islands, signals, signs, advance stop bars, curb extensions and other treatments. Some of the most important treatments for improving pedestrian intersection crossings are included below, but there are many other treatments to consider. The *PEDSAFE: Pedestrian Safety Guide and Countermeasures Selection System* [www.walkinginfo.org/pedsafe/](http://www.walkinginfo.org/pedsafe/) may be consulted in addition to a number of the other resources found in the References section of this Plan when considering improvements to intersections.

## CROSSWALKS

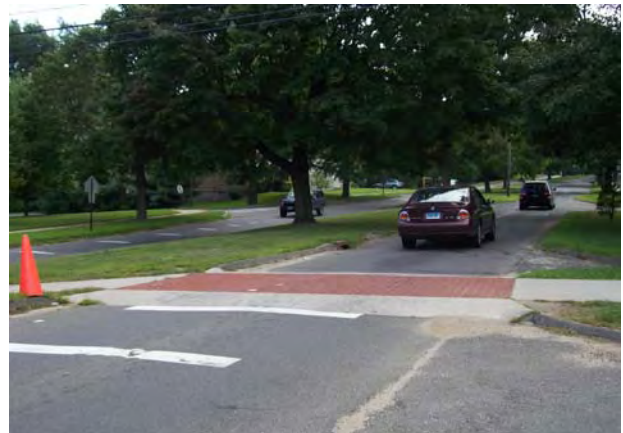
Crosswalks direct pedestrians to the best places to cross the street. Curb ramps should be aligned with crosswalks. Crosswalks do not always provide the needed safety to cross a street safely, for example on higher speed arterial streets, additional treatments are needed to make it safe for pedestrians to cross, including medians, crossing islands and other treatments.

**Figure A.1-A - Crosswalk Design**



*Horizontal Line (most common)      Ladder Style (high vis., low maintenance)      Diagonal (high vis., and maintenance)*  
 Courtesy: ITE

The crosswalk designs shown in Figure A.1-A are approved by the MUTCD and should be marked with white paint at all times. Crosswalks should be at least 6 feet wide and 10 feet wide or more in high pedestrian traffic areas. The horizontal line crosswalk is common in Jamestown. The ladder and diagonal style are the most visible design. When installed correctly, the ladder style requires less maintenance as the hash marks can be aligned so that motor vehicle wheels will not track over them, reducing wear and tear. The NCDOT installation of crosswalks typically requires sidewalks on both sides of the roadway.



*Raised Crosswalk, CT*  
 Source: [www.pedbikeimages.org](http://www.pedbikeimages.org), Tom Harned

A raised crosswalk may be recommended for high pedestrian usage areas (i.e. next to parks or schools) and are typically installed on two lane roads with a posted speed limit of less than 35mph.

### **Mid-block crossings**

In general mid-block crosswalk crosswalks should **not** be:

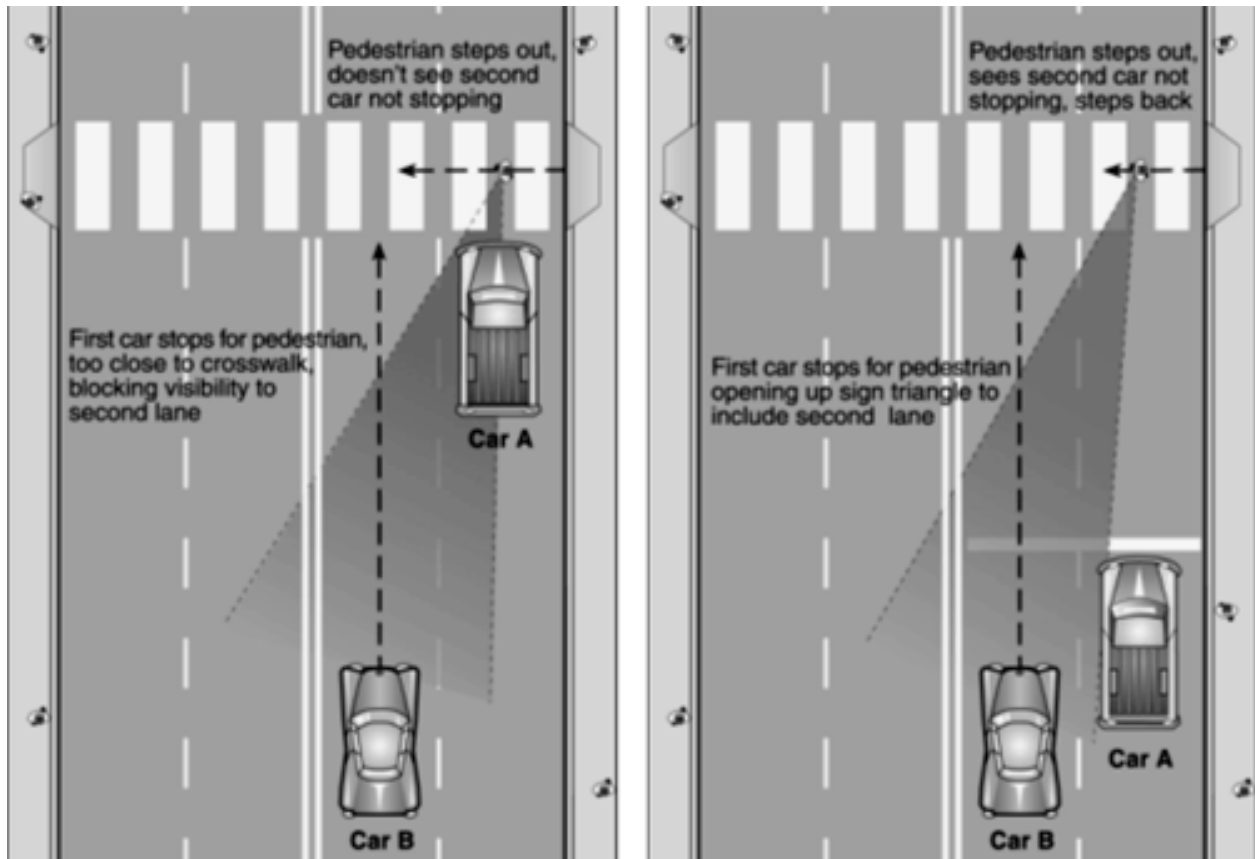
- Installed in an uncontrolled environment where speeds exceed 40mph;
- Installed within 300 feet of another designated crossing point;
- Installed without other safety treatments such as warning signage or pavement markings, signalization or curb extensions, raised crosswalks, etc.

More guidance can be found in the NCDOT Policy on Mid-Block Crossings (uncontrolled) - [http://www.ncdot.org/doh/PRECONSTRUCT/traffic/tepp/Topics/C-36/C-36\\_pr.pdf](http://www.ncdot.org/doh/PRECONSTRUCT/traffic/tepp/Topics/C-36/C-36_pr.pdf)

### **Advance stop bars**

In conjunction with striping crosswalks on multi-lane roads, it is recommended that installation of advance stop bars be included for pedestrian safety. Figure A.1-B illustrates the site distance advantage when advance stop bars are included for vehicles. The advance stop bars may have yield to pedestrian sign (MUTCD R1-5, R1-5a, R1-6, R1-6a) at un-signalized intersections indicating that vehicles must yield at the stop bar. The stop bar should be placed 6 to 15 feet from the crosswalk on multi-lane roads or un-signalized intersections and 4 to 10 feet from the crosswalk at signalized intersections.

Figure A.1-B - Advance Stop Bar for Crosswalks



Source: [www.walkinginfo.org](http://www.walkinginfo.org)

Figure A.2 - In-Pavement Yield to Pedestrian Sign



In Pavement Yield to Pedestrian Sign - Greensboro, NC

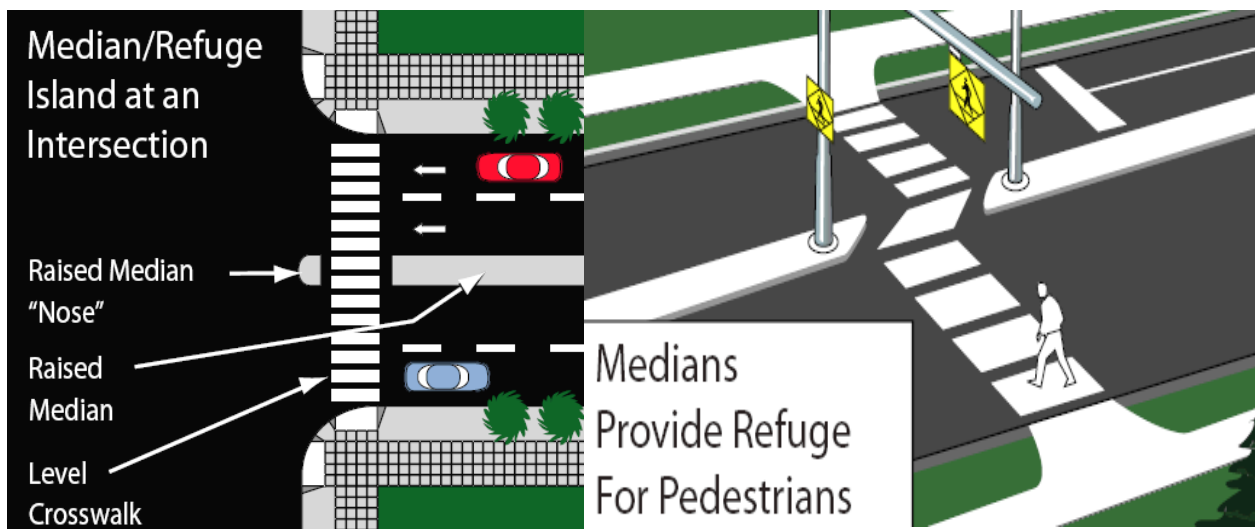
It is important to study the best crosswalk locations before installation. The vehicles need to be able to see the pedestrians and the pedestrians need to be able to see the vehicles. In addition, there must be ample room for wheelchair landings where the curb ramp meets the sidewalk. Figure A.2 shows the sign design from the MUTCD which can be placed on plastic bollards in

advance of the crosswalk as shown in the photo. These improvements are recommended in a number of intersections for Jamestown.

## **REFUGE ISLANDS**

The design and installation of a refuge island (or crossing island) at an intersection is shown in Figure A.3 on the left. The installation of a refuge island increases the safety of pedestrians allowing refuge when a complete crossing is interrupted by speeding or turning vehicles. The refuge or crossing island is especially helpful to pedestrians on major thoroughfares with 3 or more lanes. Figure A.3 shows how a median can help pedestrians across the street where there is no intersection.

**Figure A.3 - Median/Refuge Islands**



*Source: Pedestrian Bicycling Information Center, Dan Burden*

This installation would be appropriate on long blocks where pedestrians are observed crossing mid-block and it is greater than  $\frac{1}{4}$  mile +/- distance to the nearest intersection. Median refuge islands should be at least 6 feet wide to accommodate two pedestrians and at least 10 feet wide for high pedestrian use areas. At a minimum, a 4 square foot level landing area should be included to accommodate wheelchair users.



## PEDESTRIAN SIGNALIZATION

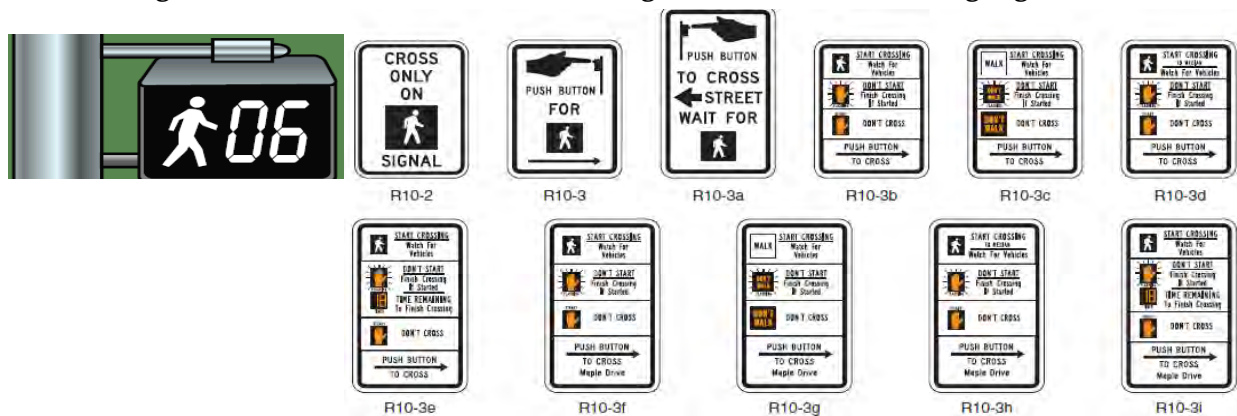
Pedestrian push button activated signals and signage is shown Figure A.4. The push button should be located on the sidewalk and easily accessible to persons with disabilities, but in a location that does not interfere with pedestrian travel or encroach on the landing area from the curb ramp. The countdown signal shows the amount of time the pedestrian has to cross the street and counts down to show how much time is left. The countdown signal should be included on all installations and is the standard for NCDOT. The pedestrian interval or countdown time should be based on a walking speed of 3.5ft/s.

### Other Considerations for Pedestrian Signalization

- To reduce right turn on red crashes with pedestrians, a “leading pedestrian interval” can be programmed into the signal time so pedestrians can safely cross the lane(s) where turning conflicts may exist.
- Audible signals to help people with visual impairment know when to cross safely.
- In high pedestrian traffic areas, automatic pedestrian signal activation can improve pedestrian transportation.

At intersections where pedestrians are observed and may be experiencing delay in crossing the street, traffic engineers should consult the MUTCD Section 4C.05 Warrant 4, Pedestrian Volume: <http://mutcd.fhwa.dot.gov/hm/2009/part4/part4c.htm> to determine if a pedestrian signal is needed. There is additional information on accessible pedestrian signals regarding types and placement guidelines at the Pedestrian and Bicycling Information Center website: [www.walkinginfo.org/aps](http://www.walkinginfo.org/aps).

Figure A.4 – Pedestrian Countdown Signal and Push Button Signage



The pedestrian in roadway light and sign shown in Figure A.5 provides automobile traffic a warning signal that pedestrians are in the roadway. The flashing yellow light is being replaced by the rapid flashing beacon shown in the picture on the lower right. Both can be activated either by a sensor or by push-button activation for pedestrians before using a designated crosswalk. This application is particularly useful for mid-block crossings or crosswalks with poor sight distance. The sign used with the flashing light is from the MUTCD Chapter 2C and is code W11-2.

**Figure A.5 - Pedestrian in Roadway Light and Rapid Flashing Beacon**

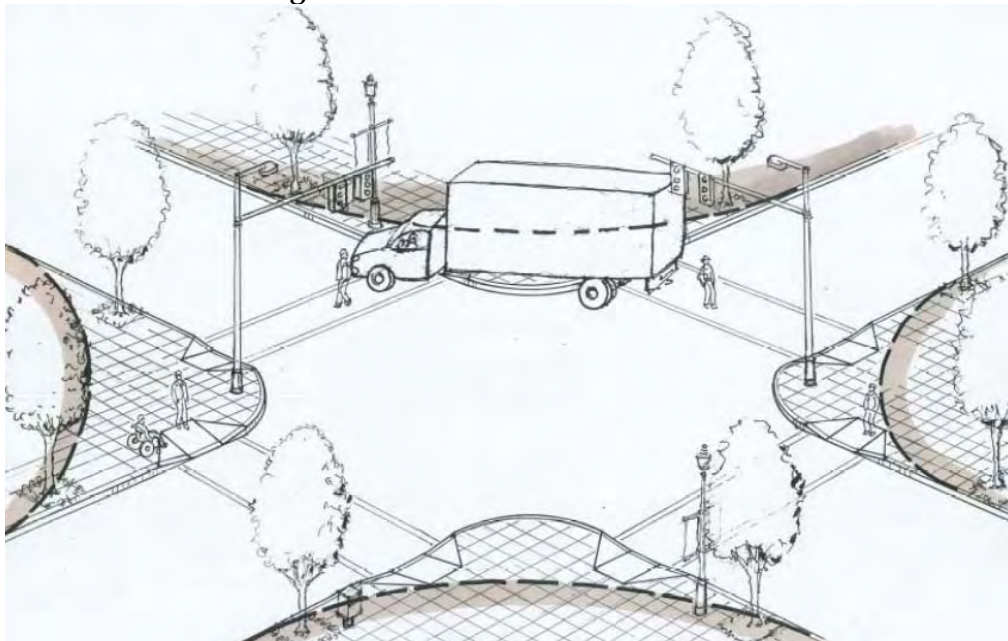


Source: Dan Burden and FHWA

## **BULB-OUTS OR CURB RADII**

The curb radii of an intersection influences not only crossing distance, but also the speed of vehicles traveling through the intersection. Decreasing the crossing distance through bulb-outs reduces the curb radius and helps pedestrian safety, comfort and access. Bulb-outs can be installed at intersections or mid-block crossings, much like pedestrian refuge islands. Large trucks can maneuver through the intersections by traveling slower or encroaching slightly into the other travel lanes as necessary to complete turns.

**Figure A.6 - Reduction in Curb Radii**

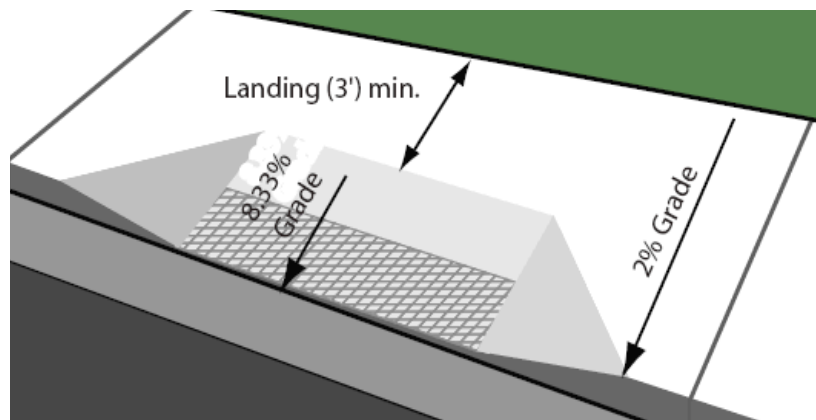


Source: Kimley-Horn Associates

## **CURB RAMPS**

There are many locations along existing sidewalks where the installation of curb ramps will enhance the walking environment. The design shown in Figure A.7 follows the guidelines of the Americans with Disabilities Act (ADA). Each four-way intersection should have 8 ramps or 2 to a corner. The curb ramp should align with the crosswalk. The width of the ramp should be at least 4' and a detectable warning for the visually impaired (see truncated dome image below) should extend 24" from the bottom of the ramp, covering the entire width of the ramp. The image below shows a curb ramp installation in a parking lot, which is required by law and included in the Jamestown ordinance.

**Figure A.7 - Curb Ramp and Sidewalk Landing Specifications**



Source: FHWA



Source: Wikipedia, tactile paving

## **SIDEWALKS**

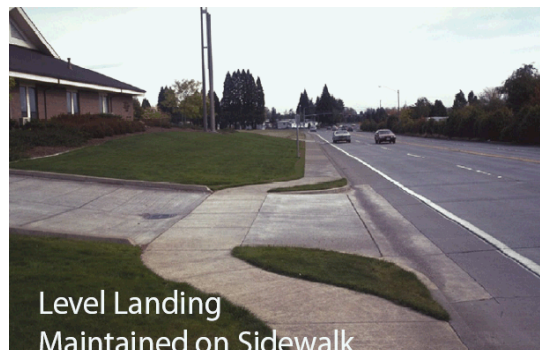
The most important feature of the pedestrian transportation system is the sidewalk. Without a sidewalk, many people will not or cannot walk safely along streets and roads. Many of the recommendations for improvement have suggested closing sidewalk gaps, improving handicap accessibility, and making neighborhood connections to shopping areas, schools and nearby parks.

The following guidelines for sidewalk construction and design are from the Institute for Transportation Engineers:

- Central Business District: Wide enough to accommodate users. Minimum 8 feet (not including the planting strip or street furniture).
- Commercial area outside the central business district: 7 feet wide if no planting strip is possible, or 5 feet wide with a 2-8 foot planting strip (Wider planting strips accommodate greater buffers from traffic and the opportunity to plant large shade trees).
- 4 to 8 foot wide planting strips are recommended along all sidewalks to provide separation from vehicles. This space is useful for landscaping, lighting, trash receptacles, water fountains, benches, temporary storage of weather debris and the room to accommodate driveway ramping while maintaining a level or near level (<2%) sidewalk cross slope.
- Crosswalks should have direct alignment with curb ramps at intersections.
- Sidewalks should be clear of obstructions such as utility poles, sign posts, fire hydrants, etc.
- Vertical clearance should be at least 7 feet from ground level to the bottoms of signs or the lowest tree branches.
- Increasing sidewalk widths by 2-3 feet would accommodate shoulder-high intrusions like building walls, bridge railings, and fences.
- Maximum cross-slope of 1:50 (2%). Limit running slope to 5% (1:20), or no greater than 8.33% (1:12) where topography requires it. Building access ramps with landings and handrails would help users.

A minimum planting strip of 6ft and a maximum planting strip of 8ft in residential areas is suggested for residential areas, with 5ft minimum sidewalks. In commercial areas, school zones and the central business district 8-12 ft sidewalks should be required where significant pedestrian traffic has been observed. More flexibility in the use of the sidewalk space (e.g. street furniture, brick patterns, etc) near the curb should be allowed. In addition, way finding signs on the sidewalk network can enhance the pedestrian experience downtown areas.

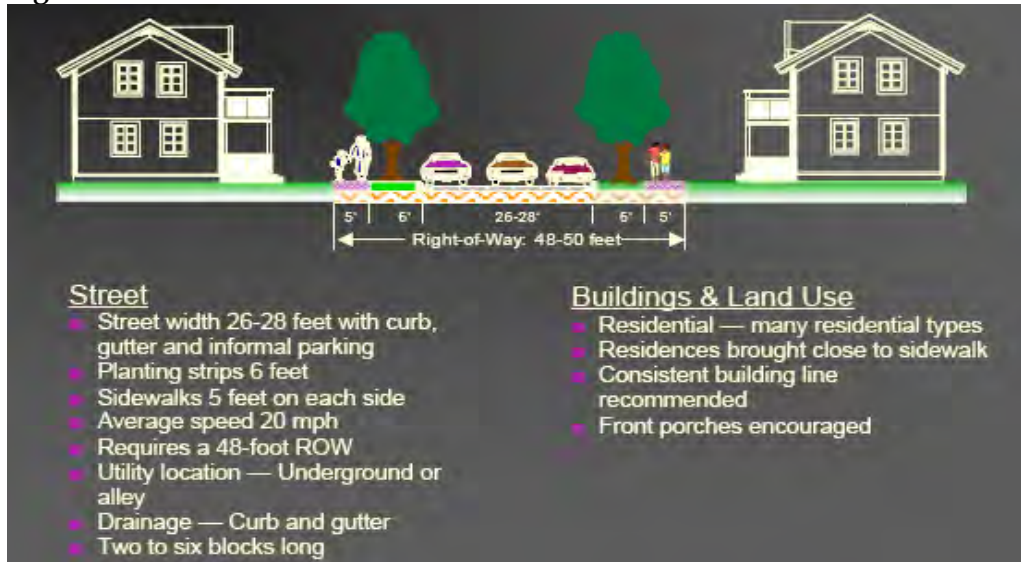
It is important to design sidewalks to be level across driveways, including both the cross and running slope. The ‘Level Landing’ picture shows an example of how a continuous sidewalk grade can be maintained. This design helps people in wheelchairs negotiate driveways and driveway aprons with ease.





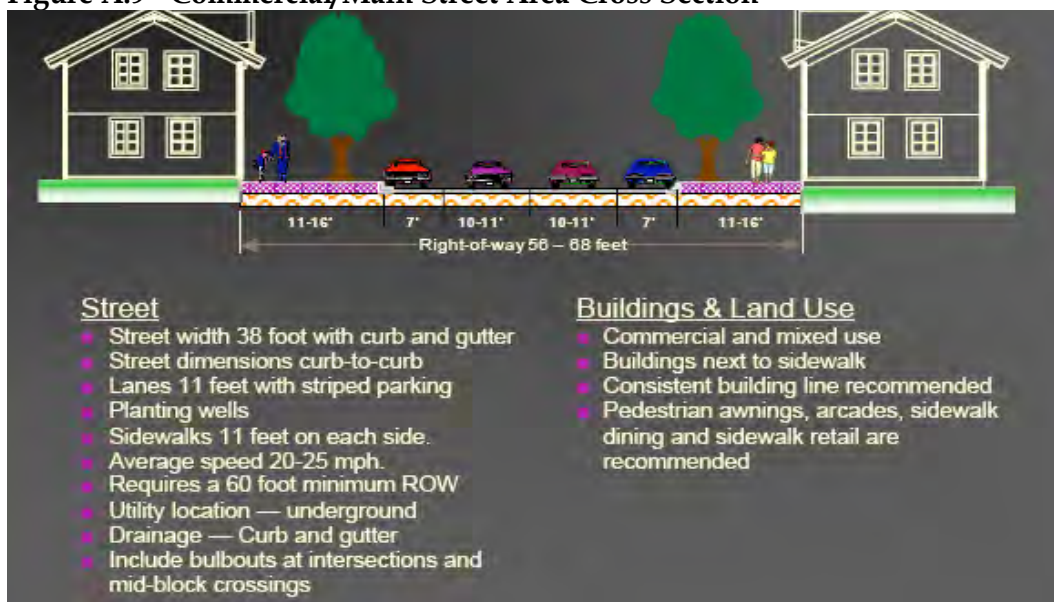
The street cross sections that follow are part of “Street Designs that Support Walkable, Livable Communities” by Paul Zykofsky and Dan Burden. The street cross section shown in Figure A.8 is appropriate for residential neighborhoods in the Town of Jamestown. A minimum 5’ sidewalk ordinance exists, but a minimum 6’ of planting/utility strip should be added.

**Figure A.8 - Residential Street Cross Section**



In commercial areas, the planting strips should not encroach on the travel way of the sidewalk, which should be at least 8’ in width between the building and the planting wells or street furniture in the central business district and at least 7’ in width in other commercial areas. The street cross section shown in Figure A.9 is appropriate for commercial and downtown areas.

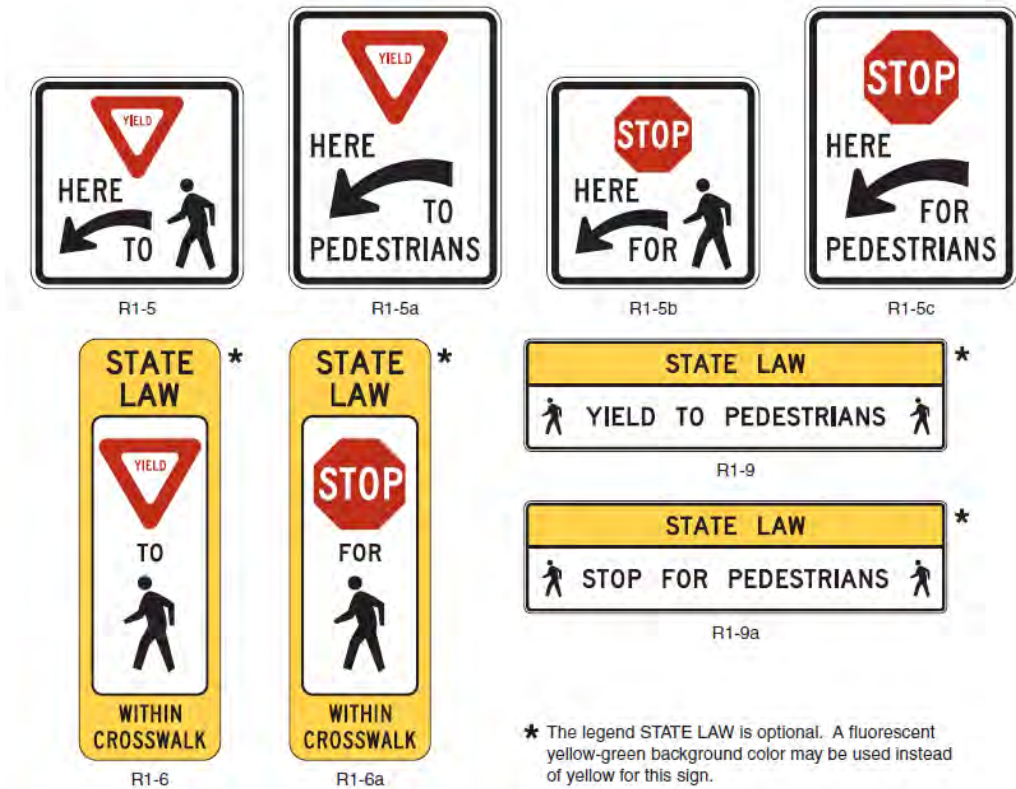
**Figure A.9 - Commercial/Main Street Area Cross Section**



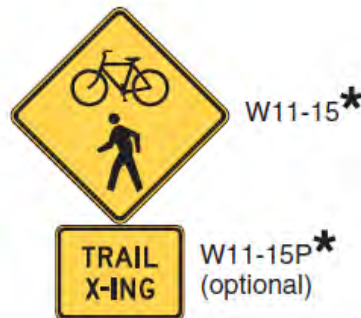
## PEDESTRIAN RELATED SIGNAGE

There are a number of warning signs to aid drivers in observing traffic laws and to avoid problems with pedestrians. Figure A.10 shows examples of pedestrian signage from the MUTCD. The majority of pedestrian signs can be found in Chapter 2B. School safety signage related to pedestrians is found in Part 7B of the MUTCD and examples are shown in Figure A.11. The number below each sign indicates the code for the design of the traffic control device.

Figure A.10 - MUTCD Pedestrian Related Signage



Source: MUTCD 2009 Chapter 2B, p. 55



Source: MUTCD 2009 Chapter 2C, p. 129

Figure A.11 - MUTCD School Zone Pedestrian Related Signage

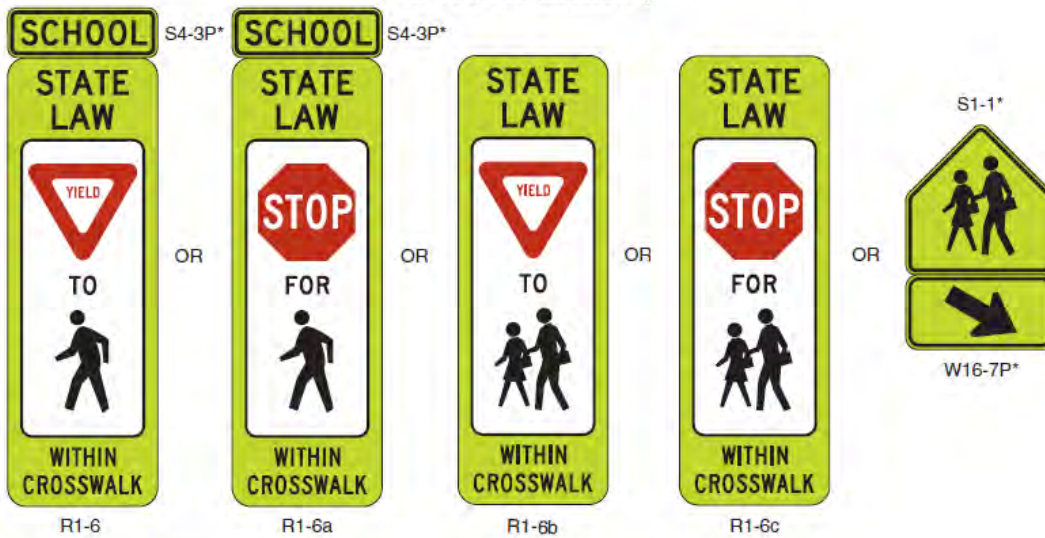
Figure 7B-6. In-Street Signs in School Areas

A - In advance of the school crossing



\* Reduced size signs:  
 S1-1 12 x 12 inches  
 S4-3P 12 x 4 inches  
 W16-7P 12 x 6 inches  
 W16-9P 12 x 6 inches

B - At the school crossing



Notes:

1. The use of the STATE LAW legend is optional on the R1-6 series signs (see Section 7B.12).
2. The use of the SCHOOL plaque above the R1-6 and R1-6a signs is optional.

Source: MUTCD 2009 Chapter 7B, p. 741



## **INNOVATIVE SIDEWALK MATERIALS AND INSTALLATION**

This section provides information on additional materials to consider when building new or repairing existing sidewalk infrastructure.

### **Rubber Sidewalk**



*Rubber Sidewalk (Source: Rubber Sidewalks, Inc.)*

The rubber sidewalk shown here reduces maintenance costs when compared to concrete sidewalks. According to Rubber Sidewalks, Inc. the average cost per square foot, including break out and installation is \$15.00. The cost for a linear foot of rubber sidewalk (5' width) is approximately \$75. When including the cost of grading for new installations, the cost is competitive with concrete installation. The rubber sections of sidewalk are large tiles that can be removed for tree root maintenance as well. In most cases, concrete sidewalk must be replaced after tree root maintenance.

### **Root Barriers**

There are a number of different vendors that supply root barriers for street tree plantings. The root barriers should be installed when a street tree is first planted, but can also be installed around mature trees. The root barrier should surround the tree root ball in a circle for newly planted trees. Mature trees will need to have the roots trimmed and a barrier installed between the tree and sidewalk or path. If installed correctly, the root barrier forces tree roots downward away from the sidewalk, path, building or utilities.

Root barriers can be made with any impermeable durable material that can withstand burial in soil for an extended period of time. Root barriers are recommended to be installed to a depth of 30 inches minimum and they must extend above the surface of the soil enough to prevent roots from growing over the top. There are root barrier materials that are permeable to moisture but will not allow roots to grow through, but may be more expensive.

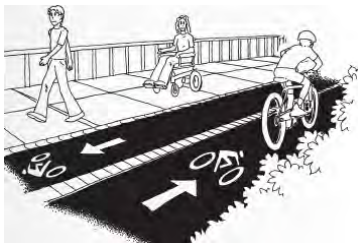


*Root Barrier (Source: Vespro, Inc.)*



## MULTI-USE PATHS AND GREENWAYS

Multi-use paths benefit pedestrians, bicyclists, in-line skaters and other non-motorized vehicle users. These facilities are extremely popular when designed and built correctly. Multi-use paths can serve as transportation or recreation and provide a motor-vehicle free walking or bicycling experience. These pathways may run along streams, abandoned railroads or major corridors. Paths can be paved or unpaved, can be along creeks or streams, and can be designed to accommodate a variety of path users.



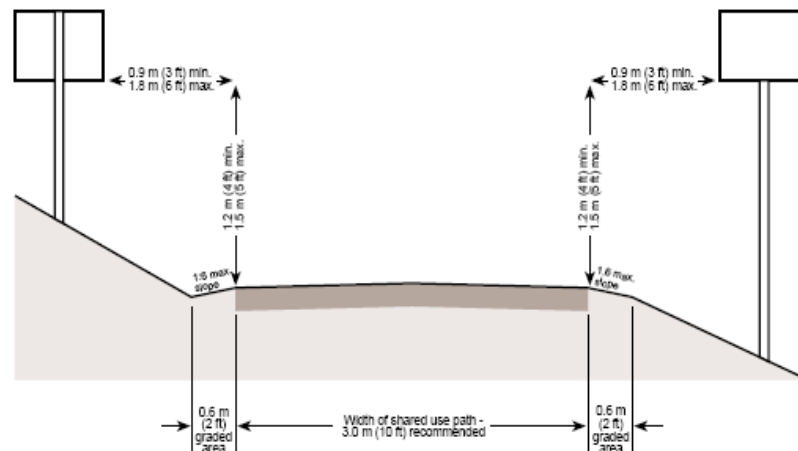
The alignment of these corridors should avoid paralleling road right-of-way whenever possible to minimize intersection and driveway crossings. Because these paths typically do not cross roads at signalized intersections, they should include warning signs, raised or textured crosswalks, flashing beacons at each road crossing for safety (see Figure A.13 for an example). The MUTCD provides guidance on trail or road volumes that warrant a signalized intersection. Trail and road crossing should not be installed close to other intersections and include flat topography to improve visibility. If the crossing distance is extensive or high trail or vehicular traffic volume exists, refuge islands need to be considered for crossing safety.

### Design Criteria

Multi-use paths shall be designed with clearance requirements, minimum radii, stopping sight distance requirements, and other criteria – similar to the criteria for roadway design. High standards should be observed when designing these paths.

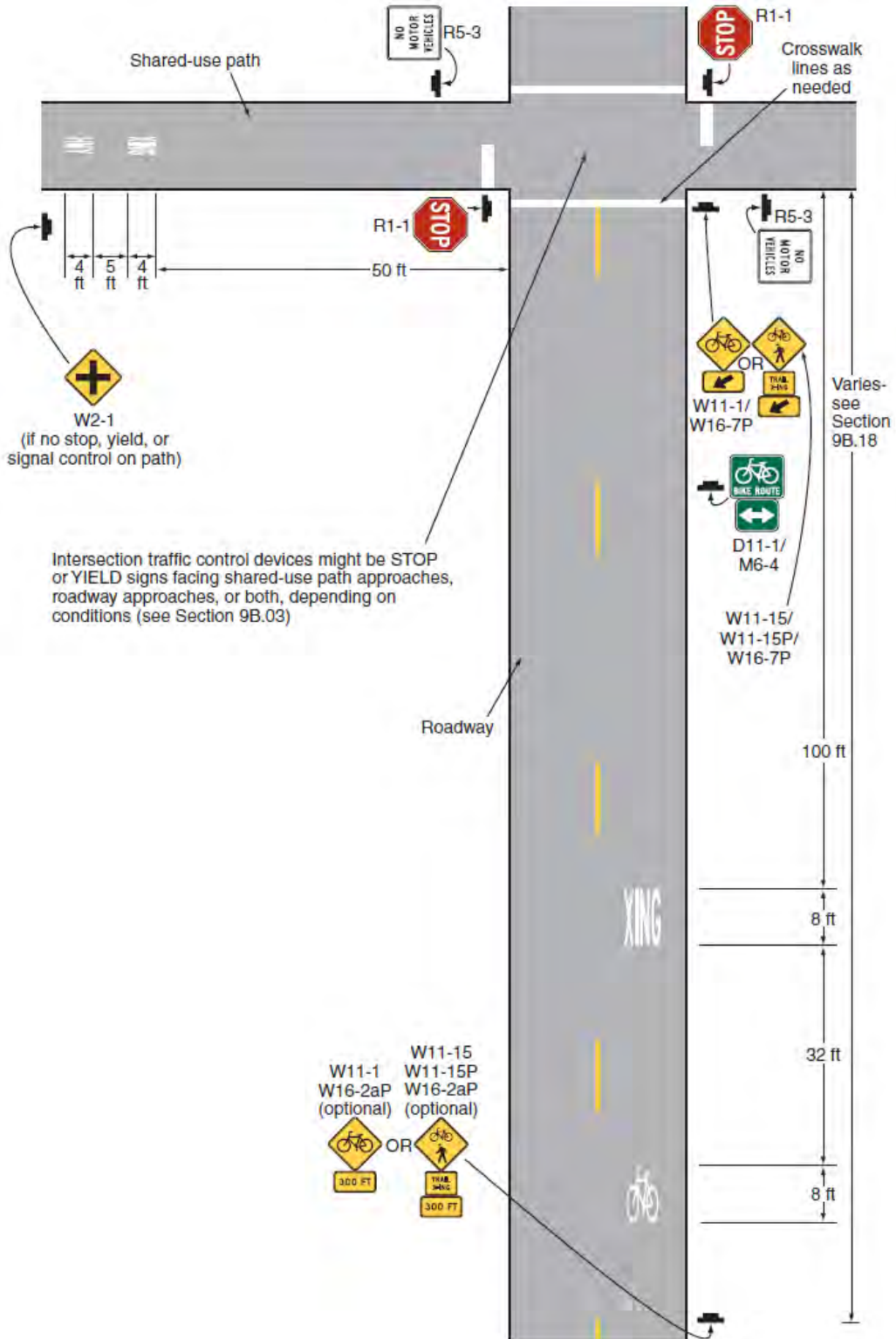
Multi-use paths should be a minimum of 10 feet wide; with minimum 2 foot wide graded shoulders on each side (AASHTO recommends 5 foot shoulders) to protect users from grade differences. These shoulders can be grass, sand, finely crushed rock or gravel, natural groundcover, or other material. Sections of the path where shoulders cannot be provided because of stream crossings or other elevation or grade issues should have protection such as rails or fences.

Figure A.12 - Multi-Use Path Cross-section and Overhead View



Source: *Guide for the Development of Bicycle Facilities*, Copyright 1999 by AASHTO. Used by permission.

Figure A.13 - Multi-Use Path Signing for Roadway Intersections



Source: MUTCD 2009 p. 803

Additional guidance and standards on multi-use paths can be found at the North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation: [http://www.ncdot.org/transit/bicycle/projects/project\\_types/Multi\\_Use\\_Pathways2.pdf](http://www.ncdot.org/transit/bicycle/projects/project_types/Multi_Use_Pathways2.pdf).

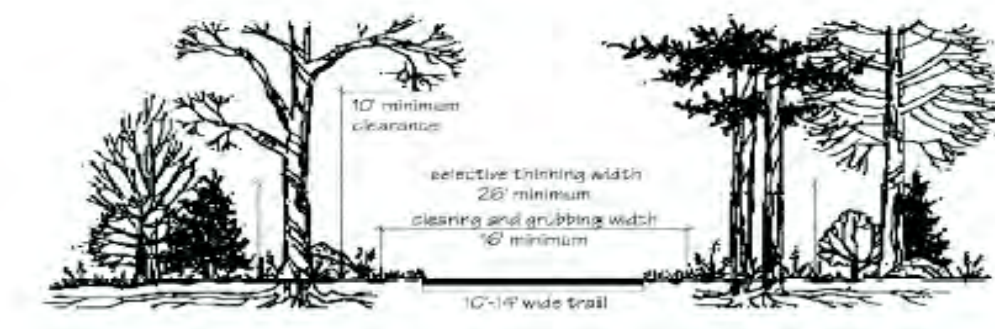
Paths of 12'-14' in width are preferred for areas where high volumes of users are expected. If it is not possible to increase the width, including a divider line down the center for bi-directional traffic can be helpful as a means of increasing safety for path users. Width of a path may be reduced to 8 feet, depending upon physical or right-of-way constraints.

These paths should keep the contour of the land for aesthetic and environmental reasons, but for practicality reasons should not be unnecessarily curved. The minimum radii or curvature recommended by AASHTO is 30-50 feet, and the cross slope should typically be less than 2%. The grade should not be more than 5%, but could reach 11% for short distances according to ADA and AASHTO guidelines. Right angles should be avoided for safety reasons, especially when considering bridge and road crossings.

### Vertical and Horizontal Clearance

Selective thinning of vegetation along a path increases sight lines and distances and enhances the safety of the path user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself. A total of 8 to 10 feet of vertical clearance should be provided, see Figure A.14.

**Figure A.14 – Vegetation Clearing Guidelines**

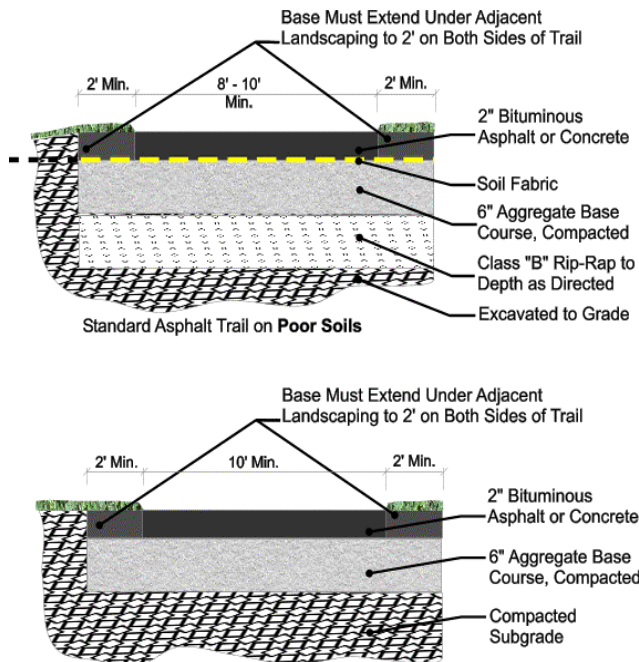


Source: NCDOT Division of Bicycle and Pedestrian Transportation

## Pavement Types

Each path is unique in terms of its location, design, environment, and intended use. For each segment of the path, care should be given in selecting the most appropriate pavement type,

**Figure A.15 – Asphalt Trail Pavement Base Construction**



Source: NCDOT Division of Bicycle and Pedestrian Transportation

considering cost-effectiveness, environmental benefit, and aesthetics.

Typical pavement design for paved, off-road, multi-use paths and greenway paths should be based upon the specific loading and soil conditions for each project. These paths should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles. Pavement types may vary between conventional or pervious concrete, asphalt, crusher fines, dirt or boardwalk.

*Conventional Concrete* – In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of holding up well against the erosive action of water, root intrusion and sub-grade deficiencies such as soft soils. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is

properly installed. Installation of concrete is the most costly of all surface types, but, when properly installed, requires less periodic maintenance than asphalt or crusher fines. It is recommended to install 4-inch thickness on compacted 4-inch aggregate base course.

*Pervious Concrete* – This concrete is a recent invention which allows storm water to percolate, reducing pollutants included in the stormwater runoff, when used over permeable soils, superior traction, unfavorable to rollerblading and skateboarding, higher installation cost.

*Asphalt* – Asphalt is a flexible pavement and can be installed on virtually any slope. Asphalt is smooth, joint free and softer than concrete, preferred by runners, rollerbladers, cyclists, handicap users, and parents pushing baby buggies. Construction costs significantly less than for concrete. Install a minimum 2-inch I-2 asphalt thickness with 4-inch aggregate base course. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a path. Asphalt pavement is also helpful in supporting a path in poor soils. Asphalt pavement can last up to 20 years with periodic maintenance. One important concern for asphalt paths is the deterioration of path edges. It is important to provide a 2' wide graded shoulder to prevent path edges from crumbling.



*Crusher fines* – Excellent for running paths, as well as walking, mountain bike and equestrian use. Can be constructed to meet ADA requirements. Paths must be smoothed out and graded several times per year. Constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix.

*Dirt* – Recommended for mountain bikes and equestrian uses. It is important to grade dirt on steep slopes to avoid erosion.

*Boardwalk* – A path made of wooden planks constructed for pedestrians or vehicles along beaches or through wetlands, coastal dunes and other sensitive environments.

### **Environmental Issues**

Environmental protection should be a priority with the planning and construction of a path. Path design, construction type, and construction schedule should all reflect environmental considerations. For example, a path offers some leniency with its alignment compared to a sidewalk, offering opportunities for selective clearing of vegetation. Also, asphalt may not be considered a good surface material in wet areas because of its petroleum base.

Greenway paths improve water quality by establishing buffers along creeks and streams. These buffers provide habitat for a diversity of plant and animal species. They serve as natural filters, trapping pollutants from urban runoff, eroding areas and agricultural lands. Stream buffers also reduce the severity of flooding by releasing storm water more gradually, giving the water time to evaporate, or percolate into the ground and recharge aquifers, or be absorbed and transpired by plants. In addition, paths provide more transportation choices for people who wish to walk or bicycle. By doing so, they help to decrease dependence upon automobiles and thus contribute to improved air quality. All proposed paths and other improvements should be designed, constructed and maintained with their ecological value in mind. Any disturbance of natural features should be kept to a minimum and conform to all jurisdictional environmental policies and ordinances.

The protection of streams by easement and the creation of paths along a greenway easement can help to ensure that no dumping occurs in the waterway, as users of this facility would report dumping to authorities. There is a need to help preserve these resources by ensuring that there is sufficient space between the greenway and the waterway, by avoiding building in the path of trees, and by avoiding construction on rock features, such as escarpments.

### **Path Amenities and Accessibility**

Though paths should be thought of as roadways for geometric and operational design purposes, they require much more consideration for amenities than do roadways. Shade and rest areas with benches and water sources should be designed along multi-use paths. Where possible, vistas should be preserved. Way finding signs (e.g., how far to the library or the next rest area, or directions to restrooms) are important for non-motorized users.

Path amenities should be just as accessible as the paths themselves. Periodic rest areas off to the side of accessible paths are important features as well, and should be level and placed after a long ascent.

These paths should be open at all hours so that it can serve as a reliable transportation route. Lighting in some situations should be avoided along greenways, as it would disrupt the atmosphere surrounding the path. A reflective stripe or markers would help to make this path navigable in limited light. Lighting the path itself can restrict the visibility of areas beyond the path. Existing street and structure lighting in urban areas can effectively and adequately light the adjacent path. For safety reasons, requiring that all bicycles and roller-bladers carry lights and all pedestrians wear reflective clothing during non-daylight hours would be recommended.

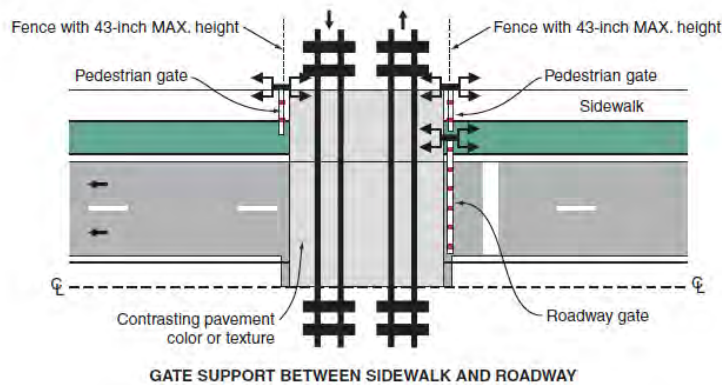
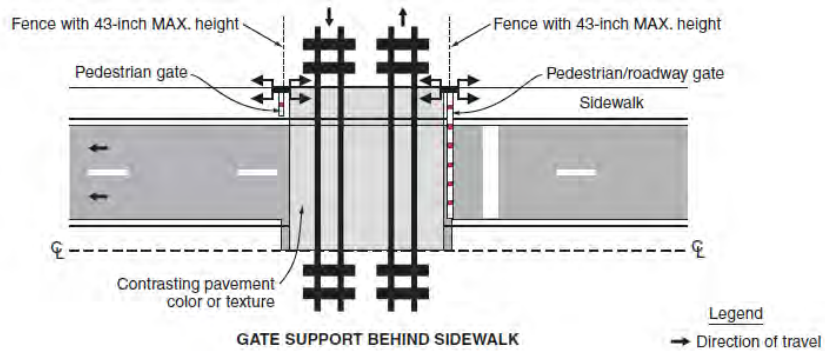
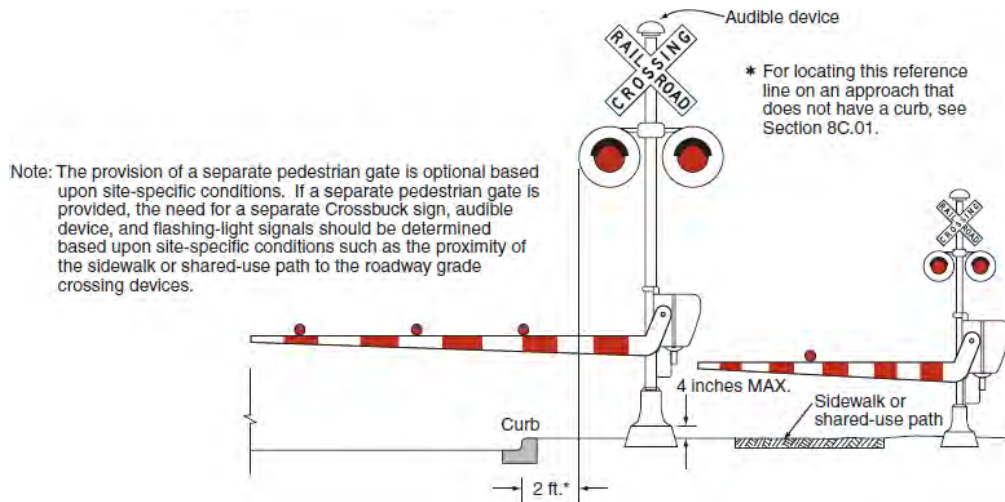
### **Sidepaths**

A sidepath is essentially a multi-use path that is oriented alongside a road. The AASHTO bike guide and North Carolina Design Guidelines strongly caution those communities contemplating the construction of a sidepath facility to investigate various elements of the roadway corridor environment and right-of-way before committing to its construction. Sidepaths should only be considered where there are relatively few intersections and driveways to reduce conflict points.

## RAILROAD INTERSECTIONS WITH SIDEWALKS OR MULTI-USE PATHS

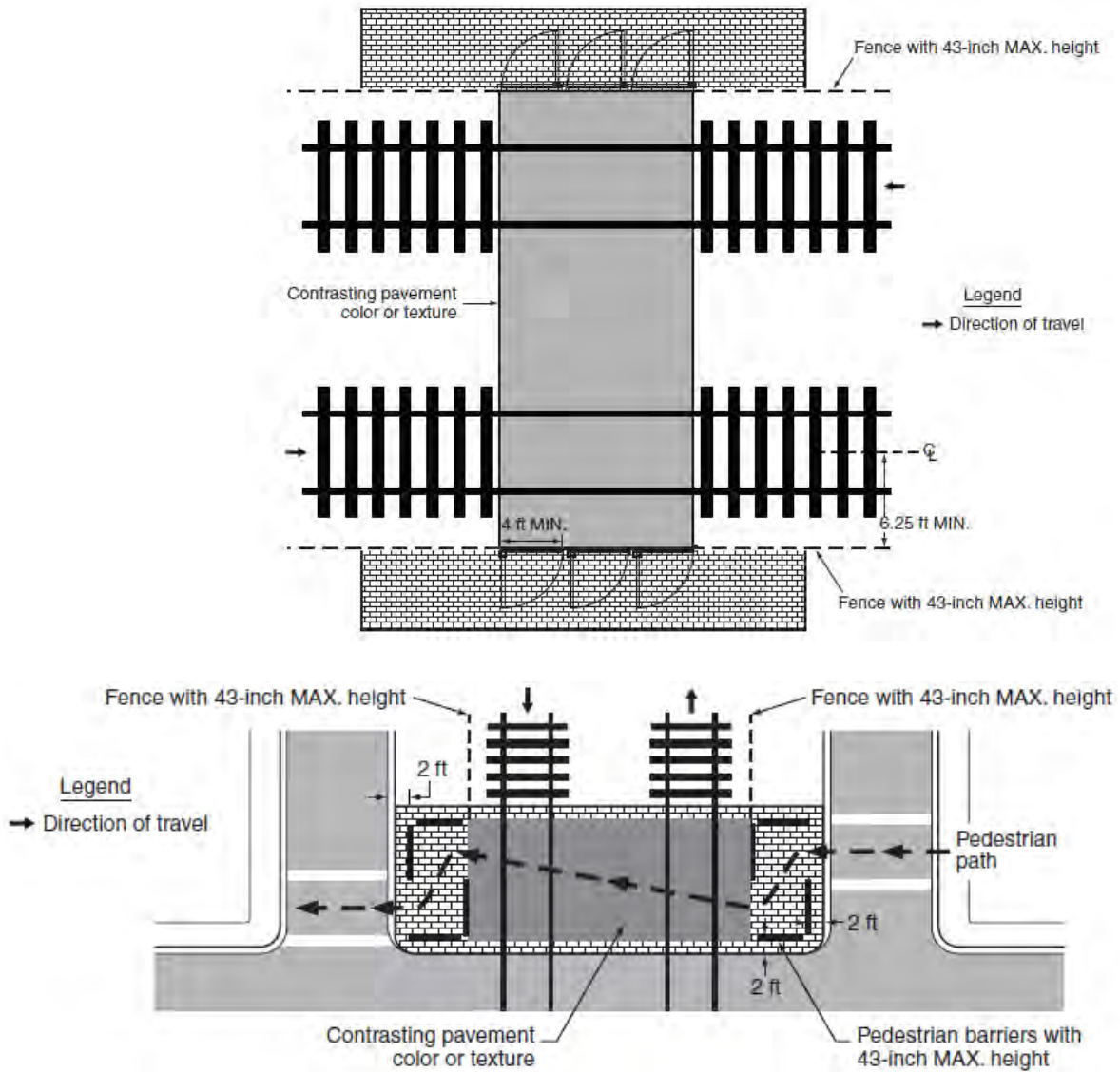
In two locations, sidewalks are proposed that will intersect with the railroad at-grade. Figure A.16 and A.17 below give examples of how to improve safety and control access of pedestrians into the railroad right-of-way.

**Figure A.16 - Pedestrian Gates for At-Grade Railroad Crossing**



Source: MUTCD 2009 Chapter 8, p. 782-783

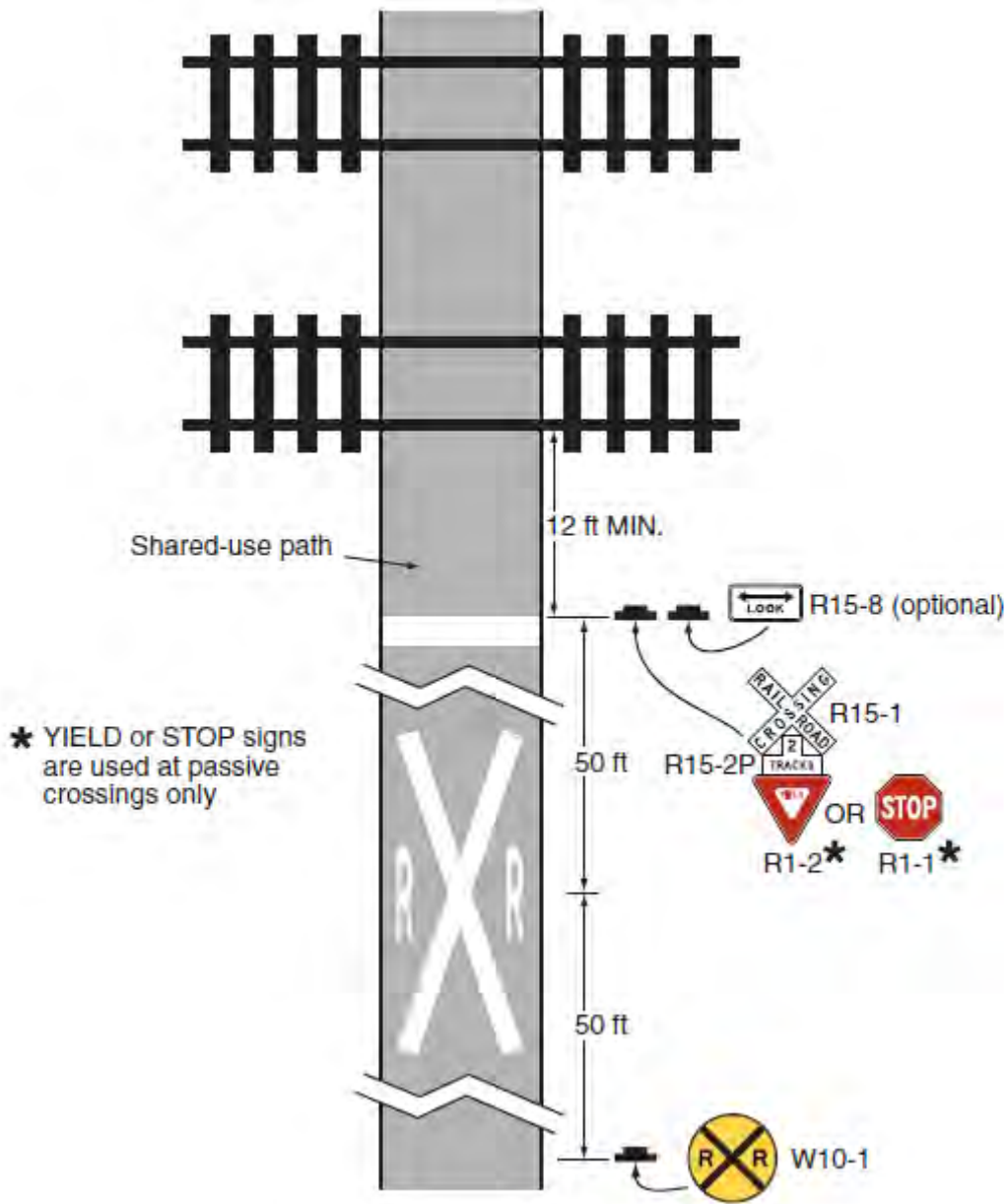
Figure A.17 - Pedestrian Fencing and Barriers for At-Grade Railroad Crossing



Source: MUTCD 2009 Chapter 8, p. 784



Figure A.18 - Multi-Use Path Signage for At-Grade Railroad Crossing















Source: MUTCD 2009 Chapter 8, p. 787

## STREET LIGHTING

There are a myriad of different lighting fixture and pole styles available for use today. The Main Street area of Jamestown uses decorative street lamps (Jamestown uses the Deluxe Traditional style in Figure A.19), making the downtown sidewalks more inviting to pedestrians. The traditional cobra style lights are standard issue from Duke Energy, while decorative street lights will cost more for installation.

**Figure A.19 – Decorative Fixtures Available from Duke Energy**

**FIXTURES** Photos are representative of fixture and pole styles. Actual products and colors may vary slightly. Please inquire about our other fixture/pole combinations.

 <p><b>DELUXE ACORN</b> This enhanced Victorian-style fixture adds curb appeal to any walkway or sidewalk and dramatically limits unwanted "up light." It is available on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black Green</b></p>	 <p><b>SIX-SIDED TRADITIONAL</b> The six-sided traditional is designed to reduce light pollution while still providing excellent lighting and aesthetics. It is typically used for sidewalk and pathway lighting and is available on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black Green</b></p>	 <p><b>DELUXE TRADITIONAL</b> This elegant colonial style fixture makes a dramatic statement as it lights walkways and pathways and comes on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black</b></p>	 <p><b>OPEN TRADITIONAL</b> This environmentally-friendly fixture provides an installation with curb appeal and is available on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black Green</b></p>
 <p><b>ACORN</b> Reminiscent of lum-of-the-century lights, this is the perfect choice for historic neighborhoods and revitalized downtown areas. Typically used for sidewalk and pathway lighting, it is available on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black Green</b></p>	 <p><b>TRADITIONAL</b> The Traditional fixture fits any neighborhood and provides pathway lighting. It is available on multiple pole styles and a mounting height of 12 ft. Colors: <b>Black</b></p>	 <p><b>POST TOP</b> This attractive colonial style fixture is a perfect residential light and an ideal complement to any home. The post top light mounts on an 8 ft. pole. Colors: <b>Black</b></p>	 <p><b>TEARDROP</b> This beautiful fixture is multifunctional and adds elegance wherever it is placed. The Teardrop is used to light sidewalks, pathways, parking lots and streets and has mounting heights of 15 ft. and 25 ft. There are two options available for brackets. Colors: <b>Black Green</b> Available on pole style "C" only.</p>
 <p><b>CUBE</b> This fixture is the perfect choice whenever large areas are to be covered with lighting, such as in larger parking areas. Colors: <b>Black Bronze Gray Green</b> Available on pole style "A" only.</p>	 <p><b>SHOEBOX</b> This is an excellent blend of form and functionality that is ideal for illuminating parking lots. It is available in multiple mounting heights and colors. Colors: <b>Black Bronze Gray Green</b> Available on pole style "A" only.</p>	 <p><b>COBRA</b> An ideal fixture for broadly casting light on roadways and increasing drivers' safety. Multiple bracket lengths are available to move lamps beyond tree growth and ensure it is properly directed. It is available in multiple colors and pole heights. Colors: <b>Black Bronze Gray Green</b> Available on pole style "A" only.</p>	 <p><b>FLOODLIGHT</b> Aesthetically pleasing, this directional fixture puts light where you need it most - particularly for security purposes. It is available in multiple colors. Colors: <b>Black Bronze Gray Green</b> Available on pole style "A" only.</p>

[www.duke-energy.com](http://www.duke-energy.com)

More sustainable lighting designs and technology are reaching the marketplace. However, some hurdles to new technologies such as solid state lighting (e.g. LEDs) and solar powered light fixtures and arrays continue to prevent widespread use. These hurdles include high upfront costs, narrow foot candle and heat dissipation issues. The solid state lighting is currently better suited for areas where lamp posts are closer to the ground, such as decorative street lamps. The LED fixtures are more efficient at lower wattages than comparable technologies used in street lights, which are designed for higher wattages and greater lumens.

Lighting design is much more flexible than sidewalk or bicycle lane design, free from strict guidance such as the MUTCD manual or ADA accessibility guidelines. Duke Energy provides much of the lighting fixtures in Jamestown. The suggested spacing of streetlights

in new development will vary depending on type of streetlight fixture used.

For the purposes of conducting a streetlight inventory, gaps in lighting should be recorded, as well as suggestions on where decorative or cobra style lights would be most appropriate.

## **STREETSCAPE ENHANCEMENTS**

There are several different streetscape enhancement opportunities that can achieve the goals of improving roadway aesthetics, safety, reducing traffic speed, enhancing walkability, etc. A detailed streetscape master plan is recommended for Main Street, to identify and design streetscape enhancements that achieve the goals above. The following are potential enhancements that may be included in a streetscape project:

- Travel lane reconfiguration (e.g. raised median, on-street parking, lane reduction or road diet)
- Landscaping and street trees
- Traffic or access management (e.g. reducing driveway conflicts, shared parking and driveways)
- Street furniture (e.g. benches, utility poles, sidewalk art)
- Sidewalk condition and width
- Building façade location and materials

There are several resources available online that provide images of suggested streetscape improvements, examples of streetscape plans, background on specific improvements and statistics on safety improvement and travel speed reduction. The following table illustrates how road diets (4 lanes to 3) reduced traffic crashes on arterials in Seattle Washington:

**Figure A.20 – Road Diet Crash Reduction Impacts, Seattle WA**

**Table 2 Road Diet Crash Reduction Impacts (Seattle DOT)**

<b>Roadway Location</b>	<b>Date Change</b>	<b>ATD Before</b>	<b>ADT After</b>	<b>Collision Reduction</b>
Greenwood Ave N, N 80th St to N 50 <sup>th</sup>	April 1995	11,872	12,427	24 to 10 (58%)
N 45th Street, Wallingford Area	December 1972	19,421	20,274	45 to 23 (49%)
8th Ave NW, Ballard Area	January 1994	10,549	11,858	18 to 7 (61%)
Martin Luther King Jr Way, North of I 90	January 1994	12,336	13,161	15 to 6 (60%)
Dexter Ave N, Queen Ann Area	June 1991	13,606	14,949	19 to 16 (59%)
24th Ave NW, NW 85th to NW 65th	October 1995	9,727	9,754	14 to 10 (28%)

Source: Victoria Transport Policy Institute: *Streetscape Improvements Enhancing Urban Roadway Design*  
<http://www.vtpi.org/tm/tm122.htm>

A useful resource for streetscape improvements, example plans and before and after images is the Municipal Research and Services Center of Washington – Streetscape Topics  
<http://www.mrsc.org/Subjects/Transpo/streetscape.aspx>.

## **ACCESS MANAGEMENT POLICIES FOR WALKABILITY**

Access management is the control of traffic movements through a variety of engineering, signalization and signage. Balanced access management strategies permit safe vehicle movements and property access while supporting walkable environments, reducing conflicts between cars and pedestrians and improving community aesthetics. Below are several local policy standards that address access management that support walkability.

A community based access management approach should control not just access controls related to the roadway, but consider the broader context of site access that relate to access to building location, parking and internal circulation patterns. Local adoption of access management standards should be coordinated with the District and Division offices of the North Carolina Department of Transportation.

### **Control the spacing of driveways and new intersections**

- o Minimum driveway and intersection spacing should be based on speed limits or roadway classifications (TRB Access Management Manual)
  - 25 mph 200 feet minimum
  - 30 mph 330 feet minimum
  - 35 mph 470 feet minimum
  - 40 mph 630 feet minimum
- o Restrict location of new driveways within the functional area of road intersections (this includes cueing space for right and left hand turning movements and accommodation of downstream travel lane flows)
- o Consider the purchase of access rights in locations where driveways should be eliminated or discouraged

### **Control the design details of driveways**

- o Coordinate driveway permitting with the Division office; establish a clear appeal procedure if the driveway applicant requests a deviation from the preferred design
- o 'Dust pan' or 'drop curb' driveway design preferred (See TRB manual)
- o Create continuous sidewalk across driveways with no more than 2% slope and constructed of a contrasting material to improve visibility
- o Minimize curb radii to the extent possible to reduce turning speed

### **Consider site characteristics**

- o Include site access and circulation in site plan review process
- o Clear pedestrian path between sidewalk, parking and building access
- o Require new driveway permitting when changes of use or intensity on an existing site occurs

## **PARKING LOT DESIGN**

Parking lot layout can influence pedestrian transportation. The existing ordinance (Article 12, p. 285) allows for sharing parking in the downtown area and fewer off street parking spaces. In addition, guidance requires the provision of off-street parking behind buildings. The requirement for pedestrian connections through large parking lots to buildings is also part of the ordinance; a pedestrian connection between parking lots is also suggested.

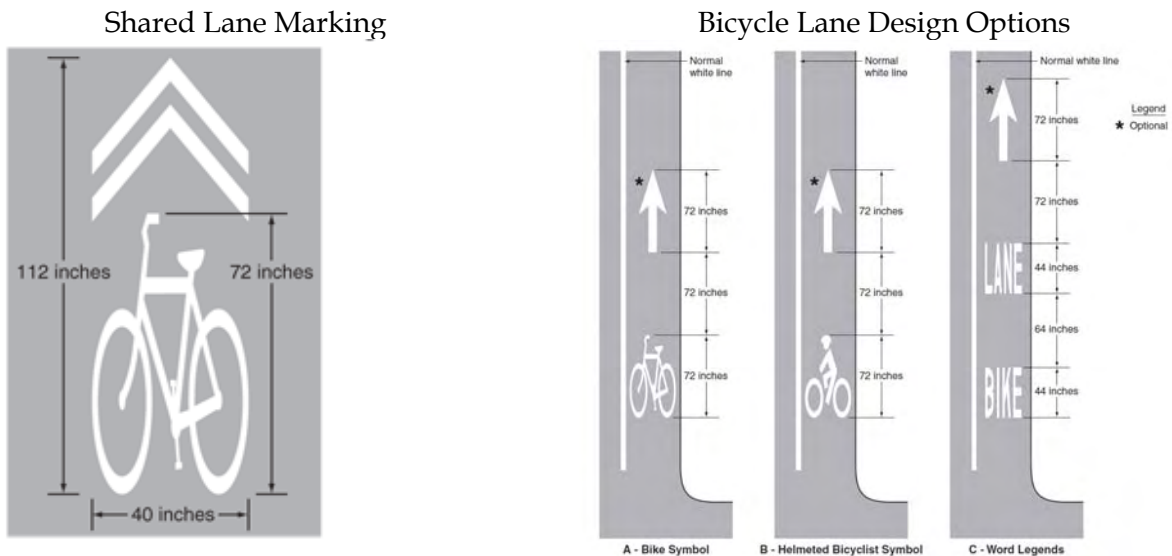


## ON-ROAD BICYCLE FACILITIES

The design guidelines for bicycle lanes and shared lane pavement markings are shown here and can be found in Chapter 9 of the MUTCD. Bicycle lanes can be installed on busier roads where existing travel lane widths can be reduced or incorporated into new or expanded roads. Bicycle lanes should be a minimum of 5ft wide and generally not installed next to on-street parking to avoid the door zone. The shared lane marking is more appropriate for streets with on-street parking and should be placed at least 11 feet or more from the curb on streets where on-street parking exists to avoid the door zone. Streets with shared lane marking should have travel speeds of 35 mph or less and spaced every 250 feet and after intersections.

Consult the MUTCD for additional information on signing bicycle facilities and examples of pavement marking layout at intersections. In addition the AASHTO Guide to the Development of Bicycle Facilities (1999) should also be consulted when considering bicycle facilities.

**Figure A.21 – Shared-Lane and Bicycle Lane Pavement Markings**



Source: MUTCD Chapter 9, p. 815

Source: MUTCD Chapter 9, p. 809

## WAYFINDING SIGNAGE

The development ordinance provides some guidance for wayfinding signage (Article 17). A master sign plan for a corridor or specific area can be completed to allow creativity in signage design and look. Wayfinding signage along sidewalks and trails enhances a visitor’s pedestrian experience, encouraging use of sidewalks and trails. Production of a walking map and installation of wayfinding signage (including location and walking times/ distance) will improve the walking experience in Jamestown for visitors and residents of Jamestown.



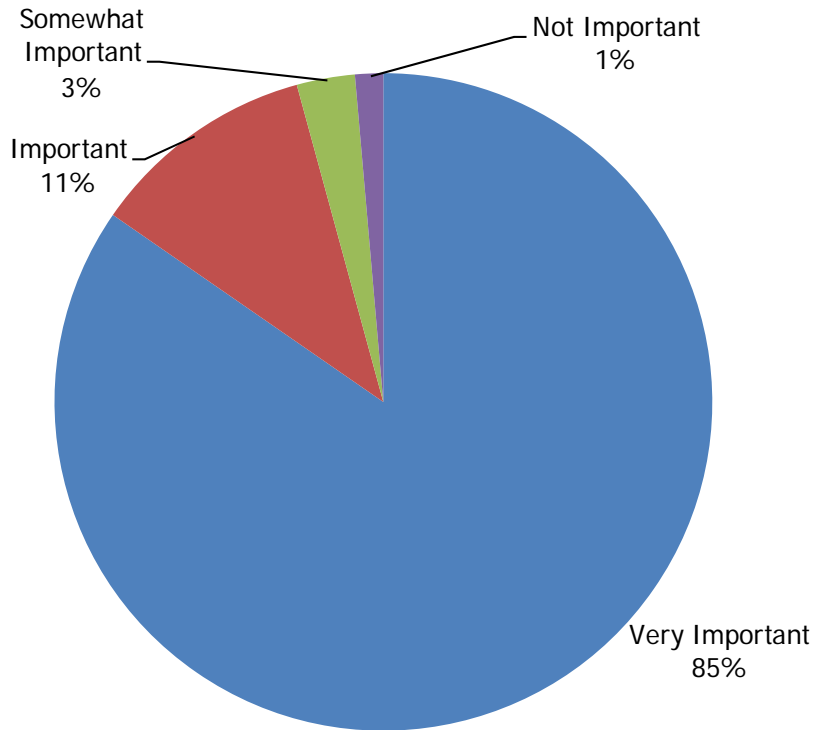
Charlotte  
www.pedbikeimages.org  
Dan Burden

## APPENDIX B. PEDESTRIAN USER SURVEY

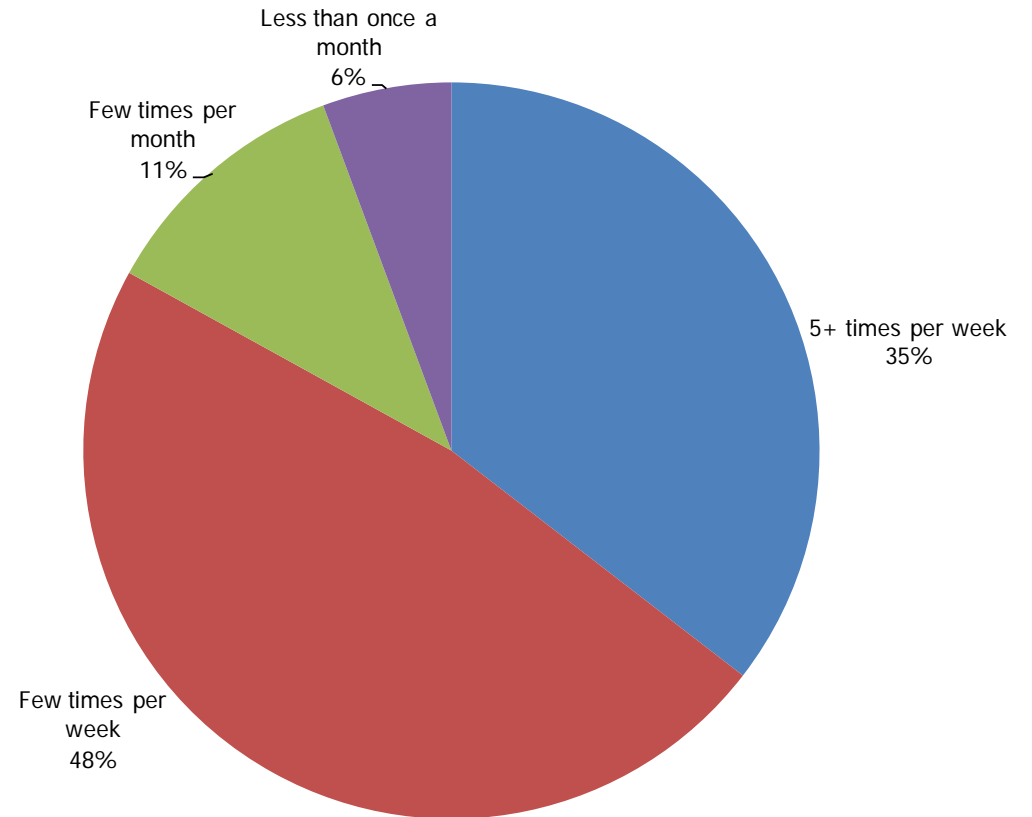
A survey of community residents was conducted from April to June 2009. There were paper surveys distributed at key community locations such as Town Hall and the Library. An identical survey was also available online and a link was included with Jamestown’s water bill sent in May of 2009. There were 71 responses to the pedestrian user survey, which consisted of the following questions and answers. Full results of the survey are found on the following pages:

1. How *important* to you is the goal of creating a walking-friendly community?
  - **96% of respondents think the ‘goal of creating a walking-friendly community’ is ‘important’ or ‘very important’;**
2. How *often* do you walk or run now?
  - **83% of respondents walk a ‘few times per week’ (48%) or ‘5+ times per week’ (35%);**
3. For what *purpose* do you walk now and how far? If you do not walk now, for what purpose would you walk in the future?
  - **Over 50 respondents walk over a mile for ‘fitness or recreation’ and most trips ¼ mile or less are done for ‘transportation’ (15 responses);**
4. What is the biggest factor that *discourages* you from walking?
  - **34% report ‘lack of sidewalks and trails’, 19% report ‘pedestrian unfriendly streets/land use’ and 15% report ‘lack of time’ as the #1 ‘factor discouraging’ them from walking;**
5. What walking destination would you *most like* to get to?
  - **27% report ‘City Lake Park’ and 25% report ‘Gibson Park trails’ as the #1 walking destination they ‘would most like to get to’;**
6. What is the most important action you think is *needed to increase* walking in the community?
  - **43% report ‘New sidewalks’, 18% report ‘Improved greenway trail systems’ and 16% report ‘More pedestrian friendly land-uses’ as the #1 action ‘needed to increase walking in the community’;**
7. What is the most *important consideration* in determining locations for new sidewalks?
  - **26% report ‘Filling gaps of missing sidewalk’, 25% report ‘Pedestrian safety’, 21% report ‘Connecting to greenway trails’ and 21% report ‘Residential neighborhoods’ as the #1 ‘most important consideration for determining locations to develop future sidewalks’;**
8. Please indicate what you think should be the primary source of funding for sidewalk, multi-use trail and lighting improvements?
  - **31% report ‘Bond Referendum’, 26% report ‘Impact Fees on New Development’, 18% report ‘Public/Private Partnerships’ and 15% report ‘Property Tax’ as the #1 preferred ‘primary source of funding for sidewalks, multi-use trails and lighting in Jamestown’;**
9. What do you think are the *top roadway* corridors most needing pedestrian improvements?
  - **SIDEWALK/TRAIL: East Fork Rd (18 comments); Oakdale Rd (14); Penny Rd (8) and Main St to Schools/YMCA (4);**
  - **LIGHTING: Oakdale Rd (3 comments); East Fork Rd (3); Penny, Guilford College/Guilford Rd Int., Greenway and Downtown (2 each)**
  - **INTERSECTIONS: Oakdale Rd and Main St (8 comments); Dillon Rd and Main St (6); Mid-block on Main St between Guilford Rd and Oakdale Rd (4); Railroad crossings (4); Guilford Rd and East Fork Rd (3); Guilford Rd and Main St (3);**
10. To help us better understand the information we receive, please tell us about yourself (age, income, education level, address).
  - **See below for answers**

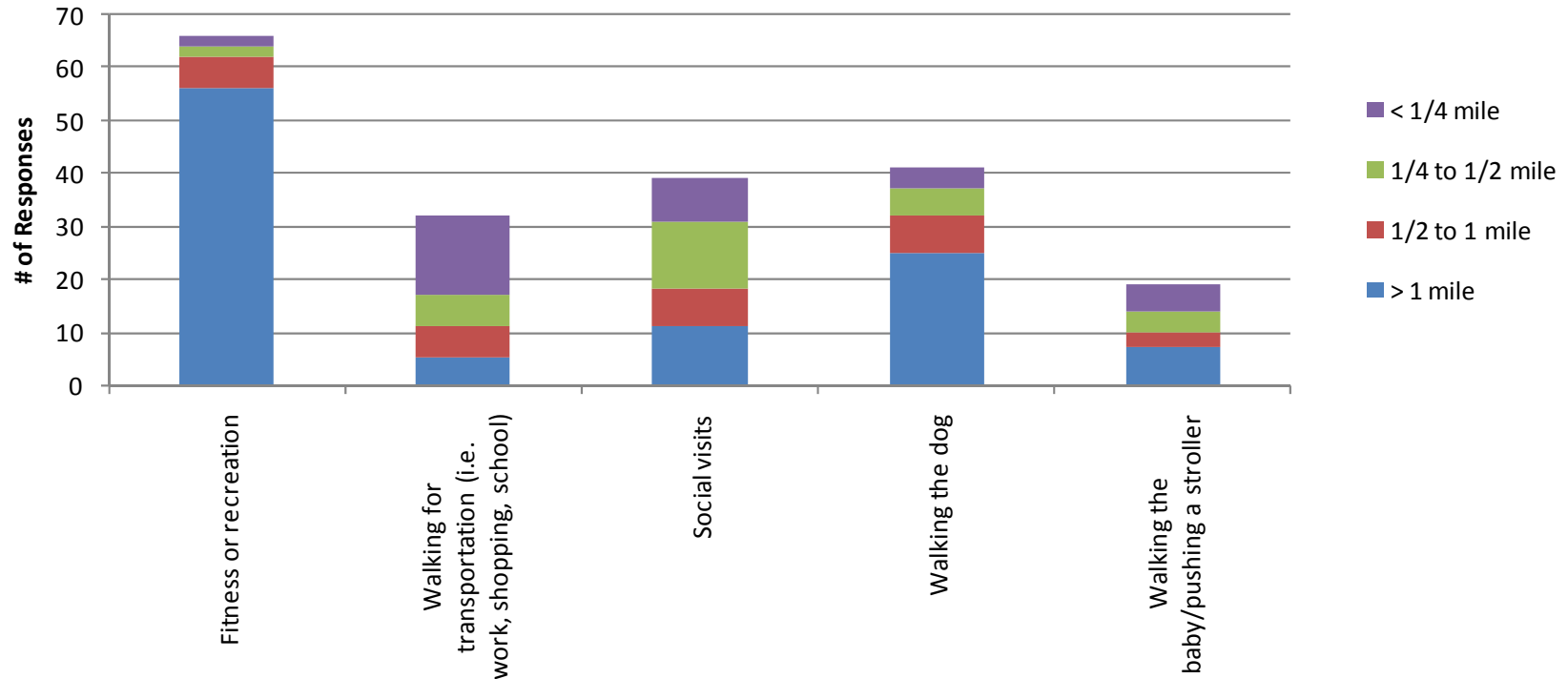
1. How important to you is the goal of creating a walking-friendly community?



2. How often do you walk now?



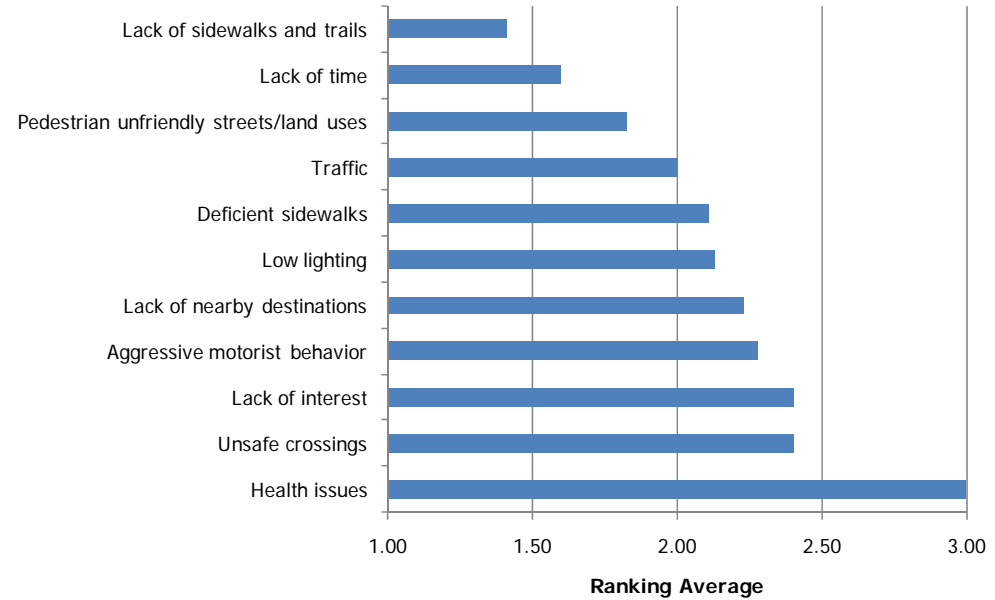
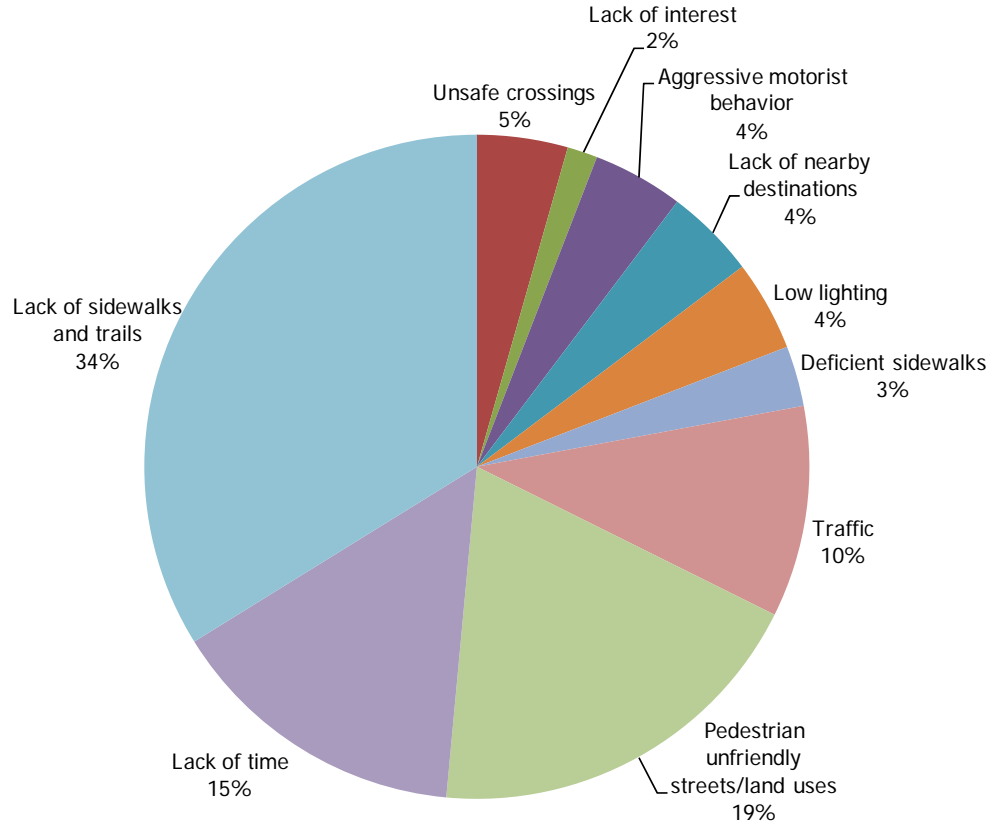
**3. For what purpose do you walk now? If you do not walk now, for what purpose would you walk in the future?**



**Other**  
 Entertainment - shops, library, lunch, produce stand  
 My kids like to bike ride but they need safe sidewalks to be able to do that  
 Lack of sidewalks on neighborhood streets is dangerous for people who push baby strollers & have small children. We have to walk in the street, drivers drive too fast  
 I love looking at and hearing nature  
 Waiting for soccer games to start



**4. What are the biggest factors that discourage you from walking?  
Percentage of respondents who ranked factor #1**



Respondents ranked top 3 categories, 1 indicates highest ranking

**Other**

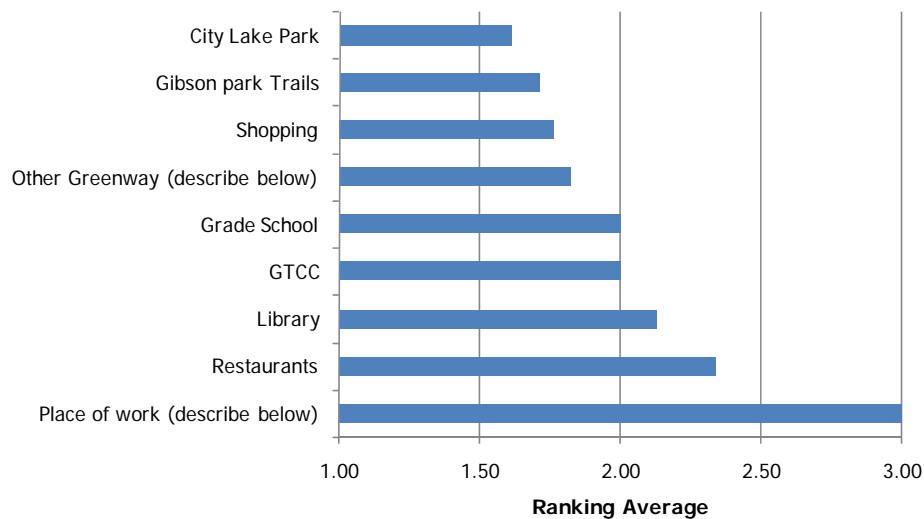
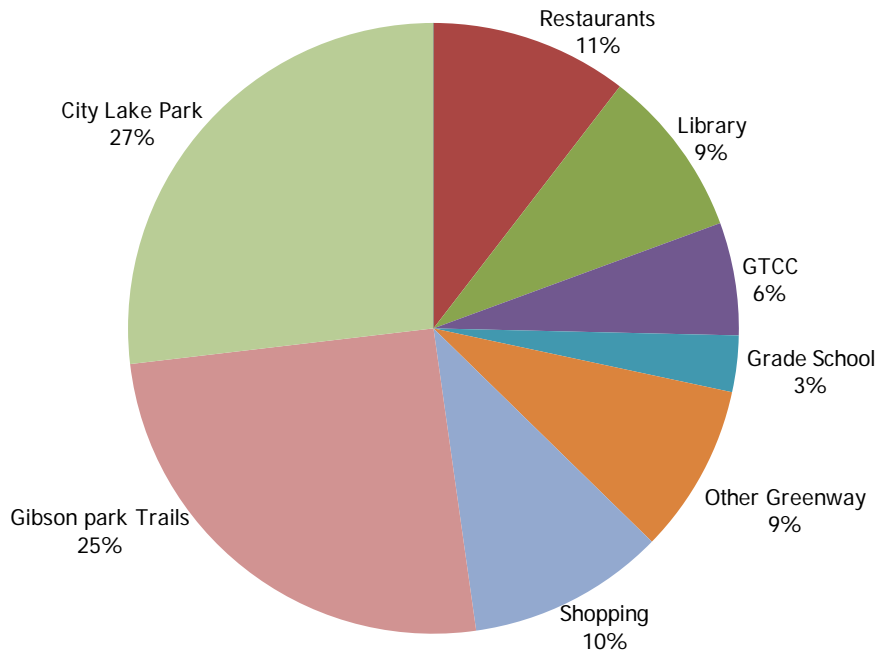
Yorkshire has waited over ten years for sidewalks! We need our sidewalks just like the rest of Jamestown!

**Safety**

I live on Penny Road and am forced to drive to the Environmental Center to walk their trails. I feel I am taking my life in my hands the few times I have walked down Penny Rd.

This is related to Oakdale road only

**5. What walking destinations would you most like to get to?  
(Percentage of respondents who ranked destination #1.)**



Respondents ranked top 3 categories, 1 indicates highest ranking

**Other**

YMCA

Millis Road, Ragsdale and Jamestown Park would like a way to go across bridge on the road where the old fairgrounds and Jamestown Park. Connect sidewalks at Methodist Church to ones on Guilford Road going by RHS, GTCC, YMCA

On both sides of the street

For safe exercise

Jamestown Park

Need connection to Greenway on East Fork Road over lake

Friends house

I just want to be able to walk on a sidewalk & not in the street

Middle of Town - 3

Jamestown Park and golf course area, also Bun Run Creek could provide Jamestown with a Greenway route that could be routed to Deep River and then to City Lake

Jamestown Golf Course

HP greenway off Deep River Road

Ragsdale YMCA- #1, Jamestown Park-#2, PEC-#3

At golf course

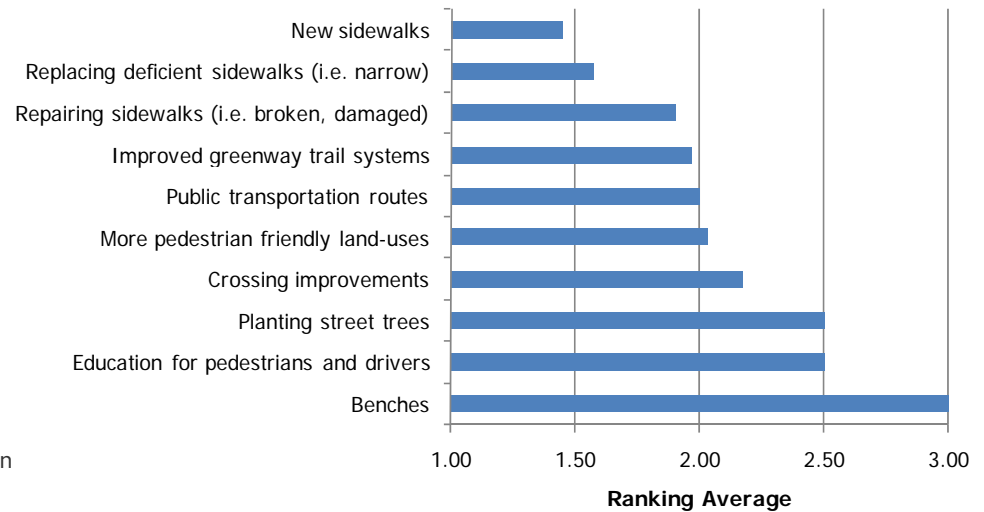
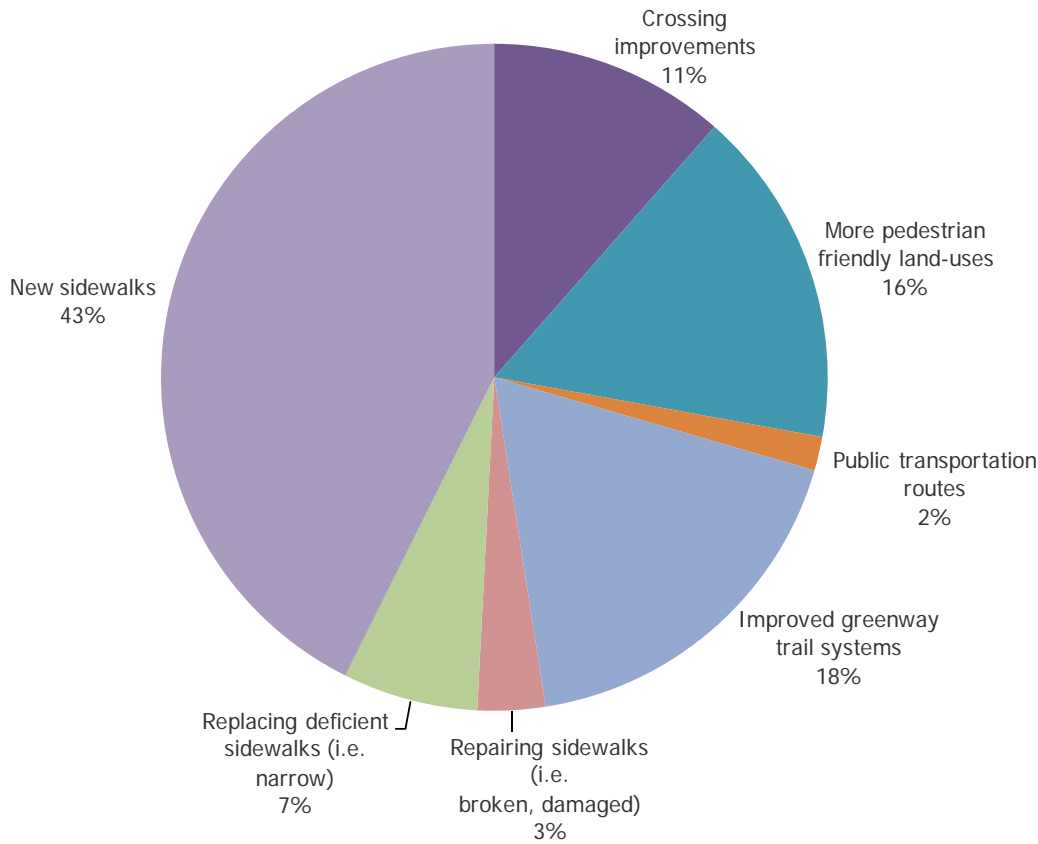
Would love to have easier access to the greenway on East Fork Rd. However, crossing the bridge never feels safe b/c of motorists and trash (ie.glass).

Complete the side walk on East Fork Rd to the golf course

Bicentennial Greenway/Gibson Park Trails

6. What is the most important action needed to increase walking in the community?

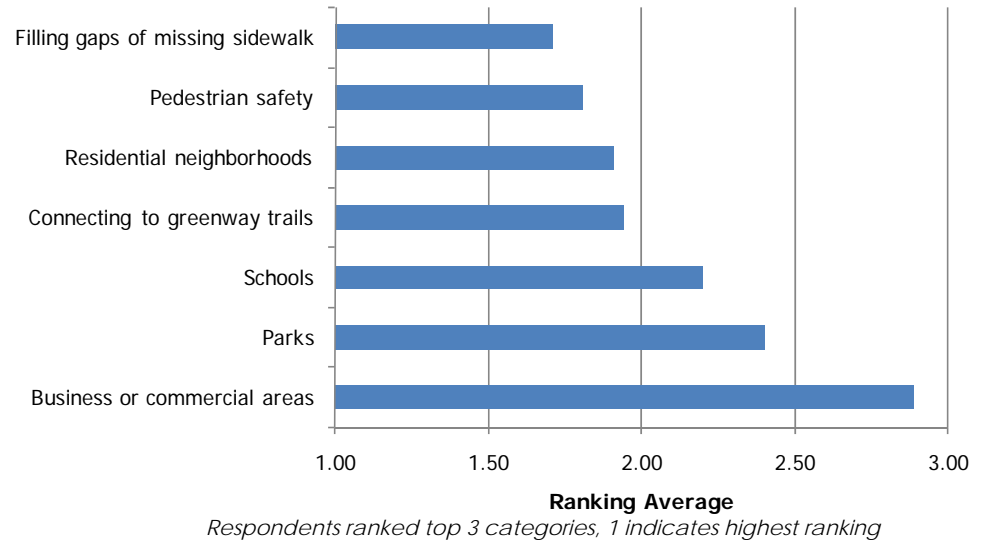
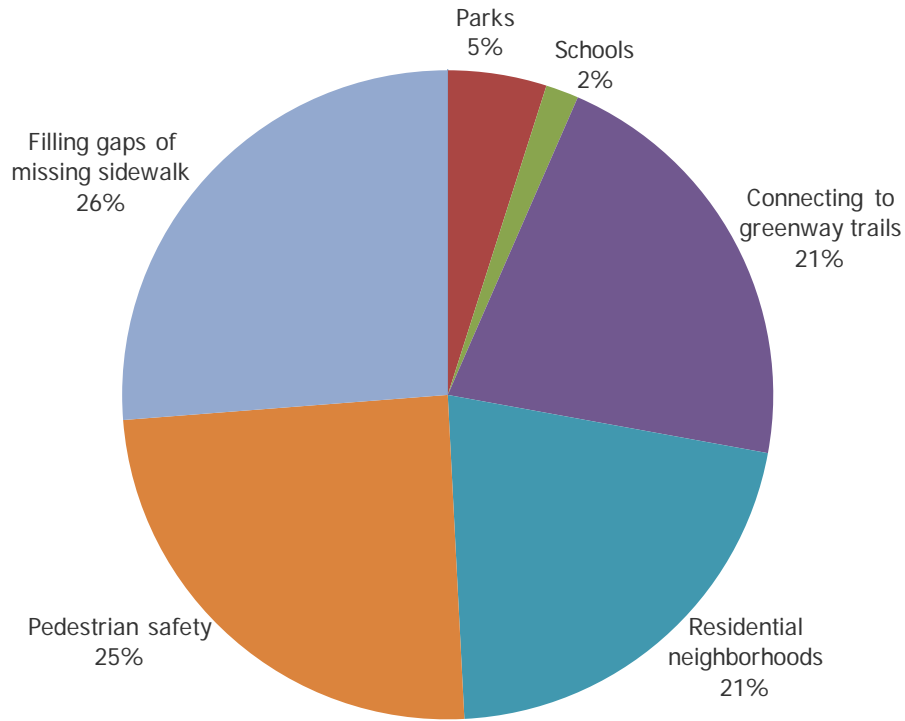
(Percentage of respondents who ranked action #1)



Respondents ranked top 3 categories, 1 indicates highest ranking

**Other**  
 On both sides of the street  
 Specifically sidewalk installation on Oakdale Rd.  
 Sidewalks on main streets but we need them in the neighborhood  
 Public water fountains, restrooms, and emergency call boxes  
 Pavements on East Fork Road all the way to Jamestown Park  
 Walking/Biking lanes/trails would be greater value for the financial/physical effort  
 Improving Youth Sports Facilities...centralize them to be a drawing point to the town  
 More lighting would be very helpful. Also, just a thought, some emergency phones similar to the ones they have on college campuses. As a female I don't feel safe going to the greenway alone.

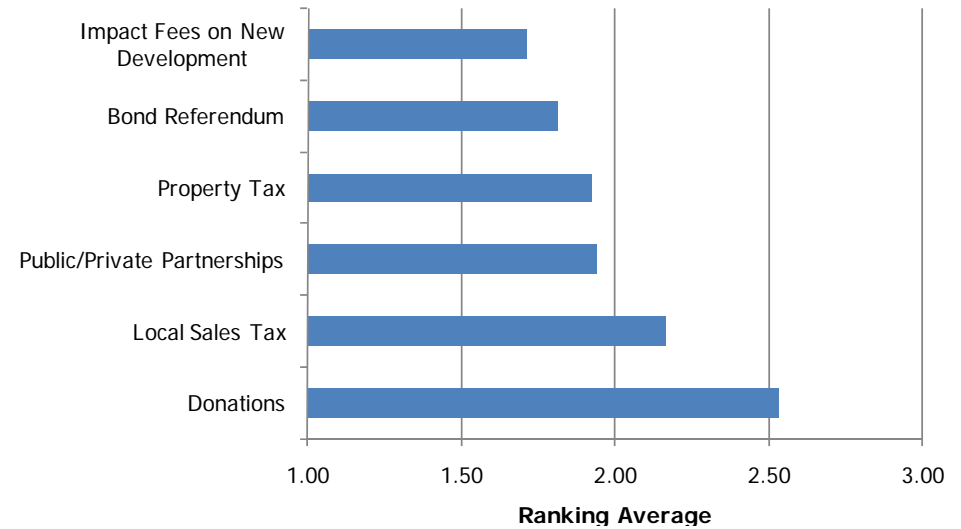
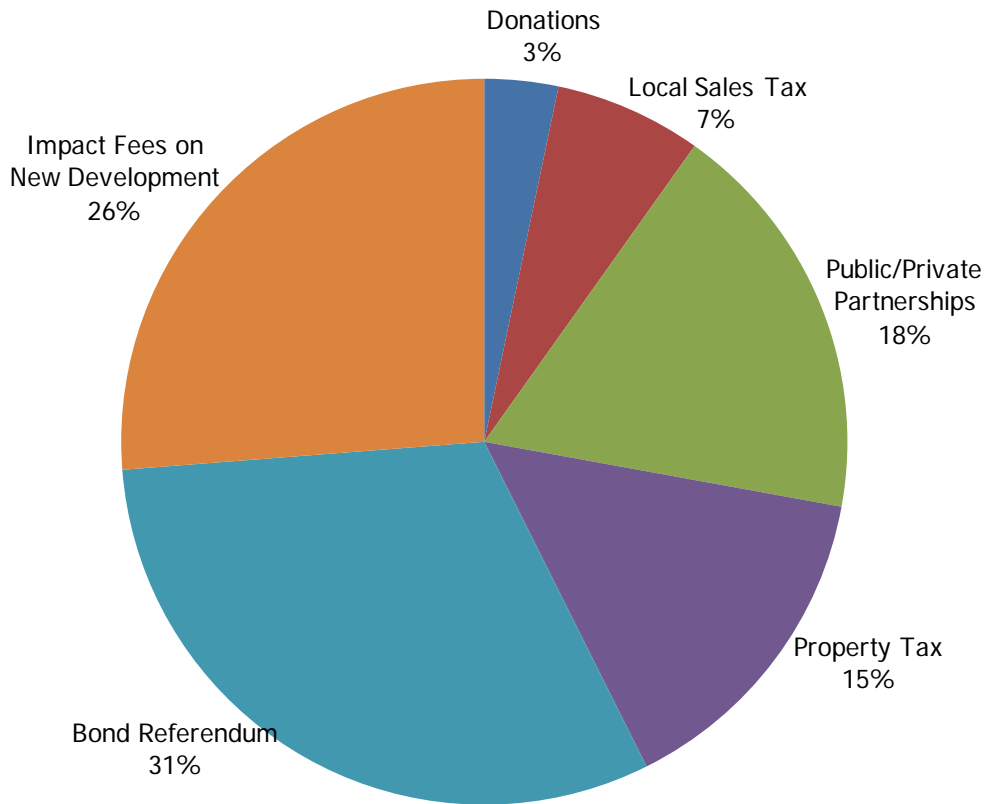
**7. What is the most important consideration for determining locations to develop future sidewalks.**  
**(Percentage of respondents who ranked consideration #1)**



**Other**  
 Finances!



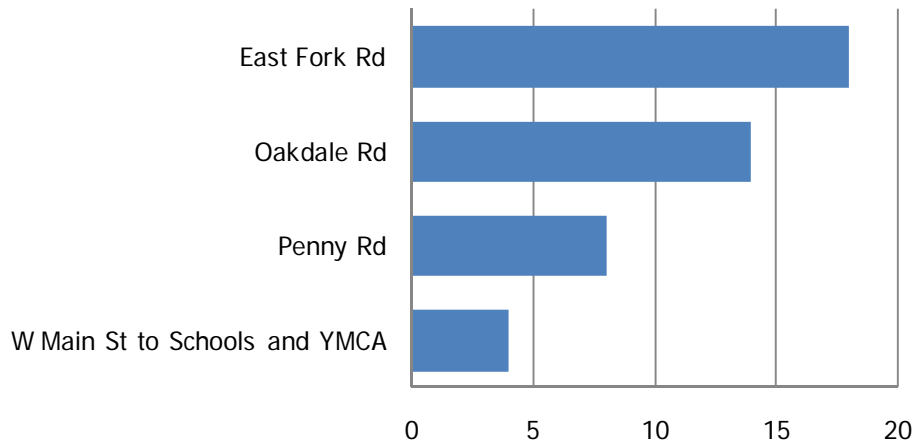
**8. Please indicate what you think should be the primary source of funding for sidewalks, multi-use trails and lighting in Jamestown.  
(Percentage of respondents who ranked source of funding #1)**



Respondents ranked top 3 categories, 1 indicates highest ranking

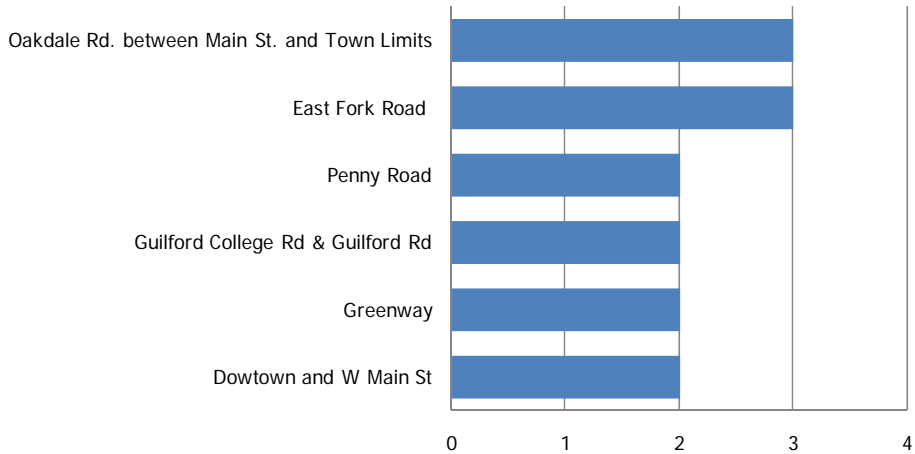
**Other**  
 Grants  
 Incorporate innovative stormwater treatment on streets, like Seattle and Portland "Green Streets" then seek funding for treating non-point stormwater pollution and other watershed improvement funding  
 We pay enough taxes on our property, to make sure our neighborhoods are safe for everyone.  
 How money does the town have available, how did the town pay for the existing sidewalks?  
 No idea  
 Business contributions  
 Use revenue from all of recently increased Water fees

**9a. What are the top roadway corridors needing sidewalk or trail improvements?**



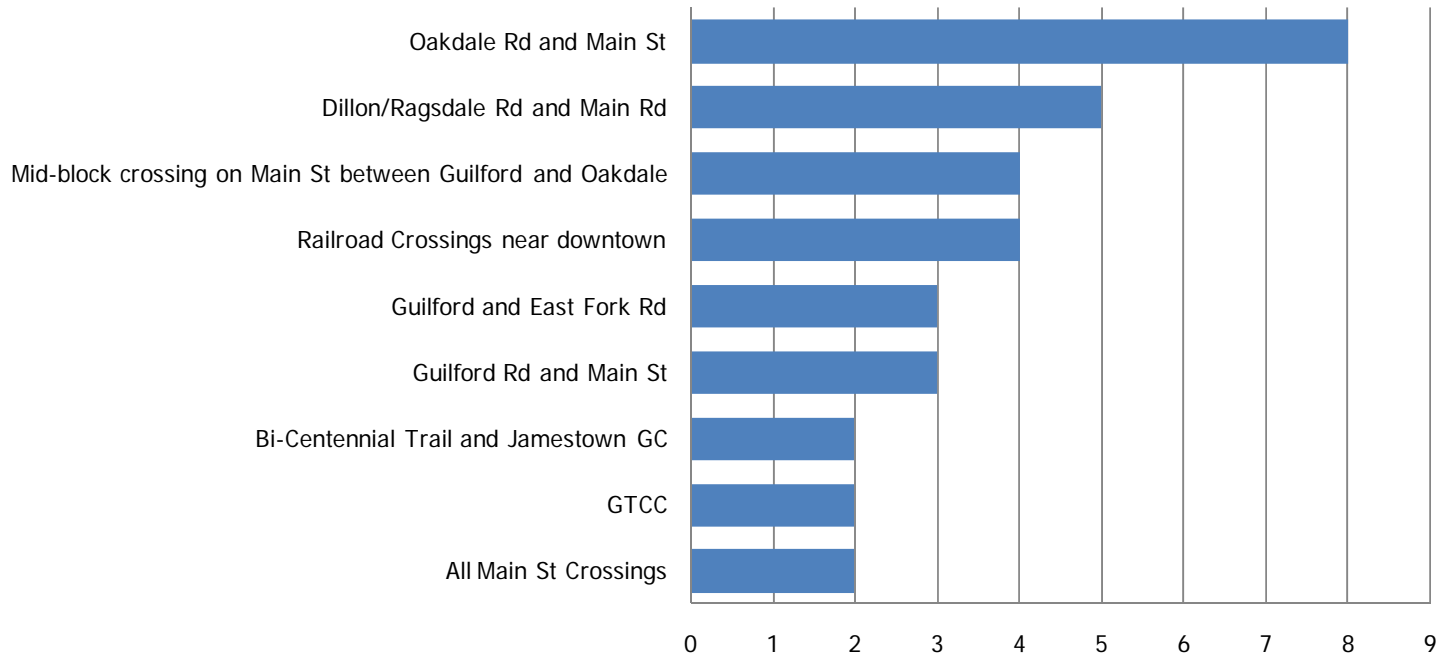
- Other**
- Better access to greenways
  - Clean up debris in wooded areas
  - Dillon Rd bike lanes
  - Deep River access trails from Oakdale Rd
  - E Main Street to City Lake Bridge
  - Wendover Ave
  - Narrow wide roads and add sidewalks
  - Make trail level
  - Provide pet poop bags on trail
  - Lighted City Lake Trail around Lake
  - Guilford Rd gap adjacent to Forestdale East subdivision
  - Jamesford Meadows to Greenway

**9b. What are the top roadway corridors needing lighting improvements?**



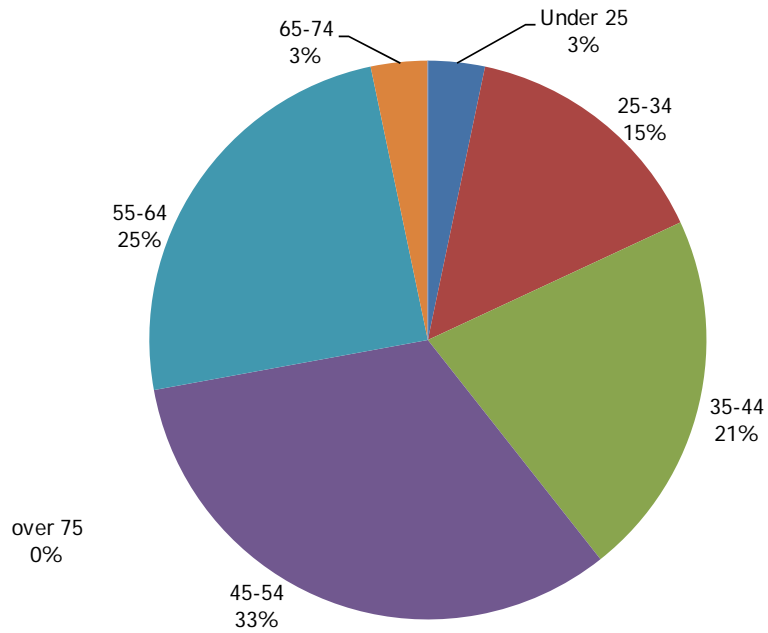
- Other**
- Dillon Road
  - W. Main Street and RR underpass
  - Accurate lighting in walking areas
  - Use LED lighting direct downward and make efficient
  - the lighting should be solar light
  - Use cast iron poles instead of plastic
  - No more artificial light
  - Jamestown athletic complex
  - Lighting with all new sidewalks
  - Guilford Rd
  - Forestdale East subdivision existing lighting is haphazard and inconsistent

**9c. What are the top roadway corridors needing crossing or intersection improvements?**

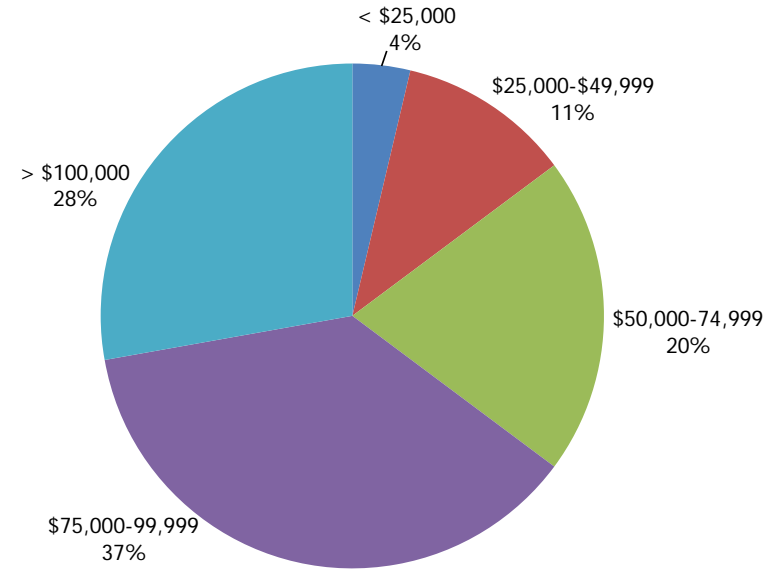


**Other**  
 Guilford College Rd and High Point Road  
 All along Guilford Rd  
 Potter Drive is used as a cut-through  
 Forestdale East subdivision speed humps  
 Guilford Rd and new soccer complex

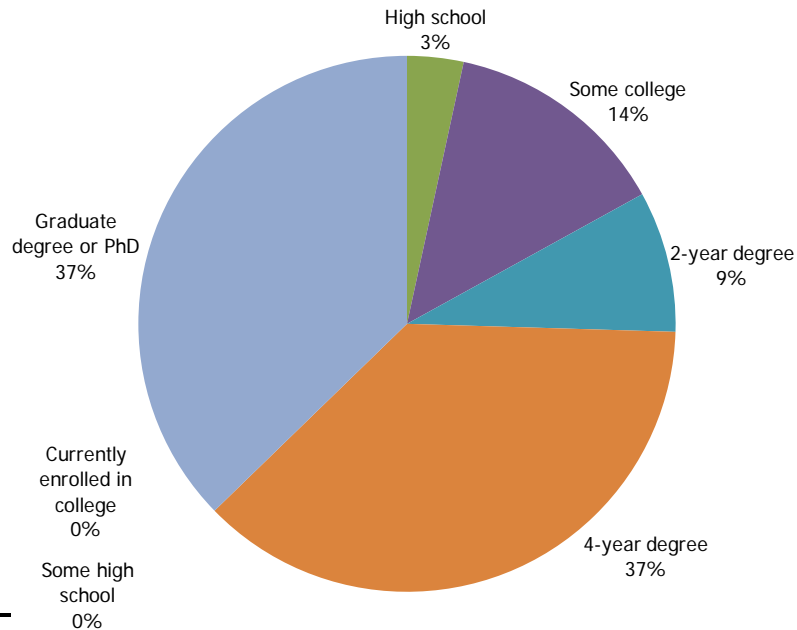
10a. Respondents' Age



10b. Respondents' Annual Household Income



10c. Respondents' Education Level



**Street Respondent Lives On**

Main St	5	Jamesford Meadows
Oakdale Rd	4	Knollview Ct
Penny Rd	3	Lee St
Jamestown Oaks Dr	3	Lennox Dr
Royal Rd	2	Mamie Lane
Devon Rd	2	O'Neill Dr
Heritage Hill Dr	2	Pearce Dr
Yorkleigh Lane	2	Pineburr
Outside Jamestown	2	Potter Dr
Duchess Ct	2	Shadowlawn Dr
Arlington Dr		Silverlake Court
Cobbler Ct		Southwest Ave
Farriers Ln		Stonewick Dr
Guilford College Rd		Teague Dr
Guilford Rd		Windstream Way
Harvey Rd		Woodbine Dr
Havershire Dr		Woodland Dr
Jackson St		Worchester Pl



## APPENDIX C. REFERENCES

AASHTO Guide to the Development of Bicycle Facilities, 1999

Access Management Manual, Transportation Research Board, 2003

Access Management for Streets and Highways, FHWA-IP-82-3, Flora & Keitt, 1982

Americans with Disabilities - Department of Justice

<http://www.ada.gov/srchfoia.htm>

Complete Streets Policy

<http://www.completestreets.org>

Design and Safety of Pedestrian Facilities, A Recommended Practice. Institute of Transportation Engineers, 1998

FHWA Bicycle and Pedestrian Education and Outreach

<http://safety.fhwa.dot.gov/ped%5Fbike/education/>

FHWA Safety Program - Pedestrian & Bicycle Safety

[http://safety.fhwa.dot.gov/ped\\_bike/](http://safety.fhwa.dot.gov/ped_bike/)

FHWA Guidance – Bicycle and Pedestrian Transportation Provisions of Federal Legislation

<http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm>

Graham, NC Comprehensive Pedestrian Transportation Plan, Greenways Inc., 2006

Guide for the Planning, Design and Operation of Pedestrian Facilities. American Association of State Highway and Transportation Officials, 2004

Institute for Transportation Engineers – Planning and Funding Accessible Pedestrian Facilities

<http://www.ite.org/accessible/accessibleped.asp>

Manual of Uniform Traffic Control Devices, FHWA, 2003

<http://mutcd.fhwa.dot.gov/>

Mooresville, NC Comprehensive Pedestrian Transportation Plan, URS Inc., 2005

Municipal Research and Services Center of Washington – Streetscape Topics

<http://www.mrsc.org/Subjects/Transpo/streetscape.aspx>

North Carolina Pedestrian Facility Design Guidelines NCDOT Bicycle and Pedestrian Program, 1995

NCDOT A Guide to NC Bicycle and Pedestrian Laws

<http://www.ncdot.org/transit/bicycle/laws/resources/BikePedLawsGuidebook-Full.pdf>

NCDOT Board of Transportation Resolution on Mainstreaming Nonmotorized Transportation  
[http://www.ncdot.org/transit/bicycle/laws/laws\\_resolution.html](http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html)

NCDOT Division of Bicycle and Pedestrian Transportation – Helpful Links  
[http://www.ncdot.org/transit/bicycle/safety/safety\\_links.html](http://www.ncdot.org/transit/bicycle/safety/safety_links.html)

NC DOT Division of Bicycle and Pedestrian Transportation Shared-use Pathway Design Manual  
[http://www.ncdot.org/transit/bicycle/projects/project\\_types/Multi\\_Use\\_Pathways2.pdf](http://www.ncdot.org/transit/bicycle/projects/project_types/Multi_Use_Pathways2.pdf)

NCDOT Guidelines for Accommodating Greenways with Road Improvement Projects  
[http://www.ncdot.org/transit/bicycle/laws/laws\\_greenway\\_admin.html](http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html)

NCDOT Pedestrian Policy for Pedestrian Accommodation.  
[http://ncdot.org/transit/bicycle/laws/laws\\_pedpolicy.html](http://ncdot.org/transit/bicycle/laws/laws_pedpolicy.html)

NCDOT's Traditional Neighborhood Development Street Design Guidelines  
<http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>

North Carolina DOT Safe Routes to School Program  
<http://www.ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html>

Pedestrian and Bicycling Information Center - Developing Pedestrian Plans and Policies  
[www.walkinginfo.org/develop/](http://www.walkinginfo.org/develop/)

PEDSAFE – Pedestrian and Bicycling Information Center  
[www.walkinginfo.org/pedsafe/](http://www.walkinginfo.org/pedsafe/)

Project for Public Spaces  
[www.pps.org](http://www.pps.org)

Victoria Transport Policy Institute: Streetscape Improvements Enhancing Urban Roadway Design  
<http://www.vtpi.org/tdm/tdm122.htm>

Walkability Checklist – Pedestrian and Bicycle Information Center  
<http://drusilla.hsrb.unc.edu/cms/downloads/walkabilitychecklist.pdf>

## APPENDIX D. FUNDING SOURCES

Local, state, federal, and private funding is available to support the planning, construction, right of way acquisition and maintenance of bicycle and pedestrian facilities. Available funding sources are related to a variety of purposes including transportation, water quality, hazard mitigation, recreation, air quality, wildlife protection, community health, and economic development. This appendix identifies a list of some of the bicycle and pedestrian facility funding opportunities available through federal, state, nonprofit and corporate sources. An important key to obtaining funding is for local governments to have adopted plans for greenway, bicycle, pedestrian or multi-use path systems in place prior to making an application for funding.

### FUNDING ALLOCATED BY STATE AGENCIES

#### **Funding Opportunities Through NCDOT:**

##### **Bicycle and Pedestrian Independent Projects Funded Through the Transportation Improvement Program (TIP):**

In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) manages the Transportation Improvement Program (TIP) selection process for bicycle and pedestrian projects.

Projects programmed into the TIP are independent projects – those which are not related to a scheduled highway project. Incidental projects – those related to a scheduled highway project – are handled through other funding sources described in this section.

The division has an annual budget of \$6 million. Eighty percent of these funds are from STP-Enhancement funds<sup>3</sup>, while the State Highway Trust provides the remaining 20 percent of the funding.

Each year, the DBPT regularly sets aside a total of \$200,000 of TIP funding for the department to fund projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide. Those interested in learning about training workshops, research and other opportunities should contact the DBPT for information.

A total of \$5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use paths, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit:

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<sup>3</sup> After various administrative adjustments for programs within the Surface Transportation Program, or "STP", there is a 10% set-aside for Transportation Enhancements. The 10% set-aside is allocated within NCDOT to internal programs such as the Bicycle/Pedestrian Division, the Rail Division, the Roadside Environmental Unit, and others. The Enhancement Unit administers a portion of the set-aside through the Call for Projects process.

[http://www.ncdot.org/transit/bicycle/funding/funding\\_TIP.html](http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html). Another \$500,000 of the division's funding is available for miscellaneous projects.

*Incidental Projects* – Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds.

*Sidewalk Program* – Each year, a total of \$1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state allocates \$100,000 annually from each division's budget for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding.

*Governor's Highway Safety Program (GHSP)* – The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: [www.ncdot.org/programs/ghsp/](http://www.ncdot.org/programs/ghsp/).

### **Funding Available Through North Carolina Metropolitan Planning Organizations (MPOs)**

MPOs in North Carolina which are located in air quality nonattainment or maintenance areas have the authority to program Congestion Mitigation Air Quality (CMAQ) funds. CMAQ funding is intended for projects that reduce transportation related emissions. Some NC MPOs have chosen to use the CMAQ funding for bicycle and pedestrian projects. Local governments in air quality nonattainment or maintenance area should contact their MPO for information on CMAQ funding opportunities for bicycle and pedestrian facilities.

### **Transportation Enhancement Call for Projects, EU, NCDOT**

The Enhancement Unit administers a portion of the enhancement funding set-aside through the Call for Projects process. In North Carolina the Enhancement Program is a federally funded cost reimbursement program with a focus upon improving the transportation experience in and through local North Carolina communities either culturally, aesthetically, or environmentally. The program seeks to encourage diverse modes of travel, increase benefits to communities and to encourage citizen involvement. This is accomplished through the following twelve qualifying activities:

1. Bicycle and Pedestrian Facilities
2. Bicycle and Pedestrian Safety
3. Acquisition of Scenic Easements, Scenic or Historic Sites
4. Scenic or Historic Highway Programs (including tourist or welcome centers)
5. Landscaping and other Scenic Beautification



6. Historic Preservation
7. Rehabilitation of Historic Transportation Facilities
8. Preservation of Abandoned Rail Corridors
9. Control of Outdoor Advertising
10. Archaeological Planning and Research
11. Environmental Mitigation
12. Transportation Museums

Funds are allocated based on an equity formula approved by the Board of Transportation. The formula is applied at the county level and aggregated to the regional level. Available fund amount varies. In previous Calls, the funds available ranged from \$10 million to \$22 million.

The Call process takes place on even numbered years or as specified by the Secretary of Transportation. The Next Call is anticipated to take place in 2009. For more information, visit: [www.ncdot.org/financial/fiscal/Enhancement/](http://www.ncdot.org/financial/fiscal/Enhancement/)

### **Bicycle and Pedestrian Planning Grant Initiative, managed by NCDOT, DBPT**

To encourage the development of comprehensive local bicycle plans and pedestrian plans, the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) and the Transportation Planning Branch (TPB) have created a matching grant program to fund plan development. This program was initiated through a special allocation of funding approved by the North Carolina General Assembly in 2003 along with federal funds earmarked specifically for bicycle and pedestrian planning by the TPB. The planning grant program was launched in January 2004, and it is currently administered through NCDOT-DBPT and the Institute for Transportation Research and Education (ITRE) at NC State University. Over the past three grant cycles, 48 municipal plans have been selected and funded from 123 applicants. A total of \$ 1,175,718 has been allocated. Funding is secured for 2008 at \$400,000. Additional annual allocations will be sought for subsequent years. For more information, visit [www.itre.ncsu.edu/ptg/bikeped/ncdot/index.html](http://www.itre.ncsu.edu/ptg/bikeped/ncdot/index.html)

### **Safe Routes to School Program, managed by NCDOT, DBPT**

The NCDOT Safe Routes to School Program is a federally funded program that was initiated by the passing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which establishes a national SRTS program to distribute funding and institutional support to implement SRTS programs in states and communities across the country. SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. The Division of Bicycle and Pedestrian Transportation at NCDOT is charged with disseminating SRTS funding.

The state of North Carolina has been allocated \$15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit

[www.ncdot.org/programs/safeRoutes/](http://www.ncdot.org/programs/safeRoutes/) or contact Leza Mundt at DBPT/NCDOT, (919) 807-0774.

### **Small Urban Funds managed by NCDOT Highway Division Offices**

Small Urban Funds are available for small improvement projects in urban areas. Each NCDOT Highway Division has \$2 million of small urban funds available annually. Although not commonly used for bicycle facilities, local requests for small bicycle projects can be directed to the NCDOT Highway Division office for funding through this source. A written request should be submitted to the Division Engineer providing technical information such as location, improvements being requested, timing, etc. for thorough review.

### **Hazard Elimination Program by NCDOT Highway Division Offices**

This program focuses on projects intended for locations that should have a documented history of previous crashes. Bicycle and pedestrian projects are eligible for this program, although the funds are not usually used for this purpose. This program is administered through the NCDOT Division of Highways. Similar to the Small Urban Funds, it is a significantly limited funding source.

### **The North Carolina Conservation Tax Credit (managed by NCDENR)**

This program, managed by the North Carolina Department of Environment and Natural Resources, provides an incentive (in the form of an income tax credit) for landowners that donate interests in real property for conservation purposes. Property donations can be fee simple or in the form of conservation easements or bargain sale. The goal of this program is to manage stormwater, protect water supply watersheds, retain working farms and forests, and set-aside greenways for ecological communities, public trails, and wildlife corridors. For more information, visit: [www.enr.state.nc.us/conservationtaxcredit/](http://www.enr.state.nc.us/conservationtaxcredit/).

### **Land and Water Conservation Fund (LWCF)**

The Land and Water Conservation Fund (LWCF) program is a reimbursable, 50/50 matching grants program to states for conservation and recreation purposes, and through the states to local governments to address "close to home" outdoor recreation needs. LWCF grants can be used by communities to build a trail within one park site, if the local government has fee-simple title to the park site. Grants for a maximum of \$250,000 in LWCF assistance are awarded yearly to county governments, incorporated municipalities, public authorities and federally recognized Indian tribes. The local match may be provided with in-kind services or cash. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of \$900 million each year. However, Congress generally appropriates only a small fraction of this amount. The allotted money for the year 2007 is \$632,846.

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources. Since 1965, the LWCF program has built a permanent park legacy for present and future generations. In North Carolina alone, the LWCF program has provided more than \$63 million in matching grants to protect land and support more than 800 state and local park projects. More than 37,000 acres have been acquired with LWCF assistance to establish a park legacy in our state. For more information, visit: <http://ils.unc.edu/parkproject/lwcf/home1.html>

### **NC Adopt-A-Trail Grant Program**

This program, operated by the Trails Section of the NC Division of State Parks, offers annual grants to local governments to build, renovate, maintain, sign and map and create brochures for pedestrian trails. Grants are generally capped at about \$5,000 per project and do not require a match. A total of \$108,000 in Adopt-A-Trail money is awarded annually to government agencies. Applications are due during the month of February. For more information, visit : <http://ils.unc.edu/parkproject/trails/grant.html>.

### **Recreational Trails Program**

The Recreational Trails Program (RTP) is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant applicants must be able contribute 20% of the project cost with cash or in-kind contributions. The program is managed by the State Trails Program, which is a section of the N.C. Division of Parks and Recreation.

The grant application is available and instruction handbook is available through the State Trails Program website at <http://ils.unc.edu/parkproject/trails/home.html>. Applications are due during the month of February. For more information, call (919) 715-8699.

### **North Carolina Parks and Recreation Trust Fund (PARTF)**

The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. Applicable projects require a 50/50 match from the local government. Grants for a maximum of \$500,000 are awarded yearly to county governments or incorporated municipalities. The fund is fueled by money from the state's portion of the real estate deed transfer tax for property sold in North Carolina.

The trust fund is allocated three ways:

- 65 percent to the state parks through the N.C. Division of Parks and Recreation.
- 30 percent as dollar-for dollar matching grants to local governments for park and recreation purposes.
- 5 percent for the Coastal and Estuarine Water Access Program.

For information on how to apply, visit: [www.partf.net/learn.html](http://www.partf.net/learn.html)

### **Powell Bill Program**

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Funding for this program is collected from fuel taxes. Amount of funds are based on population and mileage of City-maintained streets. For more information, visit [www.ncdot.org/financial/fiscal/ExtAuditBranch/Powell\\_Bill/powellbill.html](http://www.ncdot.org/financial/fiscal/ExtAuditBranch/Powell_Bill/powellbill.html).

### **Clean Water Management Trust Fund**

This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection. At the end of each fiscal year, 6.5 percent of the unreserved credit balance in North Carolina’s General Fund, or a minimum of \$30 million, is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds may be used to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. The fund has provided funding for land acquisition of numerous greenway projects featuring trails, both paved and unpaved. For a history of awarded grants in North Carolina and more information about this fund and applications, visit [www.cwmtf.net/](http://www.cwmtf.net/).

### **Natural Heritage Trust Fund**

This trust fund, managed by the NC Natural Heritage Program, has contributed millions of dollars to support the conservation of North Carolina’s most significant natural areas and cultural heritage sites. The NHTF is used to acquire and protect land that has significant habitat value. Some large wetland areas may also qualify, depending on their biological integrity and characteristics. Only certain state agencies are eligible to apply for this fund, including the Department of Environment and Natural Resources, the Wildlife Resources Commission, the Department of Cultural Resources and the Department of Agriculture and Consumer Services. As such, municipalities must work with State level partners to access this fund. Additional information is available from the NC Natural Heritage Program. For more information and grant application information, visit [www.ncnhtf.org/](http://www.ncnhtf.org/).

### **North Carolina Conservation Tax Credit Program**

North Carolina has a unique incentive program to assist land-owners to protect the environment and the quality of life. A credit is allowed against individual and corporate income taxes when real property is donated for conservation purposes. Interests in property that promote specific public benefits may be donated to a qualified recipient. Such conservation donations qualify for a substantial tax credit. For more information, visit: [www.enr.state.nc.us/conservationtaxcredit/](http://www.enr.state.nc.us/conservationtaxcredit/).

### **Urban and Community Forestry Assistance Program**

This program offers small grants that can be used to plant urban trees, establish a community arboretum, or other programs that promote tree canopy in urban areas. The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. To qualify for this program, a community must pledge to develop a street-tree inventory, a municipal tree ordinance, a tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources. For more information and a grant application, contact the NC Division of Forest Resources and/or visit [http://www.dfr.state.nc.us/urban/urban\\_grantprogram.htm](http://www.dfr.state.nc.us/urban/urban_grantprogram.htm).

### **Ecosystem Enhancement Program**

Developed in 2003 as a new mechanism to facilitate improved mitigation projects for NC highways, this program offers funding for restoration projects and for protection projects that serve to enhance water quality and wildlife habitat in NC. Information on the program is available by contacting the Natural Heritage Program in the NC Department of Environment



and Natural Resources (NCDENR). For more information, visit [www.nceep.net/pages/partners.html](http://www.nceep.net/pages/partners.html) or call 919-715-0476.

### **Conservation Reserve Enhancement Program (CREP)**

This program is a joint effort of the North Carolina Division of Soil and Water Conservation, the NC Clean Water Management Trust Fund, the Ecosystem Enhancement Program (EEP), and the Farm Service Agency - United States Department of Agriculture (USDA) to address water quality problems of the Neuse, Tar-Pamlico and Chowan river basins as well as the Jordan Lake watershed area.

CREP is a voluntary program that seeks to protect land along watercourses that is currently in agricultural production. The objectives of the program include: installing 100,000 acres of forested riparian buffers, grassed filter strips and wetlands; reducing the impacts of sediment and nutrients within the targeted area; and providing substantial ecological benefits for many wildlife species that are declining in part as a result of habitat loss. Program funding will combine the Federal Conservation Reserve Program (CRP) funding with State funding from the Clean Water Management Trust Fund, Agriculture Cost Share Program, and North Carolina Wetlands Restoration Program.

The program is managed by the NC Division of Soil and Water Conservation. For more information, visit [www.enr.state.nc.us/dswc/pages/crep.html](http://www.enr.state.nc.us/dswc/pages/crep.html)

### **Agriculture Cost Share Program**

Established in 1984, this program assists farmers with the cost of installing best management practices (BMPs) that benefit water quality. The program covers as much as 75 percent of the costs to implement BMPs. The NC Division of Soil and Water Conservation within the NC Department of Environment and Natural

Resources administers this program through local Soil and Water Conservation Districts (SWCD). For more information, visit

[www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html](http://www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html) or call 919-733-2302.

### **Water Resources Development Grant Program**

The NC Division of Water Resources offers cost-sharing grants to local governments on projects related to water resources. Of the seven project application categories available, the category which relates to the establishment of greenways is “Land Acquisition and Facility Development for Water-Based Recreation Projects.” Applicants may apply for funding for a greenway as long as the greenway is in close proximity to a water body. For more information, see:

[www.ncwater.org/Financial\\_Assistance](http://www.ncwater.org/Financial_Assistance) or call 919-733-4064.

### **Small Cities Community Development Block Grants**

State level funds are allocated through the NC Department of Commerce, Division of Community Assistance to be used to promote economic development and to serve low-income and moderate-income neighborhoods. Greenways that are part of a community’s economic development plans may qualify for assistance under this program. Recreational areas that serve to improve the quality of life in lower income areas may also qualify. Approximately \$50 million is available statewide to fund a variety of projects. For more information, visit [www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/](http://www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/) or call 919-733-2853.

### **North Carolina Health and Wellness Trust Fund**

The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period.

Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) announces the establishment of Fit Community, a designation and grant program that recognizes and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue.

All North Carolina municipalities and counties are eligible to apply for a Fit Community designation, which will be awarded to those that have excelled in supporting the following:

- physical activity in the community, schools, and workplaces
- healthy eating in the community, schools, and workplaces
- tobacco use prevention efforts in schools

Designations will be valid for two years, and designated communities may have the opportunity to reapply for subsequent two-year extensions. The benefits of being a Fit Community include:

- heightened statewide attention that can help bolster local community development and/or economic investment initiatives (highway signage and a plaque for the Mayor's or County Commission Chair's office will be provided)
- reinvigoration of a community's sense of civic pride (each Fit Community will serve as a model for other communities that are trying to achieve similar goals)
- use of the Fit Community designation logo for promotional and communication purposes. The application for Fit Community designation is available on the Fit Together Web site: [www.FitTogetherNC.org/FitCommunity.aspx](http://www.FitTogetherNC.org/FitCommunity.aspx).

Fit Community grants are designed to support innovative strategies that help a community meet its goal to becoming a Fit Community. Eight to nine, two-year grants of up to \$30,000 annually will be awarded to applicants that have a demonstrated need, proven capacity, and opportunity for positive change in addressing physical activity and/or healthy eating. For more information, visit: [www.healthwellnc.com/](http://www.healthwellnc.com/)

### **The North Carolina Division of Forest Resources**

Urban and Community Forestry Grant can provide funding for a variety of projects that will help toward planning and establishing street trees as well as trees for urban open space. See: [http://www.dfr.state.nc.us/urban/urban\\_ideas.htm](http://www.dfr.state.nc.us/urban/urban_ideas.htm)

## **FUNDING ALLOCATED BY FEDERAL AGENCIES**

### **Wetlands Reserve Program**

This federal funding source is a voluntary program offering technical and financial assistance to landowners who want to restore and protect wetland areas for water quality and wildlife

habitat. The US Department of Agriculture’s Natural Resource Conservation Service (USDA-NRCS) administers the program and provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. For more information, visit <http://www.nrcs.usda.gov/PROGRAMS/wrp/>.

### **The Community Development Block Grant (HUD-CDBG)**

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate income areas. Several communities have used HUD funds to develop greenways, including the Boulding Branch Greenway in High Point, North Carolina. Grants from this program range from \$50,000 to \$200,000 and are either made to municipalities or non-profits. There is no formal application process. For more information, visit: [www.hud.gov/offices/cpd/communitydevelopment/programs/](http://www.hud.gov/offices/cpd/communitydevelopment/programs/).

### **USDA Rural Business Enterprise Grants**

Public and private nonprofit groups in communities with populations under 50,000 are eligible to apply for grant assistance to help their local small business environment. \$1 million is available for North Carolina on an annual basis and may be used for sidewalk and other community facilities. For more information from the local USDA Service Center, visit: <http://www.rurdev.usda.gov/rbs/busp/rbeg.htm>

### **Rivers Trails and Conservation Assistance Program (RTCA)**

The Rivers, Trails, and Conservation Assistance Program, also known as the Rivers & Trails Program or RTCA, is the community assistance arm of the National Park Service. RTCA staff provide technical assistance to community groups and local, State, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. The RTCA program implements the natural resource conservation and outdoor recreation mission of the National Park Service in communities across America

Although the program does not provide funding for projects, it does provide valuable on-the-ground technical assistance, from strategic consultation and partnership development to serving as liaison with other government agencies. Communities must apply for assistance. For more information, visit: [www.nps.gov/ncrc/programs/rtca/](http://www.nps.gov/ncrc/programs/rtca/) or call Chris Abbett, Program Leader, at 404-562-3175 ext. 522.

### **Public Lands Highways Discretionary Fund**

The Federal Highway Administration administers discretionary funding for projects that will reduce congestion and improve air quality. The FHWA issues a call for projects to disseminate this funding. The FHWA estimates that the PLHD funding for the 2007 call will be \$85 million. In the past, Congress has earmarked a portion of the total available funding for projects. For information on how to apply, visit: <http://www.fhwa.dot.gov/discretionary/>

## **LOCAL FUNDING SOURCES**

Municipalities often plan for the funding of pedestrian facilities or improvements through development of Capital Improvement Programs (CIP). In Raleigh, for example, the greenways

system has been developed over many years through a dedicated source of annual funding that has ranged from \$100,000 to \$500,000, administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each of these categories are described below.

### **Capital Reserve Fund**

Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants and donations for the specified use.

### **Capital Project Ordinances**

Municipalities can pass Capital Project Ordinances that are project specific. The ordinance identifies and makes appropriations for the project.

### **Municipal Service District**

Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the citywide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts.

### **Tax Increment Financing**

Tax increment financing is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project, such as the construction of a greenway, is carried out, there is an increase in the value of surrounding real estate. Oftentimes, new investment in the area follows such a project. This increase in value and investment creates more taxable property, which increases tax revenues. These increased revenues can be referred to as the “tax increment.” Tax Increment Financing dedicates that increased revenue to finance debt issued to pay for the project. TIF is designed to channel funding toward improvements in distressed or underdeveloped areas where development would not otherwise occur. TIF creates funding for public projects that may otherwise be unaffordable to localities. The large majority of states have enabling legislation for tax increment financing.

### **Installment Purchase Financing**

As an alternative to debt financing of capital improvements, communities can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.



## **Taxes**

Many communities have raised money through self-imposed increases in taxes and bonds. For example, Pinellas County residents in Florida voted to adopt a one-cent sales tax increase, which provided an additional \$5 million for the development of the overwhelmingly popular Pinellas Trail. Sales taxes have also been used in Allegheny County, Pennsylvania, and in Boulder, Colorado to fund open space projects. A gas tax is another method used by some municipalities to fund public improvements. A number of taxes provide direct or indirect funding for the operations of local governments. Some of them are:

### ***Sales Tax***

In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities. Any increase in the sales tax, even if applying to a single county, must gain approval of the state legislature. In 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit.

### ***Property Tax***

Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance greenway system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund greenways could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

### ***Excise Taxes***

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

### ***Occupancy Tax***

The NC General Assembly may grant towns the authority to levy occupancy tax on hotel and motel rooms. The act granting the taxing authority limits the use of the proceeds, usually for tourism-promotion purposes.

## **Fees**

Three fee options that have been used by local governments to assist in funding pedestrian and bicycle facilities are listed here:

### ***Stormwater Utility Fees***

Greenway sections may be purchased with stormwater fees, if the property in question is used to mitigate floodwater or filter pollutants.

Stormwater charges are typically based on an estimate of the amount of impervious surface on a user's property. Impervious surfaces (such as rooftops and paved areas) increase both the amount and rate of stormwater runoff compared to natural conditions. Such surfaces cause runoff that directly or indirectly discharge into public storm drainage facilities and creates a need for stormwater management services. Thus, users with more impervious surface are charged more for stormwater service than users with less impervious surface. The rates, fees, and charges collected for stormwater management services may not exceed the costs incurred to provide these services. The costs that may be recovered through the stormwater rates, fees, and charges includes any costs necessary to assure that all aspects of stormwater quality and quantity are managed in accordance with federal and state laws, regulations, and rules.

### ***Streetscape Utility Fees***

Streetscape Utility Fees could help support streetscape maintenance of the area between the curb and the property line through a flat monthly fee per residential dwelling unit. Discounts would be available for senior and disabled citizens. Non-residential customers would be charged a per foot fee based on the length of frontage on streetscape improvements. This amount could be capped for non-residential customers with extremely large amounts of street frontage. The revenues raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

### ***Impact Fees***

Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional needs of a growing community. These charges are set in a fee schedule applied uniformly to all new development. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements. If Holly Springs is interested in pursuing open space impact fees, it will require enabling legislation to authorize the collection of the fees.

### ***Exactions***

Exactions are similar to impact fees in that they both provide facilities to growing communities. The difference is that through exactions it can be established that it is the responsibility of the developer to build the greenway or pedestrian facility that crosses through the property, or adjacent to the property being developed.

### ***In-Lieu-Of Fees***

As an alternative to requiring developers to dedicate on-site greenway sections that would serve their development, some communities provide a choice of paying a front-end charge for off-site protection of pieces of the larger system. Payment is generally a condition of development approval and recovers the cost of the off-site land acquisition or the development's proportionate share of the cost of a regional facility serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

### **Bonds and Loans**

Bonds have been a very popular way for communities across the country to finance their pedestrian and greenway projects. A number of bond options are listed below. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an education and awareness program should be implemented prior to any vote. Billings, Montana used the issuance of a bond in the amount of \$599,000 to provide the matching funds for several of their TEA-21 enhancement dollars. Austin, Texas has also used bond issues to fund a portion of their bicycle and trail system.

#### ***Revenue Bonds***

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds, pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

#### ***General Obligation Bonds***

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of land acquisition and greenway development and make funds available for immediate purchases and projects. Voter approval is required.

#### ***Special Assessment Bonds***

Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service

payments on these bonds are funded through annual assessments to the property owners in the assessment area.

### ***State Revolving Fund (SRF) Loans***

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

## **OTHER LOCAL OPTIONS**

### **Facility Maintenance Districts**

Facility Maintenance Districts (FMDs) can be created to pay for the costs of on-going maintenance of public facilities and landscaping within the areas of the Town where improvements have been concentrated and where their benefits most directly benefit business and institutional property owners. An FMD is needed in order to assure a sustainable maintenance program. Fees may be based upon the length of lot frontage along streets where improvements have been installed, or upon other factors such as the size of the parcel. The program supported by the FMD should include regular maintenance of streetscape of off road trail improvements. The municipality can initiate public outreach efforts to merchants, the Chamber of Commerce, and property owners. In these meetings, Town staff will discuss the proposed apportionment and allocation methodology and will explore implementation strategies.

The municipality can manage maintenance responsibilities either through its own staff or through private contractors.

### **Partnerships**

Another method of funding pedestrian systems and greenways is to partner with public agencies and private companies and organizations. Partnerships engender a spirit of cooperation, civic pride and community participation. The key to the involvement of private partners is to make a compelling argument for their participation. Major employers and developers should be identified and provided with a “Benefits of Walking”-type handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners’ monetary support following a successful master planning effort. Potential partners include major employers which are located along or accessible to pedestrian facilities such as shared-use paths or greenways. Name recognition for corporate partnerships would be accomplished through signage trail heads or interpretive signage along greenway systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

### **Local Trail Sponsors**

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for



certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

### **Volunteer Work**

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

## **PRIVATE FOUNDATIONS AND ORGANIZATIONS**

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are a few examples of private funding opportunities available in North Carolina.

### **Land for Tomorrow Campaign**

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign is asking the North Carolina General Assembly to support issuance of a bond for \$200 million a year for five years to preserve and protect its special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. For more information, visit <http://www.landfortomorrow.org/>

### **The Trust for Public Land**

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. TPL's legal and real estate specialists work with landowners, government agencies, and community groups to:

- Create urban parks, gardens, greenways, and riverways
  - Build livable communities by setting aside open space in the path of growth
  - Conserve land for watershed protection, scenic beauty, and close-to home recreation
- safeguard the character of communities by preserving historic landmarks and landscapes.

The following are TPL's Conservation Services:

- Conservation Vision: TPL helps agencies and communities define conservation priorities, identify lands to be protected, and plan networks of conserved land that meet public need.

- Conservation Finance: TPL helps agencies and communities identify and raise funds for conservation from federal, state, local, and philanthropic sources.
- Conservation Transactions: TPL helps structure, negotiate, and complete land transactions that create parks, playgrounds, and protected natural areas.
- Research & Education: TPL acquires and shares knowledge of conservation issues and techniques to improve the practice of conservation and promote its public benefits.

Since 1972, TPL has worked with willing landowners, community groups, and national, state, and local agencies to complete more than 3,000 land conservation projects in 46 states, protecting more than 2 million acres. Since 1994, TPL has helped states and communities craft and pass over 330 ballot measures, generating almost \$25 billion in new conservation-related funding. For more information, visit <http://www.tpl.org/>.

### **Z. Smith Reynolds Foundation**

This Winston-Salem based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. The foundation has two grant cycles per year and generally does not fund land acquisition. However, the foundation may be able to support municipalities in other areas of greenways development. More information is available at [www.zsr.org](http://www.zsr.org).

### **North Carolina Community Foundation**

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. In addition, the foundation manages various scholarship programs statewide. Web site: <http://nccommunityfoundation.org/>

### **National Trails Fund**

In 1998, the American Hiking Society created the National Trails Fund, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Each year, 73 million people enjoy foot trails, yet many of our favorite trails need major repairs due to a \$200 million in badly needed maintenance. National Trails Fund grants give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. For 2005, American Hiking distributed over \$40,000 in grants thanks to the generous support of Cascade Designs and L.L.Bean, the program's Charter Sponsors. To date, American Hiking has granted more than \$240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$10,000 per project.

What types of projects will American Hiking Society consider? Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements. Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/

or avoidance of environmental damage. Constituency building surrounding specific trail projects - including volunteer recruitment and support. Web site: [www.americanhiking.org/alliance/fund.html](http://www.americanhiking.org/alliance/fund.html).

### **Bikes Belong**

The Bikes Belong Grants Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths, lanes, and routes, as well as bike parks, mountain bike trails, BMX facilities, and large-scale bicycle advocacy initiatives.

Since 1999, Bikes Belong has awarded 166 grants to municipalities and grassroots groups in 44 states and the District of Columbia, investing nearly \$1.3 million in community bicycling projects and leveraging more than \$476 million in federal, state, and private funding.

# APPENDIX E. PROJECT RANKING METHODOLOGY

The following prioritization factors have been weighted and are used to determine the prioritization of sidewalk projects in Chapter 3. The total maximum score possible from the following factors is 21. No project received the maximum score.

## **Public Comments (3 to 10 = 2; 10 or more = 3)**

The project receives a score of 3 points if there were over 10 comments from the public meetings or from the community survey and 2 points if there were 3 to 10 comments.

## **Proximity to school zones (within 1/4 mile = 3)**

The project receives a score of 3 points if a portion of the project lies within ¼ mile of an elementary, middle or high school.

## **Proximity to parks and recreation (within 1/4 mile = 3)**

The project receives a score of 3 points if a portion of the project lies within ¼ mile of a park or recreation facility. These facilities include all Town parks, the YMCA, river parks, golf courses and passive parks.

## **Crashes (1 crash 2001-2005=3)**

The project receives 3 points if there was one crash along the project limits between 2001 and 2005 and is based on NCDOT Division of Bicycle and Pedestrian Transportation data.

## **Traffic Count (>2,000AADT=2)**

The project receives 2 points if the Average Annual Daily Traffic (ADT) is greater than 2,000 vehicles.

## **Compatible land use (multi-family residential, commercial, institutional or downtown=2)**

Projects that are along roadways abutting land use that is either downtown, commercial, multi-family residential or institutional receives a score of 2 points.

## **Curb and gutter existing (=1)**

Projects along roadways that already have curb and gutter existing receive a score of 1 point. Streets with curb and gutter are less expensive to retrofit with sidewalk than ditch and swale.

## **Connectivity to existing sidewalk (=1)**

If the project connects to an existing sidewalk, that project will receive 2 points. The project does not need to connect to a sidewalk on both ends, just one.

## **Intersects with Proposed Bypass (=1)**

The project receives 1 point if it intersects with the proposed alignment of 311 Bypass, known as the Jamestown Bypass.

## **Proximity to Transit (Parallel to Route = 2; <1,000 ft from = 1)**

The project receives 2 points if it lies along a corridor or connects directly to a corridor served by public transportation. The project will also receive 1 point if it lies within 1,000 feet of public transit routes.

# **APPENDIX F. DEEP RIVER TRAIL PLAN EXECUTIVE SUMMARY**

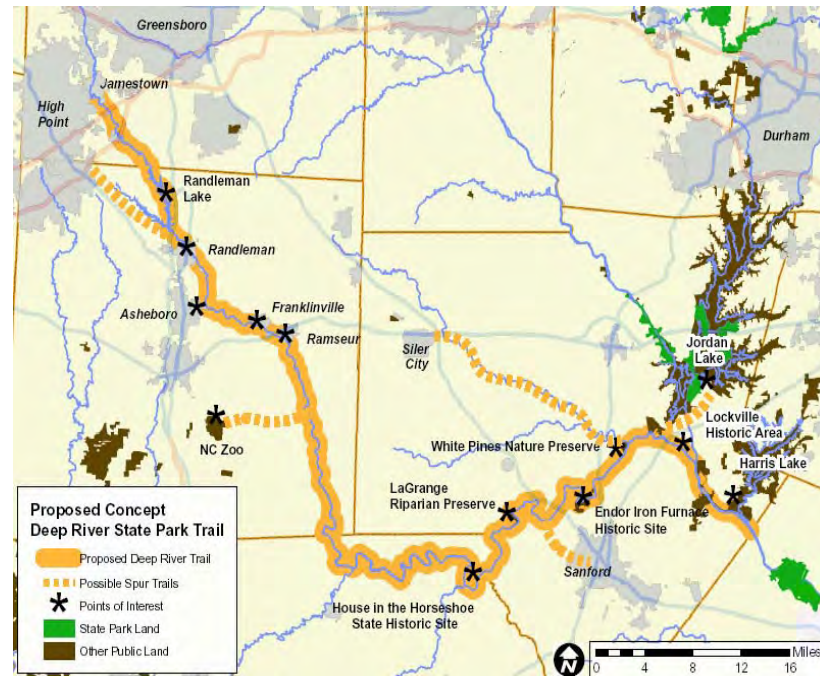


## Deep River Trail Background

There has been significant interest in developing tourism and recreation along the Deep River for some time, both locally and regionally. The Jamestown In Motion committee worked to develop the Deep River walking trail in the late 1990s and early 2000s based on a Urban Design Assistance Team plan from 1996. Some sections of the trail were implemented connecting the Mendenhall Plantation to the Deep River, however with the passing of the late John Hamil, work by Jamestown In Motion on the trail stopped.

The General Assembly designated the Deep River Corridor State Park Trail in 2007, after many years of work by advocates along the Deep River. The designation of the Deep River as an entity in the State Parks system has sparked interest in reviving planning efforts for a land and water based trail in Jamestown.

### Deep River State Park Trail Concept Map



# Jamestown Deep River Trail Plan

## Executive Summary

### Overview

In July of 2008 the Town of Jamestown requested the Piedmont Triad Council of Governments (PTCOG) assistance in developing the *Town of Jamestown Deep River Trail Plan*. The plan was developed in cooperation with the Jamestown Parks & Recreation Advisory Committee, the Town Council, Town staff, Guilford County staff, High Point staff, State Parks & Recreation staff, and multiple landowners along the Deep River Trail corridor. The plan sections provide assessments and recommendations for the following primary project elements:

**Local Blueway (Paddling) Trail** – provide recommendations for the location & design of put-in and take-out access sites for a local blueway (paddling) trail along the Deep River from City Lake Park to the Oakdale Mill dam;

**Local Greenway (Hiking) Trail** – provide recommendations for the location & design of trailheads and the alignment of a local greenway (hiking) trail along the Deep River from City Lake Park to the Oakdale Mill dam; and

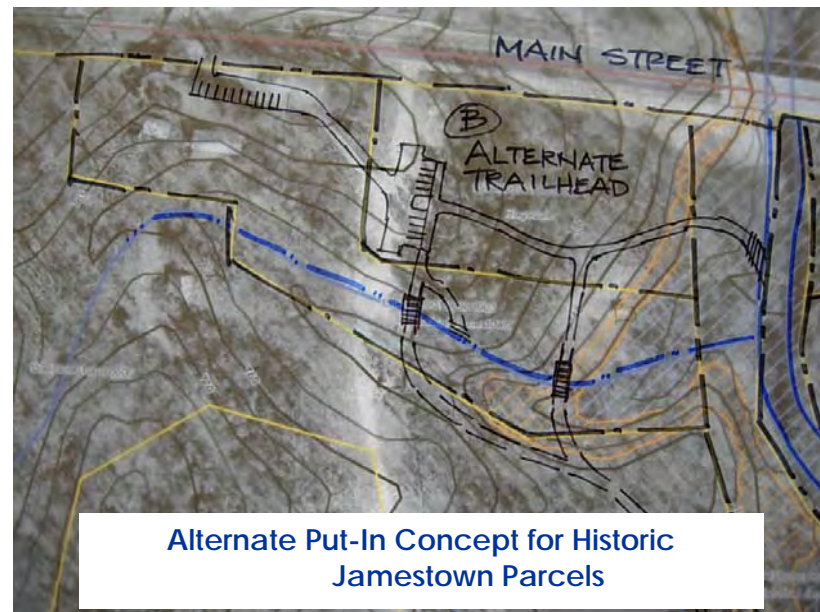
**Regional Greenway and Blueway Trail** – provide recommendations for the conceptual alignment of a regional greenway trail along the Deep River corridor from Oakdale Mill dam south to the Southwest Guilford County Park.

### Organization of the Plan

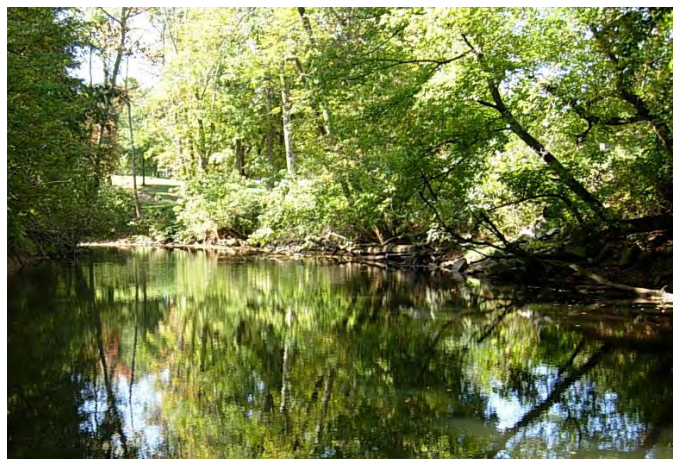
- Section 1: Project Background
- Section 2: Local Blueway (Paddling) Trail
- Section 3: Local Greenway (Hiking) Trail
- Section 4: Local Trail Recommendations
- Section 5: Regional Blueway and Greenway Trail
- Appendix A: 1995 Deep River Heritage Corridor Proposal

## Blueway Access Site Concepts

The Deep River Trail Plan includes a number of access site concept or “sketch” plans of how the river site may be developed. There are multiple conceptual designs shown for access sites along the local trail. For example parking, access roads, trail alignments, kiosk and trailheads may be drawn for each site. The concepts will be useful in discussing the blueway trail with stakeholders and can be used in developing a specific site plan for the access sites. An example of a concept is shown here, please see the full plan (Section 2) for more details and context.



Alternate Put-In Concept for Historic Jamestown Parcels



Deep River near Main Street

### City Council

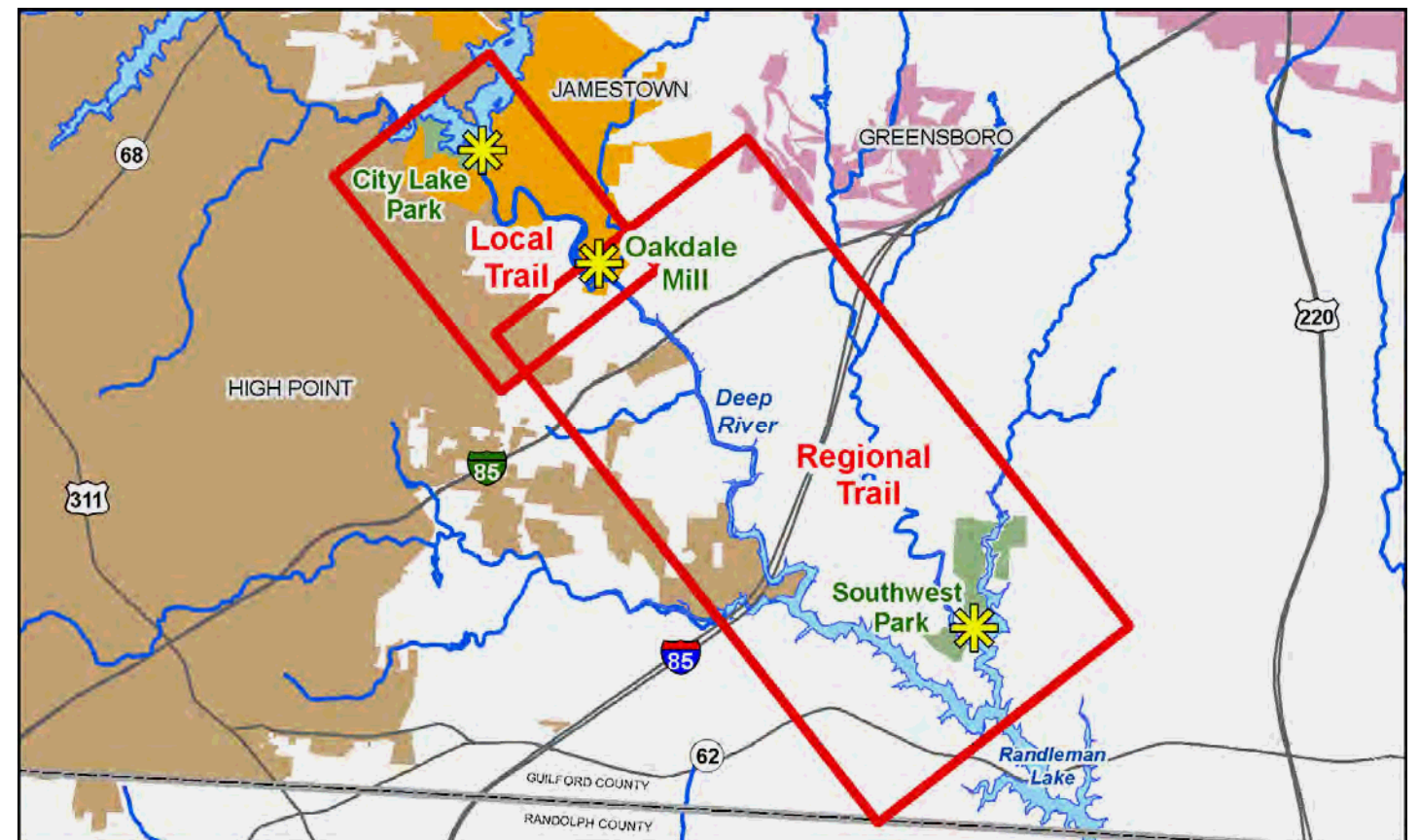
Keith L. Volz , Mayor	Will Ragsdale
Georgia Nixon-Roney, Mayor Pro Tem	R. Brock Thomas
J. Frank Gray	



### Parks & Recreation Advisory Committee

Marla Kurzec, Chairwoman	Al Bartko
Fred Kelly	Will Ragsdale
Tom Tervo	Larry Lain
Linda Schumacher	Lynn Tice

### Local and Regional Trail Study Area





## Summary of Planning Work

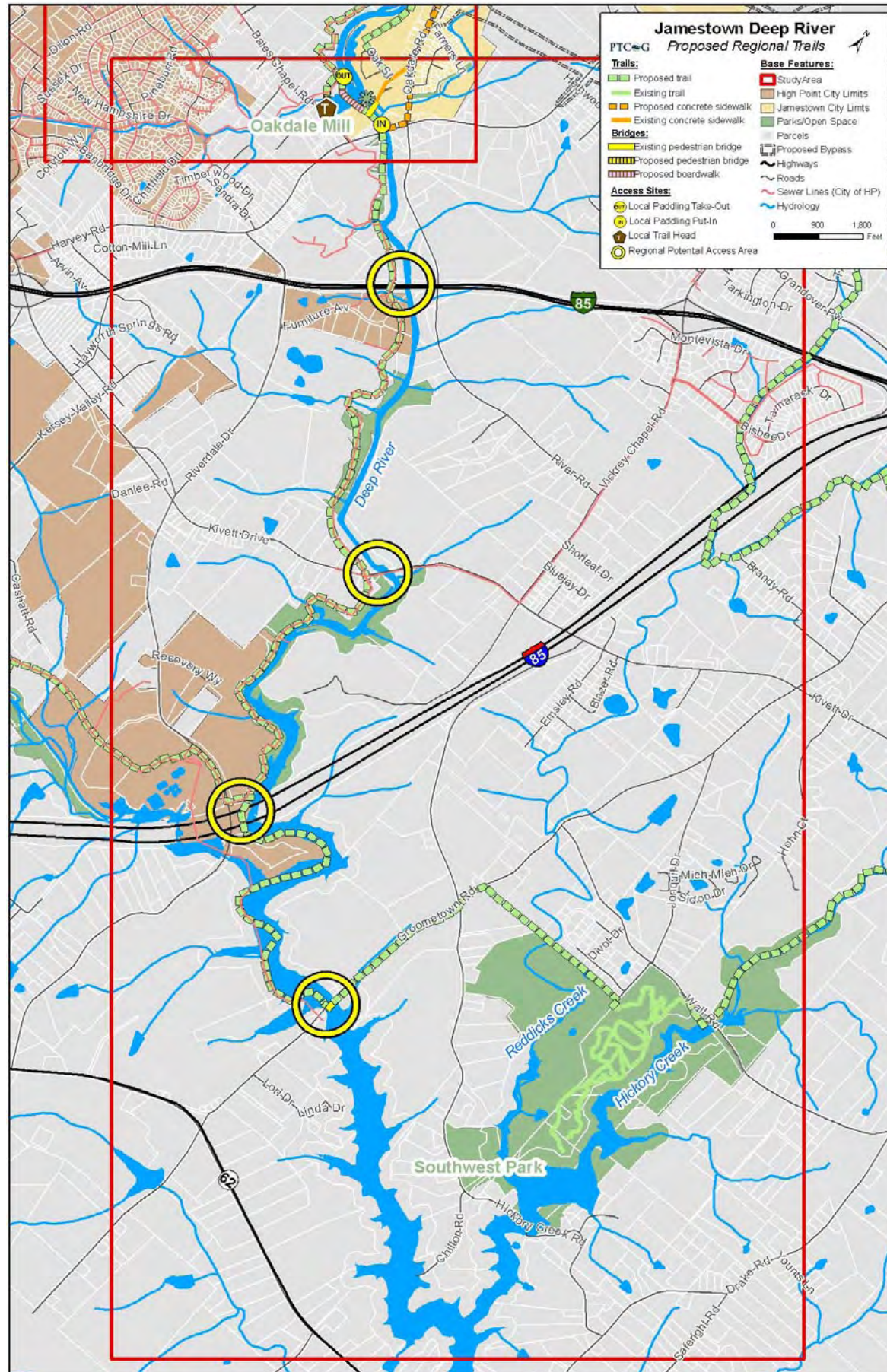
The PTCOG staff conducted field assessments and analyzed existing conditions data (i.e. ortho-photography, topography, hydrography, floodplains, vegetation; on-site and surrounding land uses, and land ownership) in developing a plan for the local blueway and greenway trail. The map (opposite page) shows the location of recommended trail features based on this analysis and landowner contact.

A regional trail analysis was also conducted to look at connecting Jamestown and Southwest Park on Randleman Lake. This analysis did not involve private landowner contact, however discussions with the Executive Director of the Piedmont Triad Regional Water Authority (PTRWA), Guilford County and City of High Point did occur and are included in the full plan document. Further discussions with private landowners and the PTRWA board will need to occur to make the regional trail feasible. The recommendations for a regional trail alignment and potential access points are shown in the map (right).

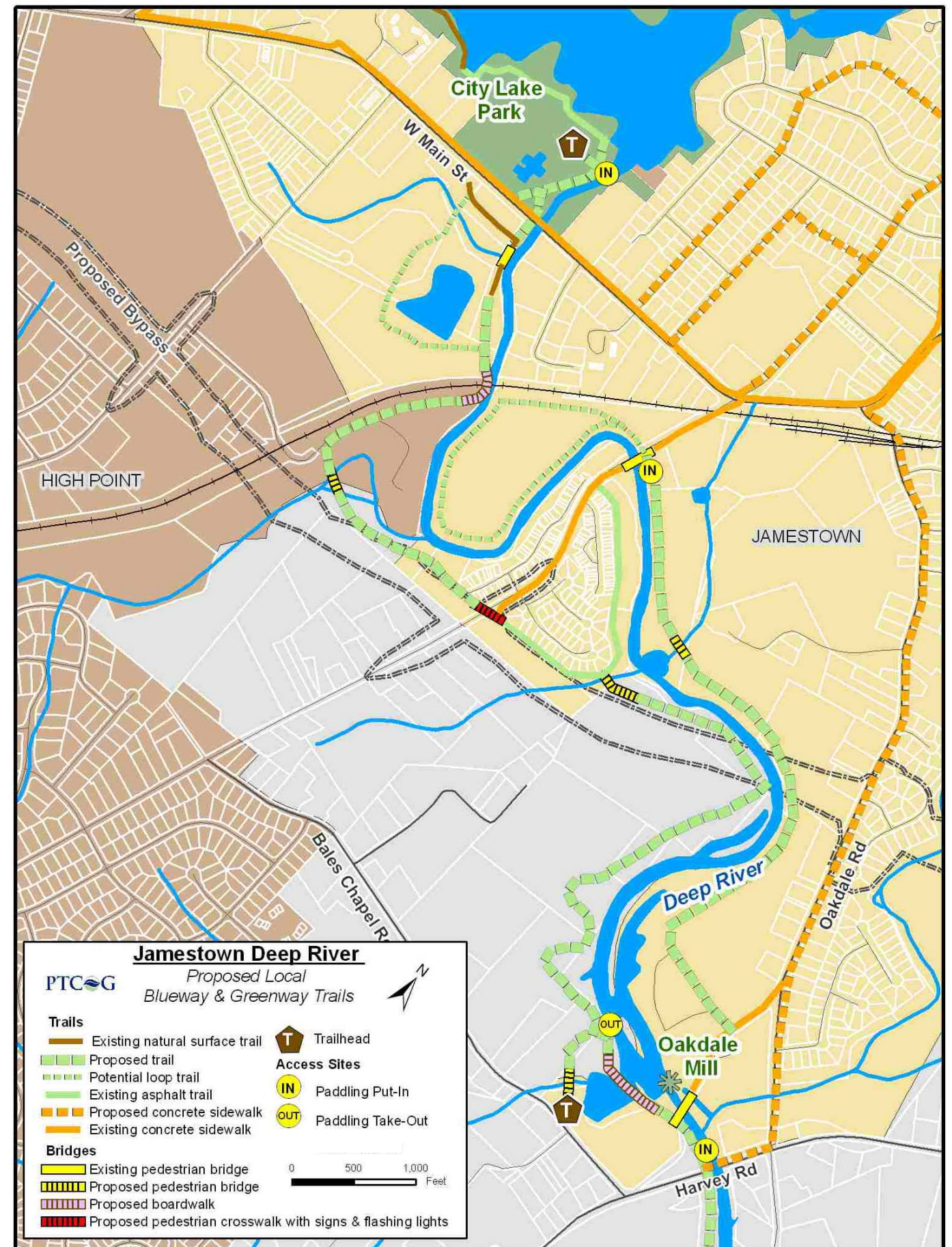


Railroad Bridge over the Deep River

### Regional Trail Recommendations Map



### Local Trail Recommendations Map







**PIEDMONT TRIAD**  
**COUNCIL OF GOVERNMENTS**  
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