TOWN OF ELIZABETHTOWN

COMPREHENSIVE PEDESTRIAN PLAN

February 2013

Division of Bicycle & Pedestrian Transportation
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS

i. Acknowledgments

Town of Elizabethtown
NCDOT Bicycle and Pedestrian Division

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Table of Contents

EXECUTIVE SUMMARY

OVERVIEW

The Town of Elizabethtown is located in Bladen County, North Carolina. The Town's location near White Lake recreation area, Singletary Lake State Park, and Jones Lake State Park have helped to make it a popular destination for tourists, as well as a pleasant place to live. The Town has recently completed two major projects in downtown: a streetscape revitalization and a thriving Farmer's Market.

The Town has numerous assets, in addition to the thriving downtown, such as access to the Cape Fear River, Tory Hole Park, which has a boat launch and amphitheater adjacent to the river and downtown, and Lock & Dam #2, a park with picnic areas, walking paths, and views of the river.

Sidewalks are generally only available in the downtown core of Elizabethtown and provide limited connectivity between homes, commercial centers, schools, and businesses. Most neighborhoods are more rural in nature and have no sidewalks.

The Town and citizens of Elizabethtown support the move towards a more pedestrian friendly community as shown in survey questionnaires, steering committee comments, and planning initiatives undertaken by the Town.

The community's interest in creating a friendlier pedestrian network is apparent through public input at various Public Meetings where the desire for pedestrian friendly commercial areas, connected neighborhoods, new sidewalks, and new crosswalks were noted. A commitment to implementing these improvements will help ensure that the Town grows in a positive direction that offers pedestrians an environment where walking is encouraged and supported.

Sidewalks along Poplar Street have unsafe crossings and numerous driveway cuts.

VISION AND GOALS

With the help of a Bicycle and Pedestrian Planning Grant Initiative from the North Carolina Department of Transportation (NCDOT), the Town of Elizabethtown is making their vision for a pedestrian-friendly community a reality by developing a Comprehensive Pedestrian Master Plan. A steering committee comprised of community members and Town staff guided the Pedestrian Plan process and developed the Vision and Goals for the plan. In addition to four steering committee meetings, two public meetings were held to gain valuable public input from the community.

Vision Statement:

The Elizabethtown Pedestrian Plan will identify a safer, more attractive and accessible environment for pedestrians that will connect services, attractions, and destinations thereby enhancing the quality of life for residents and visitors.

Goals:

- Provide safe access to the walkways for residents and visitors and promote a feeling of safety and security through proper lighting and protection from vehicles and other hazards.
- Promote health and wellness in Elizabethtown by providing attractive walking facilities that connect key destinations, reducing the need to drive.
- Provide walkways for people of all ages, regardless of physical condition.
- Consider cost implications of proposed pedestrian network and provide estimates of probable cost.
- Create a plan that can be used for future Town and regional planning and funding opportunities.
- Recommend safe methods and alternatives for pedestrian movement, including proper signage, lighting, and pedestrian crossing signals.

A sidewalk connects to the elementary school (above); Sidewalks along MLK are well-used. (below)

PEDESTRIAN PROJECT RECOMMENDATIONS

The Comprehensive Pedestrian Master Plan identifies major corridors, as well as localized (or "spot") areas in immediate need of improvement, as well as locations for future improvements. These improvements have been classified as Short Term projects and Long Term projects. ***The Short Term and Long Term project recommendations are discussed in further detail, with an explanation of each, in Section 4 of this report.*** In addition, Section 4 breaks the short-term projects into Tier one or Tier two, based upon set criteria.

Pedestrian Corridors:

The following identify longer sections along roadways that are in need of various comprehensive streetscape enhancements.

- South Poplar Street
- Martin Luther King Drive
- Peanut Road

"Spot" Improvements:

The following improvements are smaller, critical locations in need of immediate improvement.

Tier One:

- Sidewalks extending to the commercial areas west of Peanut Road on Broad Street.
- Intersection at Peanut Road and Broad Street.
- Sidewalk on the north side of King Street from the Town Hall to the Farmer's Market.
- Intersection improvements at King Street and MLK Drive.
- Sidewalk from existing sidewalk on Poplar Street to Tory Hole Park
- Enhanced intersection at Broad Street and Poplar Street.

- Intersection improvements at King Street and Poplar Street.
- Intersection improvements at Swanzy Street and Poplar Street
- Intersection improvements at Mill/Mercer and Poplar Street.
- Intersection improvements at Dunham Street and Poplar Street.
- Traffic signal at Dunham Street and Poplar Street.
- Additional sidewalk to the Bladen County Hospital on the east side of Poplar Street.
- Mid-block crossing on Mercer Road to elementary school.

Tier Two:

- Sidewalks on Peanut Road
- Traffic calming roundabout at intersection of MLK and King.
- Additional sidewalk on east side of MLK Drive to Newkirk Street Extension.
- Additional sidewalk on west side of MLK Drive in front of the future Charter school.
- Intersection improvements at MLK Drive and Newkirk Street Extension.
- Sidewalk on Newkirk Street Extension.
- Intersection of Poplar Street and Newkirk Street Extension.
- Sidewalk on east side of Poplar Street from Smith Circle to Newkirk Street Extension.
- Sidewalk on north side of Smith Circle.
- Sidewalk on southwest side of Mercer Road from Poplar Street east to Doctor's Drive.
- Sidewalk on Gooden Street to Lower Street to access north side of elementary school.

Tier Three:

These projects are considered to be long-term projects and are discussed in detail in Section 4 of this report.

By planning now, Elizabethtown will be better positioned to implement the improvements and new pedestrian facilities recommended in this Master Plan in a more cost efficient and timely manner. This Comprehensive Master Plan is meant to complement previous planning efforts and provide additional information to help expand existing pedestrian facilities.

The Comprehensive Pedestrian Master Plan will provide conceptual facility standards and general design guidelines for future development, as well as descriptions of current facilities in need of improvement or repair. The Plan will also provide recommendations regarding new facilities and programs, and guidance in project prioritization. Finally, general cost estimates will be provided along with potential funding sources for pedestrian related projects.

The intent of this Comprehensive Pedestrian Master Plan is not to provide specific development design standards for the Town of Elizabethtown, but to develop guidelines and recommendations that may be followed to create an integrated and cohesive town in functionality and aesthetic appearances. Development Standards and Code Regulations may be developed further as a result of the recommendations outlined in this Master Plan.

SECTION 1- INTRODUCTION

1.1-SCOPE AND PURPOSE OF PLAN

The purpose of the Town of Elizabethtown's Comprehensive Pedestrian Master Plan is to improve the quality and connectivity of Elizabethtown's pedestrian environment by focusing on both on-street sidewalks and off-street pedestrian paths to create a safe, accessible, and functional pedestrian system. The Pedestrian Plan will give general recommendations related to the entire Extraterritorial Jurisdiction (ETJ) of Elizabethtown, with specific sidewalk improvements and additions focused within the Town limits, particularly in the central core of Town. The Existing Conditions map in Section 2.5 illustrates the project scope of this Master Plan.

Elizabethtown has a successful pedestrian environment on Broad Street that should be expanded .

1.2-OVERVIEW

The Town of Elizabethtown Comprehensive Pedestrian Master Plan was made possible through a $25,000 Bicycle and Pedestrian Planning Grant Initiative funded through the North Carolina Department of Transportation (NCDOT). As such, the layout and organization of this report is based upon the NCDOT template. The purpose of this Pedestrian Master Plan is to create a document through proper planning and public process that will guide the improvement of the accessibility, connectivity, safety, and overall functionality of the pedestrian environment within Elizabethtown. A commitment to providing facilities and amenities for active lifestyles and access to destinations will positively contribute to the mental and physical health of residents and visitors, as well as their overall quality of life.

Pedestrian and bicycle issues are increasingly gaining notice and many government agencies, special interest groups, municipalities, and counties are integrating pedestrians and bicyclists into their comprehensive transportation systems. The

Town of Elizabethtown's Comprehensive Pedestrian Master Plan is an example of this growing awareness and provides an opportunity for the Town to plan for the future needs of its present and future residents.

Elizabethtown has gained in popularity as a tourist destination for those staying at nearby state parks and recreation areas and as a pleasant place for a day-trip from Raleigh or Fayetteville. People enjoy the shopping and restaurants in downtown, the new Farmer's Market and the access to nearby White Lake. Although the attractive new streetscape in downtown provides safe walking for those few blocks, sidewalks are limited throughout the rest of Town.

This Pedestrian Master Plan will help guide the improvement and development of pedestrian facilities and provide networks to help meet the future needs and desires of community residents and visitors.

Many of the residents of Elizabethtown live in single family homes or apartments within the Town that are not served by sidewalks, making excursions by foot difficult and unsafe.

1.3-VISION STATEMENT

The Comprehensive Pedestrian Plan Vision Statement has guided the Pedestrian Plan process and served as a tool to ensure the goals and needs of the community are being met.

The Town's stated goals reflect a desire to meet the needs of all of the Town's residents and visitors, and to focus especially on health, safety and connectivity. Links between and extending the existing sidewalk networks were identified as a major priority for the Comprehensive Pedestrian Plan. The Steering Committee stressed that in order to promote health in their community and encourage tourists to visit, a comprehensive pedestrian network is imperative for the Town.

Comprehensive Plan Vision Statement

The Elizabethtown Pedestrian Plan will identify a safer, more attractive and accessible environment for pedestrians that will connect services, attractions, and destinations thereby enhancing the quality of life for residents and visitors.

Goals:

- Provide safe access to the walkways for residents and visitors and promote a feeling of safety and security through proper lighting and protection from vehicles and other hazards.
- Promote health and wellness in Elizabethtown by providing attractive walking facilities that connect key destinations, reducing the need to drive.
- Provide walkways for people of all ages, regardless of physical condition.
- Consider cost implications of proposed pedestrian network and provide estimates of probable cost.
- Create a plan that can be used for future Town and regional planning and funding opportunities.
- Recommend safe methods and alternatives for pedestrian movement, including proper signage, lighting, and pedestrian crossing signals.

1.4-HISTORY and BENEFITS OF PEDESTRIAN FACILITIES

With increased pedestrian facilities and amenities, the Town of Elizabethtown will gain many physical, social, and economic benefits for the Town and its residents and visitors. For example, benefits of pedestrian facilities and pedestrian friendly communities include:

Physical:

- Reductions in automobile air and noise pollution
- Improved health of community residents
- Improved safety and accessibility

Social:

- Enhanced community environment, "livability" and quality of life
- Increased community interaction
- Stronger community identity

Economic:

- Attractive amenities for visitors and residents
- Reductions in vehicular traffic
- Quality of life contributes to economic potential of Town
- Pedestrian facilities and connectivity benefit businesses and increase accessibility

These concepts are discussed in more detail below with supporting references and documentation.

Reduction in air and noise pollution:

Walking uses calories, not fossil fuels. Motor vehicle fossil fuel emissions create a substantial amount of air pollution and 60% of the pollution created occurs in the first few minutes of vehicular movement according to the web site: walkinginfo.org. The quality of the physical environment greatly contributes to the quality of life and health of residents. When air and noise pollution is low, the emotional and physical health of residents is heightened.

Improved health of community residents:

Inactivity and sedentary lifestyles have become more and more common in our society. Regular physical activity can reduce the risk of heart disease, stroke, hypertension, high cholesterol, and diabetes among other diseases. Regular exercise can also contribute to overall mental health by reducing anxiety and depression.

North Carolina has the 12th highest rate of adult obesity in the nation, at 28.3%, and the 14th highest of overweight youths at 33.5%. (Trust for America's Health and the Robert Wood Johnson Foundation, 2009)

"Physical activity helps control weight gain, prevents heart disease, helps control cholesterol levels and diabetes, slows bone loss associated with advancing age, lowers the risk of certain cancers and helps reduce anxiety and depression."

(Partnership for Prevention, 2001)

Walking is one form of exercise that not only allows people to reach their desired destination, but also improves health and quality of life. Many experts believe that increasing active transportation such as walking, cycling, running and skating is the most practical and effective way to improve public fitness. One major study concluded, "...regular walking and cycling are the only realistic way that the population as a whole can get the daily half hour of moderate exercise which is the minimum level needed to keep reasonably fit..." (Physical Activity Task Force, 1995).

This Comprehensive Pedestrian Plan is funded in part by a grant from NCDOT Bicycle and Pedestrian Division. NCDOT has adopted a Public Health Policy to strengthen the connection between the built environment and public health.

Enhanced community environment, "livability" and quality of life:

The ability to reach a destination through walking rather than driving a motor vehicle has many social benefits for a community. Pedestrian facilities contribute to and encourage building social ties among members of the community. Walkable communities, including both sidewalks and greenways provide facilities which increase the amount of face to face interaction among community members. Additionally, walkable communities encourage increased time dedicated to exercise and recreation and visibility within communities. Increased visibility in turn increases safety. These benefits all contribute to the overall quality of life for residents as well as the "livability" of a place.

Increased community interaction:

Residents living and working in walkable communities interact at a much higher rate due to their incidental contact with other residents. This interaction and visibility enhances the overall sense of community as well as the safety of an area.

Pedestrian facilities that link destinations such as retail centers, parks, greenways, and schools also encourage interaction within a community.

Creates a community identity:

Pedestrian facilities can be incorporated in a manner that reflects a particular history or geographic region of a community. For example, materials used for sidewalks, crosswalks, and pedestrian lighting can reinforce a community's identity. The use of native street trees can contribute to the overall identity of the community's heritage.

Signage along a pedestrian system can also explain the history of the community and indicate any important sites or events.

Residents can take pride in the attractiveness and unique character of their community, while also enjoying a safe and accessible pedestrian system.

Attractive amenities for visitors:

Visitors are attracted to places that are easy and safe to get around. By providing a variety of pedestrian facilities such as formalized routes, greenways, multi-use paths, wide sidewalks, and vehicle separation, a community can diversify the pedestrian experience and satisfy the needs of all visitors and residents. In addition, when visitors feel more comfortable walking through town, they are more likely to take their time visiting local businesses, thus supporting the local economy.

Reductions in vehicular traffic:

Walking and bicycling are viable means of transportation over short distances and reduce the volume of vehicular traffic, in addition to the need for infrastructure such as parking spaces and extra vehicular lanes. Reducing vehicular traffic increases the safety of the streets for pedestrians and bicyclists, improves the environment, reduces dependence upon fossil fuels, and increases residents' health.

The Town of Elizabethtown has now completed sufficient

planning and taken the proper steps toward achieving the benefits described above. The Town completed a Downtown Enhancement Master Plan and is currently working on a Parks and Recreation Master Plan. In addition, Elizabethtown has been communicating with the East Coast Greenway to try to incorporate the regional greenway system through Town instead of around Town.

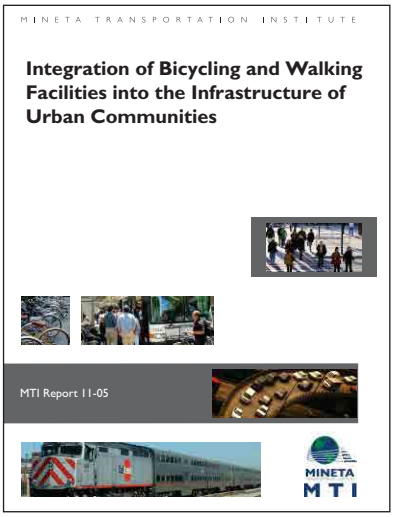
Previous Town planning documents will be discussed in further detail in Section 3: Current Plans, Programs, and Policies.

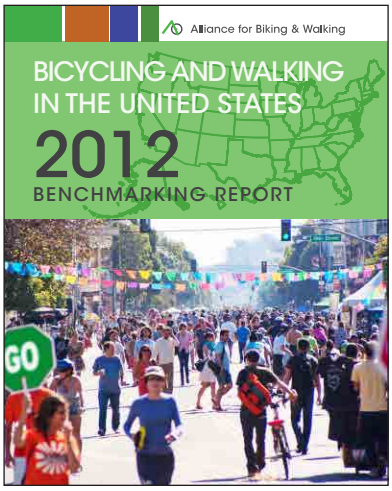
WALKING TRENDS

Numerous studies exist on ways to make walking safer for pedestrians, emerging trends in designing streets and walkways, and statistics on accidents, walking, and driving.

In addition to NCDOT trends and guidelines, the following reports were reviewed:

- *Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities*: Mineta Transportation Institute, May 2011.
- *Bicycling and Walking in the United States* – 2012 Benchmarking Report: Alliance for Biking & Walking, 2012.





Traffic Calming

The *Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities* discusses how the built environment can affect walking. Related to traffic accidents, the report states:

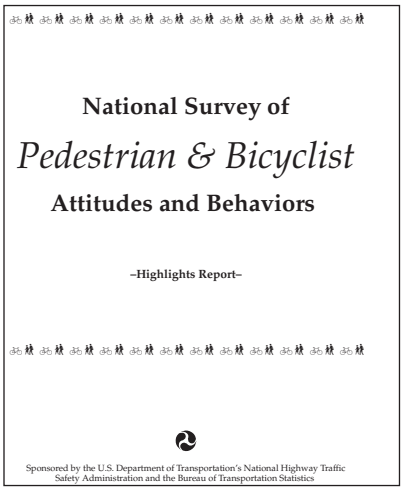
"Looking at the interface with automobile drivers, the literature on traffic education specifically discusses the need to design the built environment to avoid pedestrian and cyclist collisions. Traffic calming is reported to reduce the number

of traffic fatalities by 53 percent on average in traffic-calmed neighborhoods compared to those that are not."

Traffic calming techniques will be discussed in more detail in Section 5 of this report. They include traffic circles, roundabouts, speed humps, speed tables, textured pavement, chicanes, and curb extensions.

WALKING STATISTICS

The following report's poll of pedestrians revealed important preferences: (*Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities)*



- 40-60% of pedestrians consider the presence of a sidewalk an important factor in route choice.
- About 70% of users will cross a street where there is a crosswalk, rather than crossing at the most convenient location.
- 38% will divert their route to use a crosswalk
- 20% will not divert their route to use a crosswalk.
- 85% say route choice is influenced by the presence of a mid-block crosswalk.
- 74% say the presence of a signal influenced their decision to cross.
- 10% say they wait for a green signal to cross.

The above report also cited the following statistics:

"Many pedestrians are willing to walk about half a mile to access a train station. This is twice the assumed acceptable walking distance commonly used for planning purposes." (Schlossberg, et al - Mineta Transportation Institute)

According to the National Household Travel Survey

(conducted by the Federal Highway Administration), in 2009 91% of work trips were by car, 3.7% by public transit, and 3% by walking. However, social and recreational trips revealed more walkers with 76.9% traveling by car, 1.3% by public transit, and 17.5% by walking.

2010 US Census Data shows that 77% percent of workers drove to work alone, 10% carpooled, 4.9% took public transit, 2.8% walked, and 4.3% worked from home. The average travel time to work was 25 minutes.

A study in Montgomery County, Maryland, revealed that "the presence of sidewalks is a significant predictor for whether people walked to transit, cycled to transit, or drove to work." (Mineta Transportation Institute)

The Bureau of Transportation Statistics' (BTS) 2002 *National Survey of Pedestrian and Bicyclist Attitudes and Behaviors* had the following relevant statistics:

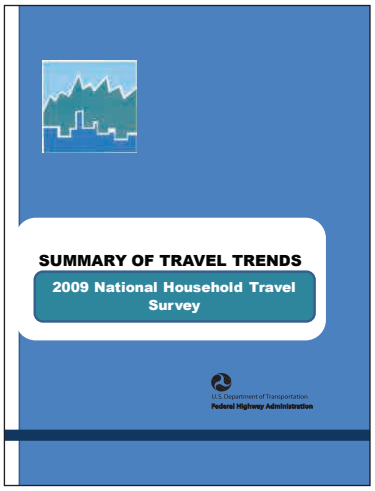
78.7% of the driving age public reported walking, running or jogging outdoors for five minutes or more at least once during the summer of 2002. This reinforces the point that most people are pedestrians at some point, even if they do not walk to work or other destinations with frequency.

Approximately 80% of respondents between the ages of 16-54 reported that they had walked within the last 30 days of taking the survey.

The average length of a walking trip on a typical summer day was 1.2 miles.

26.9% of trips were shorter than ¼ mile

Walking trips taken for exercise or recreation averaged 1.9 miles, as compared to .8 miles for trips taken for other purposes.



Additional BTS statistics from National Survey:

Primary Purpose of Walking Trips:

- Exercise – 27%
- Run Personal Errands – 17.3%
- Recreation – 15.3%
- To go home – 10.2%
- Visit a friend or relative – 8.8%
- Commute to school or work – 5.1%
- Walk the dog – 4%
- Other – 12.3%

Facilities used for Walking Trips:

- Sidewalks – 45.1%
- Paved Roads – 24.8%
- Shoulders of Paved Roads – 8.4%
- Unpaved Roads – 8%
- Multi-use Path – 5.8%
- Grass or fields – 4.9%
- Other – 3%

Perceptions on Design of Walking Facilities:

- 74.1% - very or somewhat satisfied with how their communities are designed for pedestrian safety.
- 34% - recommended the following changes to their communities for pedestrians:
- Provide pedestrian facilities (sidewalks, traffic signals, lighting, crosswalks) – 74.7%
- Improve existing pedestrian facilities - 12.5%
- Enforce laws governing pedestrians – 5.1%
- Make areas for walking safer – 4.7%
- Change existing laws governing pedestrians – 2.8%
- Other – 8.7%

The 2012 Benchmarking Report - *Bicycling and Walking in the United States* also has numerous informative statistics on walking trends.

"Bicyclists and pedestrians make up 12% of all trips and account for 14% of traffic fatalities. Yet, just 1.6% of federal transportation funds go to these modes."

North Carolina ranks 43rd in commuter biking/walking levels nationwide. Due to the low level of walkers and bicyclers, North Carolina ranked 44th in bicycle/pedestrian fatality rates. However, North Carolina's per capita spending on bicycle and pedestrian facilities was higher, ranking 27th in the country.

North Carolina ranks in the top 1/3 among states for policy related to pedestrians, but in the middle to bottom 1/3 for "mode share" (workers who commute by foot or bicycle), safety, funding, education/encouragement, and advocacy. The high ranking on the number of policies promoting bicycling and walking adopted by the state is a result of trying to reach goals, such as increasing walking and bicycling, decreasing fatalities, adopting master plans for bicycling and walking, as well as adopting a *Complete Streets* Policy.

DESIGN TRENDS

Complete Streets is a term for designing transportation corridors to meet the needs of all users: pedestrians, bicyclists, motorists, and transit riders. When a municipality adopts a *Complete Streets* policy, it commits to meeting the needs of all of citizens, regardless of age or ability. Complete Streets also provide citizens choices, by giving users the opportunity to choose to walk or cycle to destinations.

Land planning is also an important factor in encouraging walking by creating walkable communities and an appealing built environment. *America Walks* recommends:

- Create a range of housing opportunities and choices.
- Encourage community and stakeholder collaboration.
- Foster distinctive, attractive communities with a strong sense of place.
- Make development decisions predictable, fair, and cost effective.
- Mix land uses
- Preserve open space, farmland, natural beauty, and critical environmental areas.
- Provide a variety of transportation choices.
- Strengthen and direct development towards existing communities.
- Take advantage of compact building design.

Road diets refer to narrowing streets to allow more room for items such as: landscaped medians; traffic calming devices; sidewalks; car turn lanes; on-street parking; and bicycle lanes. Many cities have discovered that excessively wide roads with multiple lanes encourage speeding and reduce safety for pedestrians and bicyclists. By reducing the number of lanes or the width of the lanes, motorists slow down, the street can be shared by all users, and the street becomes a more pleasant place for pedestrians to walk.

1.5-EXISTING PLANS/ POLICIES

Elizabethtown's Comprehensive Pedestrian Master Plan is meant to complement previous planning efforts and provide additional information to help expand upon existing pedestrian facilities. It should be noted that the Town of Elizabethtown has limited information related to sidewalk construction, design or requirements within the Unified Development Ordinance. There

are only limited requirements for new sidewalk construction as development occurs. This will be discussed more in Section 3.1.

The following public documents and sources were reviewed to prepare the Comprehensive Pedestrian Master Plan:

- Elizabethtown Downtown Enhancement Master Plan
- Elizabethtown Unified Development Ordinance
- Curtis L. Brown, Jr. Field Airport Master Plan
- Bladen County GIS

In addition to the steering committee's guidance and public input, the above documents provided insight about the Town's direction and focus for pedestrian planning.

SECTION 2 - EVALUATE CURRENT CONDITIONS

2.1-COMMUNITY OVERVIEW
DEMOGRAPHICS AND COMMUNITY NEEDS

Elizabethtown is located in Bladen County, North Carolina with a population of approximately 3,800. Elizabethtown is in southeastern North Carolina and is a popular place for outdoor recreational activities due to its proximity to White Lake and other state parks. Bladen County contains numerous lakes that are speculated to have been formed by a meteorite shower 100,000 years ago. These lakes are referred to as the "Carolina Bays". The lakes are popular tourist attractions for swimming, water skiing, boating, and triathlon events.

While Elizabethtown has its own history rooted in river industry and farming, its proximity to these nearby assets has encouraged its growth and popularity.

The 2010 US Census reported that Bladen County has a population of 35,190 with a make-up of 56.3% white, 34.9% black and 7.1% Hispanic.

Of Bladen County's 35,190 residents, approximately 24.1% are living below the poverty level, much higher than the North Carolina average of 15.5%.

Housing is dominated by affordable, owner-occupied, single-family housing. 69% of people own their homes and only 5.5% live in multi-unit structures. The median value of owner-occupied housing units is $77,300, much lower than the North Carolina average of $149,100. On average, 2.42 people live in each Bladen County household.

The mean travel time in Bladen County to work is slightly higher than the North Carolina average at 26 minutes.

Bladen County US Census Bureau Statistics

Race:

Race	*Percent*
White	*56.3%*
African American	*34.9%*
Native American or Aslaskan native	*2.1%*
Asian	*.2%*
Hawaiian or other Pacific islander	*0%*
Hispanic or Latino	*7.1%*
Two or more Races	*1.5%*
White, not Hispanic	*54.7%*

Income and Poverty Status:

Income	*Percent*
Annual per capita income	*$17,890*
Annual Median Household Income	*$30,471*

Children and adolescents:

Children and many adolescents do not have the ability to drive themselves and therefore rely on others for transportation. Children aged 17 years or younger account for 29.2% of the County's current population. Safe, accessible, and efficient pedestrian facilities are essential to this portion of the population who do not and can not own and drive vehicles especially when destinations such as schools, public parks, the library, and other destinations are not in immediate proximity to most residential neighborhoods. Pedestrian facilities allow for children and adolescents to walk to their destinations and it is essential that these pedestrian connections be safe for all who participate. Crosswalks, pedestrian refuge islands, and pedestrian signalization can help this user group cross streets by interacting with automobiles safely.

The elderly and people with disabilities:

Many people, including some elderly individuals, have disabilities that preclude driving. 15.6 percent of the County population is 65 years of age and older. This aging population group also may rely heavily on others to get them where they need to go. Safe and accessible pedestrian facilities connecting destinations are necessary so this portion of the population feels safe and able to walk. Pedestrian facilities which are fully ADA compliant are essential for all communities. Crosswalks, pedestrian refuge islands, ADA ramps and pedestrian signalization can help this user group cross streets more safely.

As Elizabethtown continues to grow and attract tourists, a clear and defined pedestrian environment should be developed to safely connect residents and visitors to destinations and points of interest. Creating this unified pedestrian network will improve Elizabethtown's reputation as a progressive, safe, healthy place to live and visit with an excellent quality of life.

Elizabethtown's Comprehensive Pedestrian Master Plan will help guide the improvement and development of pedestrian facilities and provide networks to help meet the future needs and desires of residents and visitors.

A map of the study area for this pedestrian master plan is found in Section 2.5 of this document.

PUBLIC INVOLVEMENT

An important part of the planning process is public participation. The opinions, concerns and involvement of the public are a crucial element in developing a pedestrian plan which is consistent with the desires of the public. Public "buy-in" and support of the Pedestrian Master Plan is necessary for the Plan to be a useful tool for the Town.

A variety of methods were used to integrate the citizens of Elizabethtown into the analysis and design process for the Pedestrian Master Plan. The following elements were central to the public input process:

- Four Steering Committee Meetings
- Two Public Workshops / Open Houses
- Survey Questionnaires

The public workshops also gave the Town the opportunity to inform the public of the Comprehensive Pedestrian Plan process and the benefits of walking and sidewalk improvements.

Steering Committee

In developing this Comprehensive Pedestrian Master Plan, the Design Team met with a **Steering Committee** comprised of representatives from NC DOT, the Town of Elizabethtown,

Steering Committee Meetings had great attendance and participation.

Chamber of Commerce staff, as well as interested citizens with varied backgrounds and experiences. The Steering Committee held a total of four meetings and offered initial insight and analysis of the Town and its needs, input on the Vision Statement for the Comprehensive Pedestrian Master Plan and feedback throughout the process.

The Design Team held a kick-off meeting with members of the Steering Committee. The steering committee provided input on how to reach the public and their opinions on perceived barriers to pedestrian connectivity and key destinations in downtown. The Steering Committee also provided input on a Vision Statement for this project and on questions for a survey questionnaire to distribute to the public.

Three additional Steering Committee meetings were held to finalize the Vision Statement and Survey, gain additional insight and perspective on pedestrian needs, and provide guidance to the consultants.

Public Meetings

A public workshop/open house was held during the Craft Fair held at the Cape Fear Farmer's Market the first Saturday of each month.

The open house resulted in the distribution of several surveys and input from the public regarding existing constraints to walking in Elizabethtown, along with preferred destinations or high priority areas within Town.

Many residents expressed a positive feeling toward the new streetscape enhancements, but difficulty in reaching destinations from their homes. Several residents said they would like to walk from their homes or offices to commercial and retail businesses along Poplar Street, but cannot do so without connected sidewalks and safe crosswalks. Many residents also described

Open houses provided the public with information about the Pedestrian Plan process and gathered input.

Peanut Road as a dangerous road in need of sidewalks, especially because many people currently walk along the road to reach the shopping centers from their homes. Many people expressed a desire to use a greenway along the Cape Fear River if it were available.

Two additional Public Meetings were held in July on the same day at the Post Office and the Town Hall. These open forums informed citizens of the Pedestrian Plan process, the proposed Priority Projects, and gathered additional input.

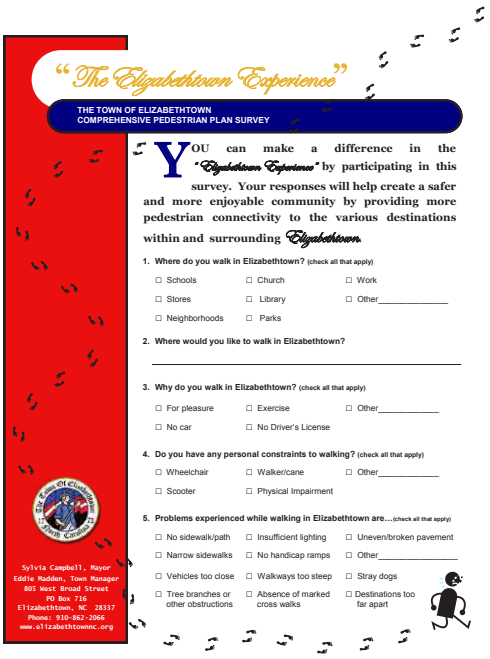
Public Survey

The Steering Committee provided input into the design of a survey questionnaire related to pedestrian activity and safety. These surveys were dispersed at the Elizabethtown Town Hall, on the Town Website and through the Steering Committee's social media and networking links. The surveys were also available online through *Survey Monkey* and were distributed at each public workshop. The public survey questionnaires were distributed through a variety of methods to reach as much of the public as possible.

The survey consisted of a one page (front and back) handout with 15 questions including multiple choice, Yes or No, and open-ended questions.

A sample survey questionnaire is included in the appendix of this document, along with a summary of the results. The survey generally showed that most people currently walk in their neighborhoods, to stores or in parks. Most people (71.9%) stated they walked for exercise, with "for pleasure" coming in second (59%). The top three problems cited while walking in Elizabethtown were "no sidewalk or path", "uneven or broken surfaces", and "insufficient lighting".

78.5% of respondents stated that greenways within



"The Elizabethtown Experience"

THE TOWN OF ELIZABETHTOWN
COMPREHENSIVE PEDESTRIAN PLAN SURVEY

YOU can make a difference in the "Elizabethtown Experience" by participating in this survey. Your responses will help create a safer and more enjoyable community by providing more pedestrian connectivity to the various destinations within and surrounding Elizabethtown.

1. Where do you walk in Elizabethtown? (check all that apply)
☐ Schools ☐ Church ☐ Work
☐ Stores ☐ Library ☐ Other_____
☐ Neighborhoods ☐ Parks

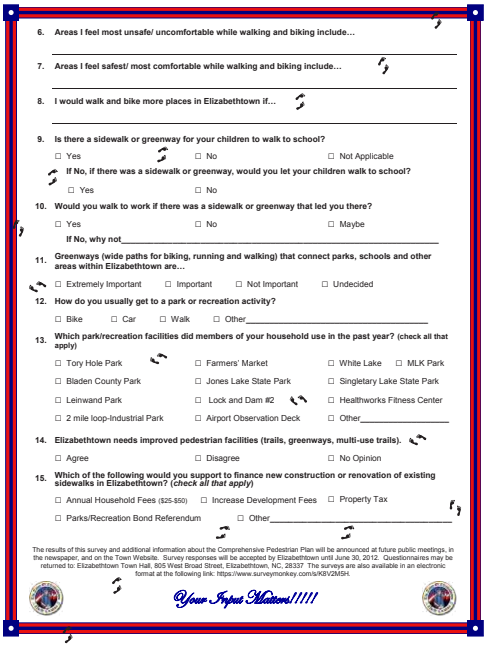
2. Where would you like to walk in Elizabethtown?
_____

3. Why do you walk in Elizabethtown? (check all that apply)
☐ For pleasure ☐ Exercise ☐ Other_____
☐ No car ☐ No Driver's License

4. Do you have any personal constraints to walking? (check all that apply)
☐ Wheelchair ☐ Walker/cane ☐ Other_____
☐ Scooter ☐ Physical Impairment

5. Problems experienced while walking in Elizabethtown are…(check all that apply)
☐ No sidewalk/path ☐ Insufficient lighting ☐ Uneven/broken pavement
☐ Narrow sidewalks ☐ No handicap ramps ☐ Other_____
☐ Vehicles too close ☐ Walkways too steep ☐ Stray dogs
☐ Tree branches or other obstructions ☐ Absence of marked cross walks ☐ Destinations too far apart

Sylvia Campbell, Mayor
Eddie Madden, Town Manager
805 West Broad Street
PO Box 716
Elizabethtown, NC 28337
Phone: 910-862-2066
www.elizabethtownnc.org



6. Areas I feel most unsafe/ uncomfortable while walking and biking include…
_____

7. Areas I feel safest/ most comfortable while walking and biking include…
_____

8. I would walk and bike more places in Elizabethtown if…
_____

9. Is there a sidewalk or greenway for your children to walk to school?
☐ Yes ☐ No ☐ Not Applicable
If No, if there was a sidewalk or greenway, would you let your children walk to school?
☐ Yes ☐ No

10. Would you walk to work if there was a sidewalk or greenway that led you there?
☐ Yes ☐ No ☐ Maybe
If No, why not_____

11. Greenways (wide paths for biking, running and walking) that connect parks, schools and other areas within Elizabethtown are…
☐ Extremely Important ☐ Important ☐ Not Important ☐ Undecided

12. How do you usually get to a park or recreation activity?
☐ Bike ☐ Car ☐ Walk ☐ Other_____

13. Which park/recreation facilities did members of your household use in the past year? (check all that apply)
☐ Tory Hole Park ☐ Farmers' Market ☐ White Lake ☐ MLK Park
☐ Bladen County Park ☐ Jones Lake State Park ☐ Singletary Lake State Park
☐ Leinwand Park ☐ Lock and Dam #2 ☐ Healthworks Fitness Center
☐ 2 mile loop-Industrial Park ☐ Airport Observation Deck ☐ Other_____

14. Elizabethtown needs improved pedestrian facilities (trails, greenways, multi-use trails).
☐ Agree ☐ Disagree ☐ No Opinion

15. Which of the following would you support to finance new construction or renovation of existing sidewalks in Elizabethtown? (check all that apply)
☐ Annual Household Fees ($25-$50) ☐ Increase Development Fees ☐ Property Tax
☐ Parks/Recreation Bond Referendum ☐ Other_____

The results of this survey and additional information about the Comprehensive Pedestrian Plan will be announced at future public meetings, in the newspaper, and on the Town Website. Survey responses will be accepted by Elizabethtown until June 30, 2012. Questionnaires may be returned to: Elizabethtown Town Hall, 805 West Broad Street, Elizabethtown, NC, 28337. The surveys are also available in an electronic format at the following link: https://www.surveymonkey.com/s/K8V2MSH.

Your Input Matters!!!!!

Hard copies of the Survey Questionnaire were distributed around Town and at public meetings. A digital survey was also available online.

Elizabethtown are either “extremely important” or “important”.

An overwhelming 83.7% of respondents stated that Elizabethtown needs improved pedestrian facilities.

When questioned about how to finance new construction or renovation of existing sidewalks, the results were spread among the options listed with the highest percentage (39%) supporting a Parks and Recreation Bond referendum. 28.5% suggested other methods for financing new sidewalks, including grants, fundraisers or User Fees.

The above methods of public participation provided a thorough understanding of the needs, desires and concerns of the community and were reflected in the final proposed Pedestrian System Plan, shown in Section 4 and the Appendix of this document.

14. Elizabethtown needs improved pedestrian facilities (sidewalks, greenways, multi-use trails).

	Response Percent	Response Count
Agree	83.7%	118
Disagree	7.1%	10
No Opinion	9.2%	13
answered question		141
skipped question		7

15. Which of the following would you support to finance new construction or renovation of existing sidewalks in Elizabethtown? (check all that apply)

	Response Percent	Response Count
Annual Household Fee ($25 - $50)	17.1%	21
Increase Development Fees	18.7%	23
Property Tax	20.3%	25
Parks/Recreation Bond Referendum	39.0%	48
Other (please specify)	28.5%	35
answered question		123
skipped question		25

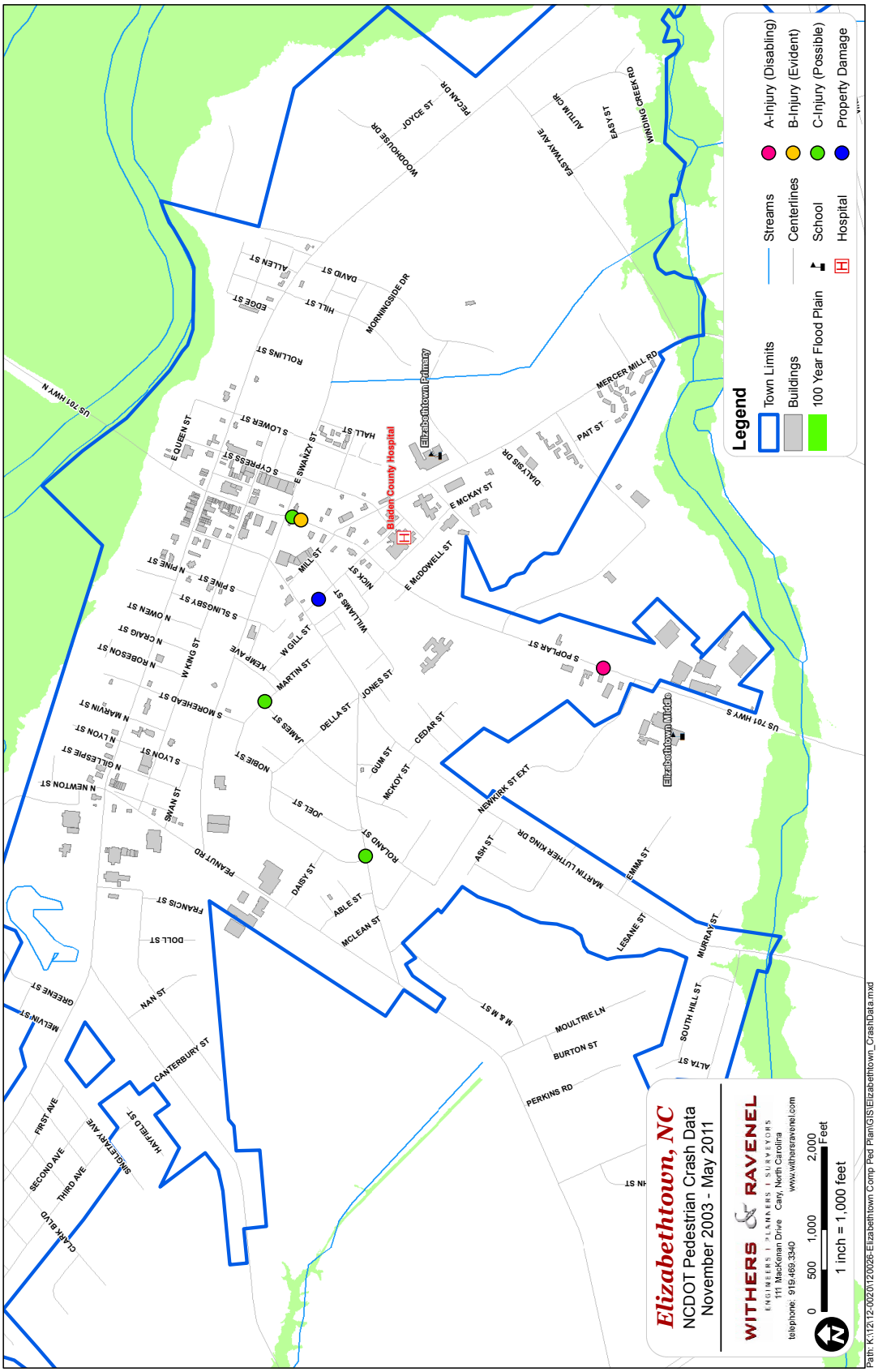
Summary Results from questions 14 and 15 in the Survey Questionnaire.

NCDOT Pedestrian Crash Data

NCDOT supplied data related to pedestrian crashes along state roads in the past ten years. The data was geo-referenced and mapped to illustrate where these accidents have occurred. The map and data sheets are included in the Appendix.

Red dots indicate crashes with “disabling injury”, yellow dots indicate “evident injuries” from the crash, green dots indicate “possible injuries”, and blue dots indicate property damage only. The spreadsheet of where and when these accidents occurred is included in the Appendix for reference.

This data was analyzed when determining the location and priority of proposed project areas.


Legend
Town Limits
Buildings
100 Year Flood Plain
Streams
Centerlines
School
Hospital
A-Injury (Disabling)
B-Injury (Evident)
C-Injury (Possible)
Property Damage
Elizabethtown, NC
NCDOT Pedestrian Crash Data
November 2003 - May 2011
WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 MacKenan Drive Cary, North Carolina
telephone: 919.469.3340 www.withersravenel.com
0 500 1,000 2,000 Feet
1 inch = 1,000 feet
Bladen County Hospital
Elizabethtown Primary
Elizabethtown Middle
US 701 HWY N
US 701 HWY S
MERCER MILL RD
E MCKAY ST
E MCDOWELL ST
S POPLAR ST
MILL ST
NICK ST
WILLIAMS ST
E SWANZY ST
HALL ST
S LOWER ST
S CYPRESS ST
EQUEN ST
ROLLINS ST
HILL ST
EDGE ST
ALLEN ST
DAVID ST
MORNINGSIDE DR
WOODHOUSE DR
JOYCE ST
PECAN DR
EASTWAY AVE
ALTUM CIR
EASY ST
WINDING CREEK RD
PAIT ST
DILLYBS DR
S PINE ST
N PINE ST
S SLINGSBY ST
N OWEN ST
N CRAIG ST
N ROBESON ST
W KING ST
W GILL ST
KEMP AVE
MARTIN ST
JONES ST
DELLA ST
JAMES ST
S MOREHEAD ST
N MARVIN ST
N LYON ST
S LYON ST
N GILLESPIE ST
N NEWTON ST
NOBLE ST
GUM ST
CEDAR ST
MCKOY ST
NEWKIRK ST EXT
MARTIN LUTHER KING DR
ASH ST
EMMA ST
LESANE ST
MURRAY ST
SOUTH HILL ST
ALTA ST
M & M ST
MOULTRIE LN
BURTON ST
PERKINS RD
JOEL ST
ROLAND ST
DAISY ST
ABLE ST
MCLEAN ST
SWAN ST
PEANUT RD
FRANCIS ST
DOLL ST
NAN ST
GREENE ST
MELVIN ST
CANTERBURY ST
HAVERLD ST
SINCLEARY AVE
FIRST AVE
SECOND AVE
THIRD AVE
CLARK BLVD
Path: K:\12\12-002012\0026-Elizabethtown Comp Ped Plan\GIS\Elizabethtown_CrashData.mxd

2.2-ASSESS LOCAL PEDESTRIAN NETWORK

The current sidewalk system in Elizabethtown was evaluated and mapped in order to help determine where new facilities are needed and which sidewalks are in need of upgrades. The existing conditions were evaluated by using the following methods:

- Site Observation of different regions of Town, particularly schools, the downtown area, shopping centers along Poplar and Broad, residential neighborhoods, and Town public facilities. These areas were evaulated for connectivity to each other and for gaps within each region;
- A review of aerial map data was conducted to review the entire Town and pinpoint gaps in the system;
- Additional areas to be studied were noted by input from the Steering Committee, public and Town staff;
- An inventory of all existing sidewalks was conducted and mapped by utilizing aerial images and site observation.

The majority of the sidewalk system in Elizabethtown is located in the central downtown area, on Broad Street and nearby streets. In addition to assessing where additional sidewalks are needed, this initial assessment identified gaps in the existing system and intersections in need of improvement. Refer to the **Existing Conditions Map** in this Section for a graphic inventory of the existing sidewalk system in Elizabethtown.

2.3-CURRENT USAGE

Although the downtown area of Elizabethtown boasts an attractive new streestcape and there are sidewalks connecting some of the major businesses and commercial centers off of Poplar and Martin Luther King, sidewalks outside of this downtown core are extremely limited.

Most residences are located toward the outer edges of Town and are not connected to downtown. These neighborhoods also lack sidewalks within them and most residents simply walk in the streets.

Many residents who live off of Peanut Road are forced to walk along the shoulders of the road in order to reach jobs or shopping at the corner of Peanut Road and Broad Street. There are no sidewalks on Peanut Road and the sidewalks on Broad Street end before the Peanut Road intersection, despite the location of several popular commercial areas on the west side of Peanut Road. This has been cited by many residents as an unsafe situation.

Crosswalks are needed for safe access to businesses and commercial areas along Poplar Street.

The existing sidewalks end north of the Bladen County Hospital on Poplar Street and residents have cited this as an unsafe area with many people trying to access the hospital.

For a full inventory of barriers and constraints to walking and pedestrian destinations and opportunities, see the maps and tables in the Appendix.

2.4-INVENTORY AND ASSESS EXISTING PEDESTRIAN FACILITIES

Elizabethtown Transportation System

Major Vehicular Thoroughfares

- US 701/Poplar Street
- NC 87

Major Vehicular Connectors

- Broad Street
- Martin Luther King Drive
- Peanut Road

Elizabethtown Pedestrian System

The existing pedestrian system in Elizabethtown consists of on-street sidewalks providing adequate connection opportunities within the downtown core, but with little connectivity to other destinations, particularly neighborhoods, around Town. However, there are gaps in the existing sidewalk system, limiting safe connections throughout the Town.

In addition, crosswalks are limited throughout Elizabethtown, providing few opportunities for safe crossings. This is especially evident on Poplar Street - a major thoroughfare with numerous commercial destinations and vehicular traffic.

Pedestrian Facilities Challenges:

- Most residential streets have no sidewalks and no sidewalk connections to downtown.
- Safe, well-marked pedestrian crossings along Poplar Street are missing.
- Sidewalk connections to parks, shopping centers and businesses are lacking.

It is also important to recognize the positive and promising conditions Elizabethtown's pedestrian environment has to offer. The first step to improving the pedestrian environment includes identifying opportunities. Below is a brief listing of opportunities present in Elizabethtown.

Pedestrian Facilities Opportunities:

- The downtown core has sidewalks which can be expanded upon.
- Many popular destinations are located in close proximity to one another, allowing for easy connectivity.

- The Town is receptive to alternative transportation, and would like to promote pedestrian and bicycle transportation.
- There is wide public and governmental support for pedestrian facilities.
- There are opportunities for greenways throughout Town that could connect to the Town's existing sidewalk facilities and connect to a wider regional greenway system.

The maps in this Section show opportunities and constraints as identified by the public and by steering committee members. These findings were instrumental in guiding the prioritization of short-term and long-term project areas.

2.5-EXISTING NETWORK- INVENTORY AND ANALYSIS

As mentioned earlier, although a streetscape renovation with attractive sidewalks has been implemented downtown, there are still limited sidewalks through the rest of Town.

There are a few walking paths in local parks, but no existing greenway system. However, the Town has expressed a desire to install a greenway system connecting Tory Hole Park to Lock & Dam #2 and other areas along the Cape Fear River. A proposed park across from the airport on East Broad could eventually connect to this greenway system.

NC 87 acts as a barrier to the south of Town, with the Cape Fear River acting as a barrier on the north side of Town.

Residential neighborhoods on the west side of town have no connection to downtown, nor to nearby employment opportunities.

Residential neighborhoods to the east of town also have limited connectivity, with the sidewalk system ending just east of the downtown core. Many residents have described walking on the shoulder of Broad Street in order to reach the park at Lock & Dam #2.

Shopping centers along west Broad Street (Food Lion,

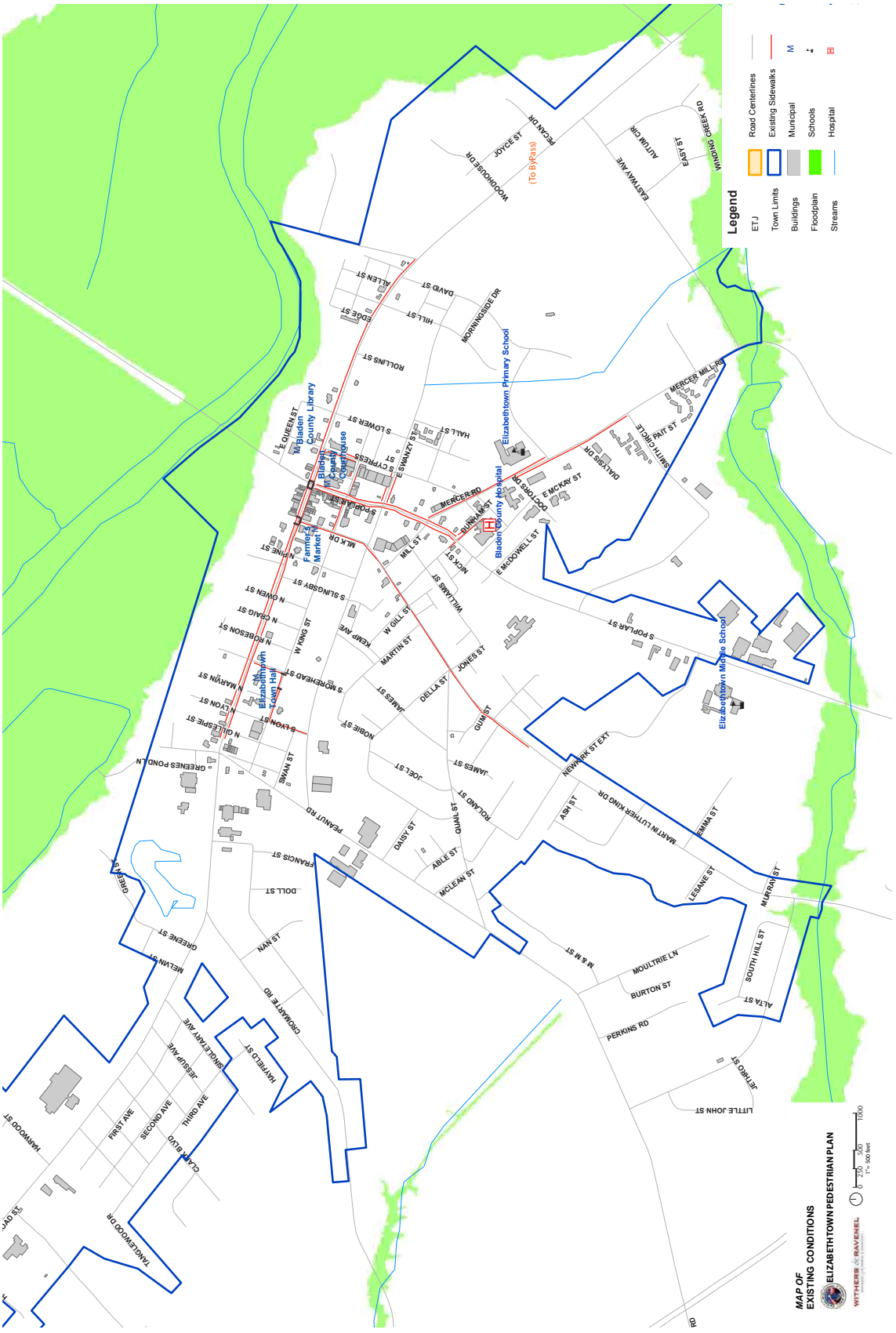
Walmart, etc.) have no sidewalk system in place for residents or visitors to access the stores by any method other than vehicle. Many residents currently walk on the shoulder of Peanut Road to access these shopping centers from their homes.

Businesses along Poplar Street benefit from sidewalks along the street, but have limited access through surface parking lots to safely enter the stores. Numerous driveway cuts along Poplar Street to each business also reduces the safety and efficiency of the sidewalk system in this section.

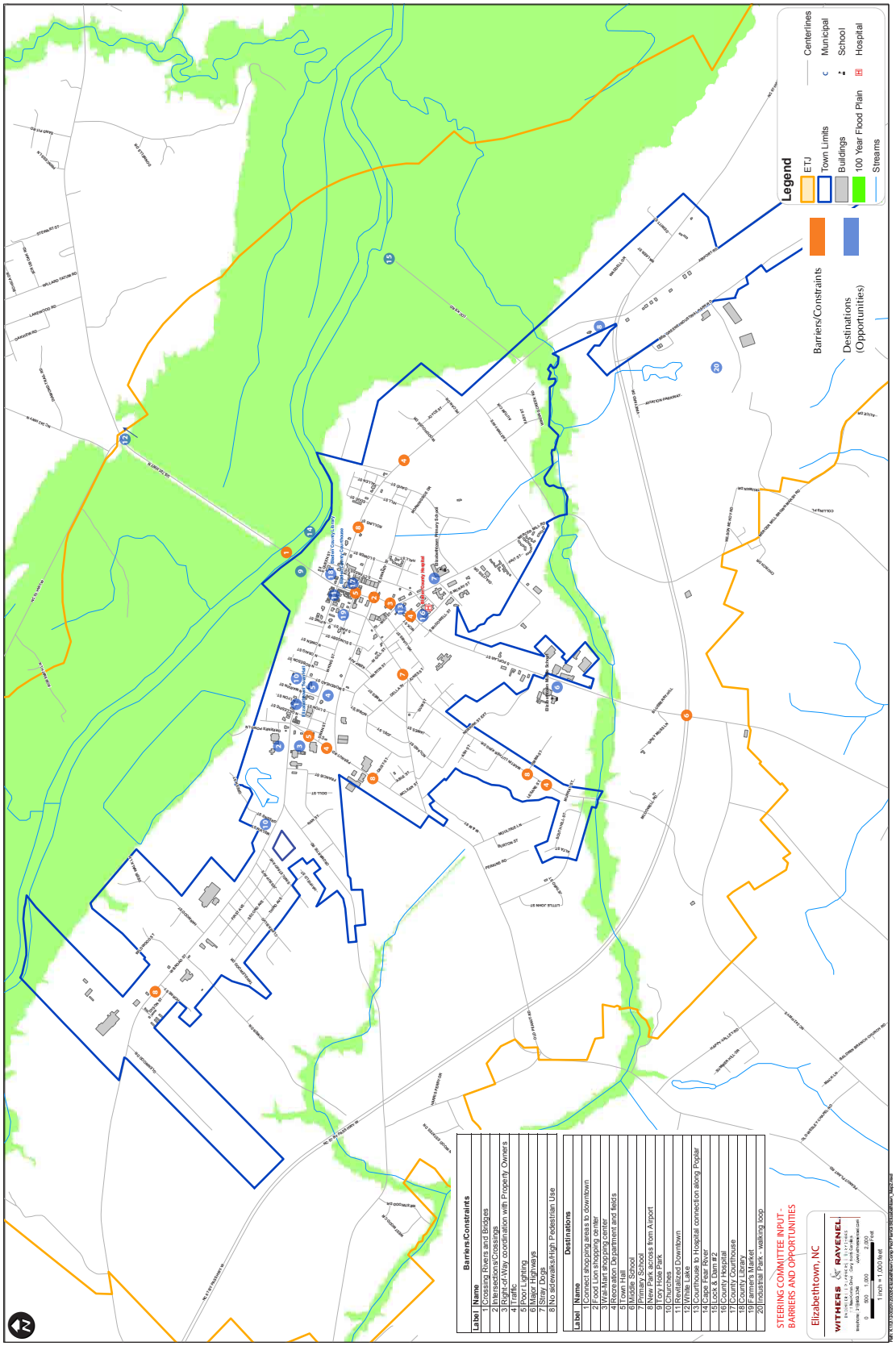
Crosswalks are poorly marked, if present at all, along Poplar Street, making the environment unsafe and unpleasant for pedestrians.

No street trees exist on Poplar Street and there is no separation between vehicles and pedestrians. Lighting is also poor in this area, resulting in unsafe conditions at night.

Sidewalks end just before the Bladen County Hospital on Poplar Street, resulting in pedestrians walking through the grass or along the road to reach hospital services.



Existing Pedestrian Network

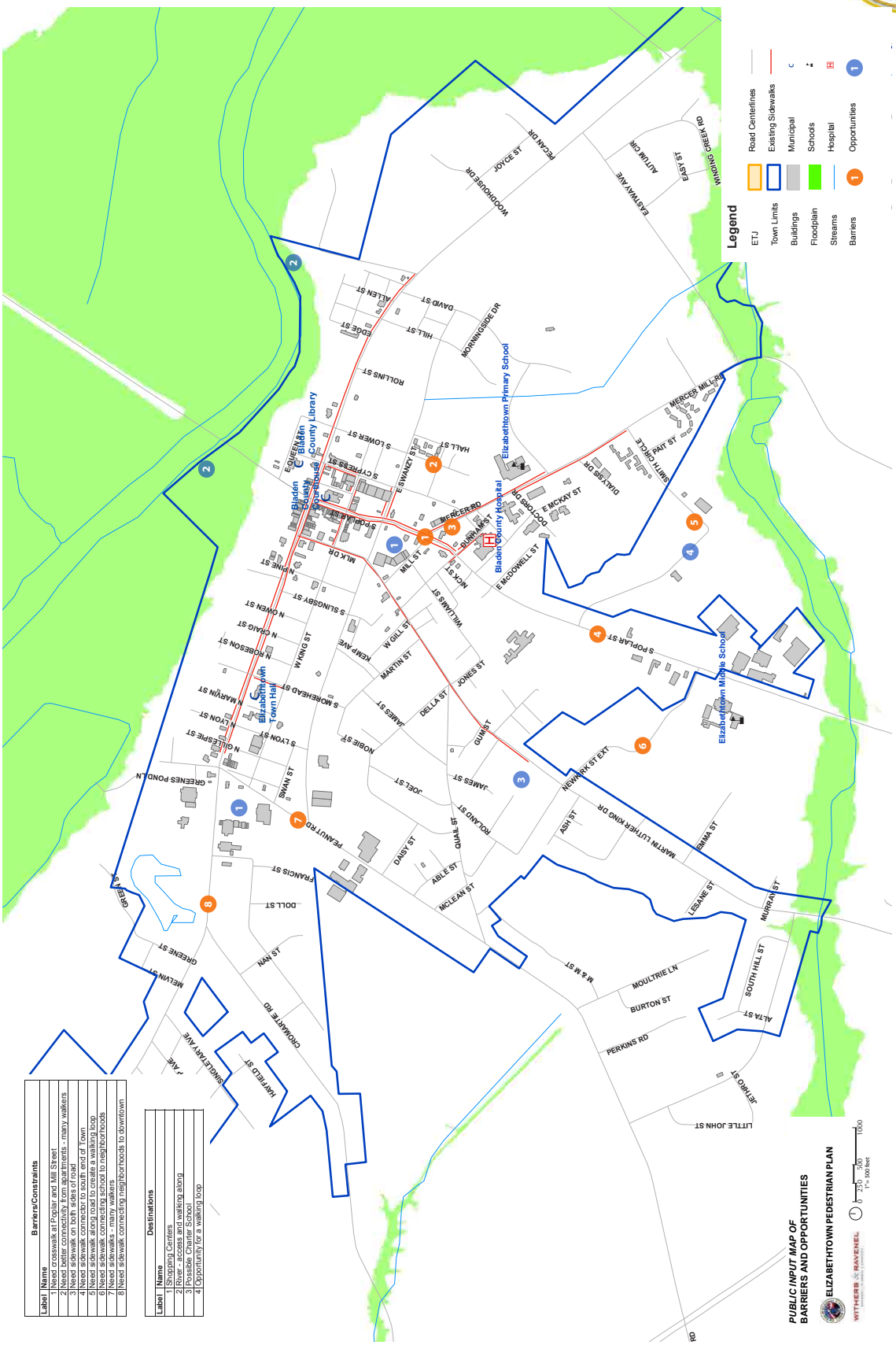


Steering Committee Input on Barriers and Opportunities

LIST OF BARRIERS AND CONSTRAINTS AS DEFINED BY THE STEERING COMMITTEE. THESE ARE SHOWN ON THE MAP ON THE PREVIOUS PAGE.

Barriers/Constraints	
Label	**Name**
1	Crossing Rivers and Bridges
2	Intersections/Crossings
3	Right-of-Way coordination with Property Owners
4	Traffic
5	Poor Lighting
6	Major Highways
7	Stray Dogs
8	No sidewalks/High Pedestrian Use

Destinations	
Label	**Name**
1	Connect shopping areas to downtown
2	Food Lion shopping center
3	Wal-Mart shopping center
4	Recreation Department and fields
5	Town Hall
6	Middle School
7	Primary School
8	New Park across from Airport
9	Tory Hole Park
10	Churches
11	Revitalized Downtown
12	White Lake
13	Courthouse to Hospital connection along Poplar
14	Cape Fear River
15	Lock & Dam #2
16	County Hospital
17	County Courthouse
18	County Library
19	Farmer's Market
20	Industrial Park - walking loop



Public Input on Barriers and Opportunities

LIST OF BARRIERS AND CONSTRAINTS AS DEFINED BY THE PUBLIC DURING PUBLIC INPUT MEETINGS. THESE ARE SHOWN ON THE MAP ON THE PREVIOUS PAGE.

Barriers/Constraints	
Label	**Name**
1	Need crosswalk at Poplar and Mill Street
2	Need better connectivity from apartments - many walkers
3	Need sidewalk on both sides of road
4	Need sidewalk connector to south end of Town
5	Need sidewalk along road to create a walking loop
6	Need sidewalk connecting school to neighborhoods
7	Need sidewalks - many walkers
8	Need sidewalk connecting neighborhoods to downtown

Destinations	
Label	**Name**
1	Shopping Centers
2	River - access and walking along
3	Possible Charter School
4	Opportunity for a walking loop
5	Schools

SECTION 3 - EXISTING PLANS & POLICIES

3.1-EXISTING PLANS OVERVIEW

Several Town and regional documents and maps provided insight about the Town's direction and focus for pedestrian planning. In particular, the Downtown Enhancement Master Plan shows a clear purpose and direction for improved pedestrian facilities in Elizabethtown.

The following were reviewed and analyzed:

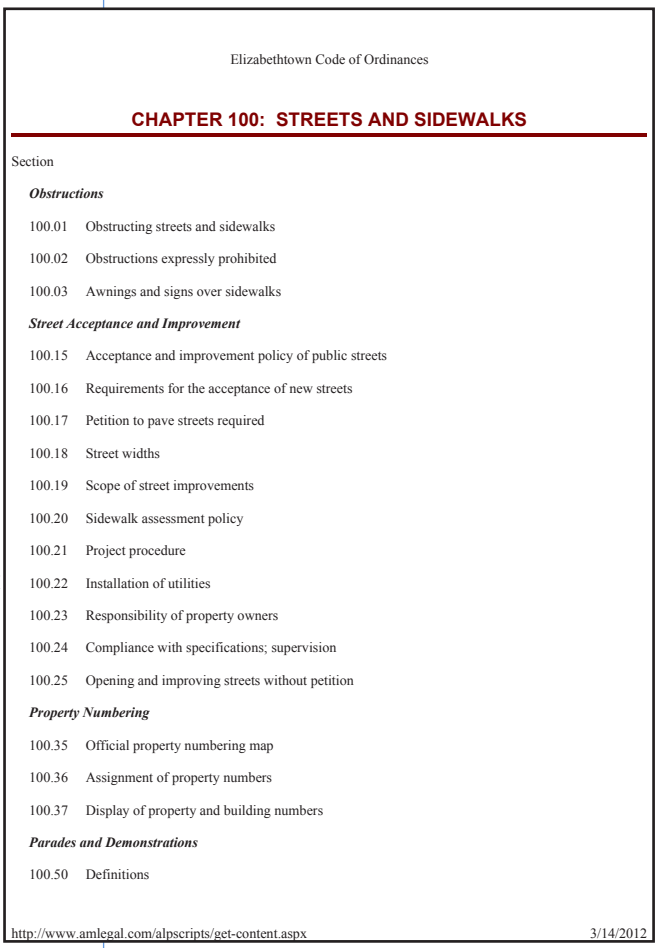
- Elizabethtown Downtown Enhancement Master Plan
- Elizabethtown Unified Development Ordinance
- Curtis L. Brown, Jr. Field Airport Master Plan
- Bladen County GIS

UDO

As mentioned earlier, the Town's Unified Development Ordinance (UDO) does not cite specifics regarding the design of sidewalks. The Revised Subdivision Development Ordinance does give limited direction on installing sidewalks and street trees. However, the restrictions are limited and only require sidewalks on both sides of the street in certain situations or in sections subject to heavy pedestrian traffic. The requirements also state a four-foot wide sidewalk with a five-foot separation from road and sidewalk, where possible.

Clear direction on sidewalk requirements for future development should be incorporated into the UDO in order for the Town to create a unified approach to their pedestrian system and ensure a safe, appealing walking environment for their residents and visitors.

Typical guidelines would ***require all new residential and commercial development to install sidewalks along the roadway and to allow for safe access to businesses.***



Elizabethtown Code of Ordinances

CHAPTER 100: STREETS AND SIDEWALKS

Section

Obstructions

100.01 Obstructing streets and sidewalks
100.02 Obstructions expressly prohibited
100.03 Awnings and signs over sidewalks

Street Acceptance and Improvement

100.15 Acceptance and improvement policy of public streets
100.16 Requirements for the acceptance of new streets
100.17 Petition to pave streets required
100.18 Street widths
100.19 Scope of street improvements
100.20 Sidewalk assessment policy
100.21 Project procedure
100.22 Installation of utilities
100.23 Responsibility of property owners
100.24 Compliance with specifications; supervision
100.25 Opening and improving streets without petition

Property Numbering

100.35 Official property numbering map
100.36 Assignment of property numbers
100.37 Display of property and building numbers

Parades and Demonstrations

100.50 Definitions

http://www.amlegal.com/alpscripts/get-content.aspx 3/14/2012

The Elizabethtown UDO briefly discusses sidewalks, but does not give clear instruction on design requirements.

It is recommended that additional guidelines be written that ***specify wider sidewalks, a minimum required separation (remove "where possible" language) from the roadway, street trees or landscaping buffering the sidewalks where possible, and clearly marked crosswalks and handicap ramps within the development.*** In order to encourage development in some instances, the Town could require a "fee in lieu" of sidewalk improvements, per the Town's discretion.

This four-foot wide sidewalk is too narrow for comfortable walking and navigating possible obstacles. Source: Safe Routes to School

East Coast Greenway Plans

The Town has also been in discussion with the East Coast Greenway to try to incorporate the proposed regional greenway system through Elizabethtown. These discussions should continue as a way to encourage greenway development and incorporate pedestrian facilities for both residents and visitors.

Proposed Parks and Recreation Plan

The Town is working on a Parks and Recreation Plan that will provide a clear approach to connecting and promoting their existing parks and ways to enhance their system with additional parks and greenways. As mentioned earlier, the Town is proposing a new park on the east side of Town, across from the airport on Broad Street, along with potential greenway connections along the Cape Fear River and around Town. These proposed new facilities show the additional need for a sidewalk along East Broad Street to connect to the parks and greenway system, creating a loop for pedestrians. Working in concert with the Parks and Recreation Plan will create a unified pedestrian system for Elizabethtown.

Sidewalks should be a minimum of 5 feet wide and include a landscape buffer with street trees between the road and the sidewalk. Source: Safe Routes to School

In addition, the North Carolina **State Transportation Improvement Program Plan** (2012) may directly affect the future of Elizabethtown's pedestrian system:

When transportation improvements are made, the pedestrian network should be considered as a critical element in the design and construction of these roads and corridors. This Comprehensive Pedestrian Plan will help to guide policy makers as they consider critical needs.

3.2-PROGRAMS AND INITIATIVES

State Transportation Improvement Program (TIP)

The purpose of the State TIP is to improve the quality and interconnectivity of thoroughfares within the state. The TIP recommends and prioritizes projects based on need and cost. Wake County currently has many transportation projects planned, many of which will enhance the pedestrian system by providing sidewalks or wider shoulders that can accommodate pedestrians. Three projects are slated for TIP funding within Elizabethtown and will directly affect the pedestrian network:

1. NC 87 at US 701 - Construct Interchange.

Construction for this project is slated to begin by March 18, 2014, with a right-of way cost of $500,000 and a construction cost of $16,275,000. (TIP#R4903)

2. NC 87 At SR 1700 (Mercer Mill Road) and SR1145 (MLK). Construct Directional Crossover.

Construction for this project was slated to begin September 16, 2008. No costs were listed. (TIP#W5002)

Proposed projects connecting US 74-76 To Elizabethtown Bypass and widening SR 1730 to multi-lanes are both southeast of Town and are "scheduled for reprioritization" for TIP funding. Neither of these has the potential to affect the pedestrian network in Elizabethtown. (TIP#R-2561A)

The intersection of NC 87 and US 701 (Poplar Street) is slated for a highway interchange through TIP funding. In addition, there are plans to repave and restripe South Poplar Street in the near future. Pedestrian improvements and streetscape improvements along Poplar Street should be included with these planned upgrades.

Mid-Carolina Rural Planning Organization (MCRPO)

The Mid-Carolina Rural Planning Organization provides

transportation planning for the counties of Bladen and Sampson and portions of Cumberland and Harnett Counties.

The MCRPO develops and prioritizes suggestions for transportation projects, which the Rural Transportation Planning Organization believes should be included in the State Transportation Improvement Program (STIP).

The Mid-Carolina RPO consists of two committees: the Rural Transportation Advisory Committee (RTAC) and the Rural Technical Coordinating Committee (RTCC).

The RTAC is responsible for the following:

- Establishment of goals and objectives for the transportation planning process.
- Endorsement, review and approval of changes to adopted Transportation Plans for the Rural Transportation Planning Organization.
- Endorsement, review and approval of a Prospectus for Transportation Planning, which defines work tasks and responsibilities for the various agencies participating in the Rural Transportation Planning Organization.
- Endorsement, review and approval of Transportation Improvement Projects that support and enhance rural transportation in the Rural Transportation Planning Organization.

The RTCC is responsible for the general review, guidance and coordination of the transportation planning process for the RPO and for making recommendations to the RTAC regarding any necessary action relating to the continuing transportation planning process.

Maintaining a close relationship with the MCRPO is imperative for the Town of Elizabethtown in order to ensure local projects receive prioritization in the funding process.

SECTION 4 - PEDESTRIAN SYSTEM PLAN

4.1-PROPOSED PEDESTRIAN NETWORK OVERVIEW

The proposed pedestrian system (shown on the next page) incorporates all of the previously discussed information: Elizabethtown's vision statement, project goals, public input from local citizens, and the existing plans, programs, and policies already in place which shape and impact the pedestrian system. Chapters 4 through 6 provide direction in the development and implementation of the specifics of this Comprehensive Pedestrian Master Plan as well as additional guidelines and resources to aid in future planning and development.

The proposed pedestrian system identifies existing corridors in immediate need of improvement as well as locations in need of "spot" improvements. These two groups of applications have been classified as **"Short Term"** priorities. These short-term projects are classified into Phase 1 and Phase 2 priorities in Section 7 of this report based upon the following criteria:

- Most heavily used sections
- Links to schools, commercials areas and other destinations
- Safety improvements
- Functional improvements

Additionally, the pedestrian system includes corridors in need of future improvement that have been classified as **"Long Term"** priority development projects. These will be described in detail later in this section.

Key		Type of Project	Location	Description
A	Tier 1	Sidewalk Construction/Improvement	Both sides of Broad Street from Peanut Road to Francis Street	Construct 5' wide concrete sidewalks to extend the existing sidewalk system.
B	Tier 1	Intersection Improvement	Peanut Road and Broad Street	Add marked crosswalks and pedestrian push button signals.
C	Tier 1	Sidewalk Construction/Improvement	North side of King Street from S. Morehead Street to Martin Luther King Drive	Construct 5' wide concrete sidewalks to complete a gap in the existing sidewalk system.
D	Tier 1	Intersection Improvement	King Street and Martin Luther King Drive	Add marked crosswalks and pedestrian push button signals.
E	Tier 1	Sidewalk Construction/Improvement	From existing sidewalk on Poplar Street to Tory Hole Park	Construct 5' wide concrete sidewalk to extend the existing sidewalk system to connect downtown to the existing park.
F	Tier 1	Intersection Improvement	Broad Street and Poplar Street	Add decorative raised concrete paver crosswalks
G	Tier 1	Intersection Improvement	King Street and Poplar Street	Add marked crosswalks and pedestrian push button signals.
H	Tier 1	Intersection Improvement	Swanzy Street and Poplar Street	Add marked crosswalks and pedestrian push button signals.
I	Tier 1	Intersection Improvement	Mercer Mill Road and Poplar Street	Add marked crosswalks and pedestrian push button signals.
J	Tier 1	Intersection Improvement	Dunham Street and Poplar Street	Add marked crosswalks and pedestrian signage.
K	Tier 1	Intersection Improvement - Traffic signal	Dunham Street and Poplar Street	Add traffic signal at intersection to increase pedestrian safety.
L	Tier 1	Sidewalk Construction/Improvement	East side of Poplar Street from Dunham Street to McDowell Street	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.
M	Tier 1	Intersection Improvement	Mid-Block crossing on Mercer Road to Elizabethtown Primary School	Add marked crosswalks and pedestrian signage.
N	Tier 1	Streetscape Enhancements	Poplar Street	Improve pedestrian lighting, incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at critical intersections: Swanzy Street, King Street, Broad Street
O	Tier 2	Sidewalk Construction/Improvement	Peanut Road from Broad Street to Quail Street	Construct 5' wide concrete sidewalk on the east side of the street.
P	Tier 2	Intersection Improvement - roundabout	Martin Luther King Drive and King Street	Incorporate traffic calming methods such as a roundabout at King Street with appropriate pedestrian accommodations.
Q	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk to the Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the east side of the street from the existing sidewalk.
R	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk in front of the future charter school	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the west side of the street in front of the future charter school to the proposed intersection improvements at Newkirk Street Extension.
S	Tier 2	Intersection Improvement	Newkirk Street Extension and Martin Luther King Drive	Add marked crosswalks and pedestrian crossing signage.
T	Tier 2	Sidewalk Construction/Improvement	Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.

Key		Type of Project	Location	Description
U	Tier 2	Intersection Improvement	Newkirk Street Extension and South Poplar Street	Add marked crosswalks and pedestrian crossing signage.
V	Tier 2	Sidewalk Construction/Improvement	East side of Poplar Street from Smith Circle to Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.
W	Tier 2	Sidewalk Construction/Improvement	North side of Smith Circle	Construct 5' wide concrete sidewalk to complete the gaps in the existing sidewalk system.
X	Tier 2	Sidewalk Construction/Improvement	Southwest side of Mercer Road from Poplar Street to Doctor's Drive	Construct 5' wide concrete sidewalk to complete a gap in the existing sidewalk system.
Y	Tier 2	Sidewalk Construction/Improvement	Gooden Street down Lower Street to Elizabethtown Primary School	Construct 5' wide concrete sidewalks to complete the gaps in the existing sidewalk system.
Z	Tier 2	Streetscape Enhancements	Peanut Road	Improve pedestrian lighting (consider changing light type to improve visibility), incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at Broad Street.
AA	Tier 2	Streetscape Enhancements	Martin Luther King Drive	Improve pedestrian lighting and incorporate landscape treatments.
AB	Tier 3	Greenway trail Construction/Improvement	Southside of Broad Street from Francis Street west to Glenwood Drive	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods.
AC	Tier 3	Sidewalk Construction/Improvement	Eastside of Poplar Street from McDowell Street to Smith Circle	Construct 5' wide concrete sidewalk to complete the gap between Tier 1 and Tier 2 proposed sidewalks.
AD	Tier 3	Greenway trail Construction/Improvement	Northside of Broad Street from the existing sidewalk to Locks Road	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods and parks.
AE	Tier 3	Greenway trail Construction/Improvement	Provide a greenway trail down Locks Road	Construct 10' wide asphalt greenway trail down this street.
AF	Tier 3	Greenway trail Construction/Improvement	Potential future greenway trail loop around Town	Construct 10' wide asphalt multi-use path around Town and between parks for recreational and transportation use.

SHORT-TERM TIER 1 PROJECTS
SHORT-TERM TIER 2 PROJECTS
LONG-TERM TIER 3 PROJECTS

SPOT (sidewalk) | INTERSECTION (pedestrian/vehicular) | CORRIDOR (streetscape)

MAP OF
PROPOSED SIDEWALK NETWORK

Elizabethtown, NC

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 MacKenan Drive Cary, North Carolina
telephone: 919.469.3340 www.withersravenel.com

0 250 500 1,000 Feet
1 inch = 500 feet

Legend
- ETJ
- Town Limits
- Buildings
- 100 Year Flood Plain
- Streams
- Centerlines
- Municipal
- School
- Hospital
- Existing Sidewalks

GREEN ST, GREENE ST, GREENES POND LN, NAN ST, DOLL ST, FRANCIS ST, SWAN ST, PEANUT RD, N GILLESPIE ST, N LYON ST, N MARVIN ST, N ROBESON ST, N CRAIG ST, N OWEN ST, N PINE ST, S LYON ST, S MOREHEAD ST, W KING ST, S SLINGSBY ST, Tory Hole Park, Leinwand Park, Farmer's Market, E QUEEN ST, BROAD ST, S LOWER ST, EDGE ST, ALLEN ST, SCOUT LN, ROLLINS ST, HILL ST, DAVID ST, MLK DR, S POPLAR ST, CYPRESS ST, RENALDI ST, E SWANZY ST, MILL ST, GOODEN ST, HALL ST, MERCER RD, DUNHAM ST, NICK SL, Johnson Park, NOBIE ST, KEMP AVE, JAMES ST, MARTIN ST, W GILL ST, MLK Park, FOX ST, JOEL ST, DAISY ST, DELLA ST, WILLIAMS ST, JONES ST, MCLEAN ST, ABLE ST, QUAIL ST, ROLAND ST, JAMES ST, GUM ST, MORNINGSIDE DR, Bladen County Hospital, parking drop-off, Elizabethtown Primary School, ELIZABETH RD, E McDOWELL ST, DOCTORS DR, E MCKAY ST, WOODHOUSE DR, JOYCE ST, PECAN DR, LOCKS RD, To Lock & Dam #2, DIALYSIS DR, SMITH CIRCLE, PAIT ST, MERCER MILL RD, EASTWAY AVE, AUTUM CIR, EASY ST, WINDING CREEK RD, Proposed Town Park, VINEYARD DR, ASH ST, NEWKIRK ST EXT, M & M ST, PERKINS RD, BURTON ST, MOULTRIE LN, MARTIN LUTHER KING DR, LESANE ST, EMMA ST, SOUTH HILL ST, MURRAY ST, Elizabethtown Middle School, S POPLAR ST

4.2-SHORT-TERM PROJECTS

Short-term improvement projects will improve connectivity and pedestrian access along roadways and off-street paths which are currently utilized by pedestrians. These projects provide connectivity to destinations such as schools, neighborhoods, businesses, and Town facilities. It is recommended that these projects receive first priority for improvements due to their ability to immediately impact the existing pedestrian infrastructure and access to various destinations.

As funding becomes available, the areas identified in this section should become priorities for the Town. These areas were identified during site visits, through the public input process, by reviewing previous planning efforts and through Steering Committee recommendations. Because these areas were highlighted by public input, these "spot improvements" should be recognized as existing hazardous areas or those most in need of connectivity.

Examples of urban sidewalks

Spot Improvements:

Spot improvements are those projects that can either be completed with limited funding or are small in scope. These smaller improvements can improve hazardous intersections, eliminate gaps in the existing sidewalk system, or upgrade existing facilities.

South Poplar Street from King Street to the hospital is slated for resurfacing later this year with NCDOT TIP money. The Town is coordinating with NCDOT to see what pedestrian improvements can be added at this time. In addition, NCDOT has plans to complete a streetscape enhancement project on South Poplar Street that also offers an opportunity for coordination.

Some identified "spot" improvements in Town are:

A. Extend the sidewalk on Broad Street to the shopping centers west of the Peanut Road intersection.

Extending the sidewalk in this section will provide greater connectivity and safety for pedestrians trying to reach popular shopping destinations. Curb and gutter is limited in this area, with numerous driveway cuts and some curb and gutter on the north side of the street. The road and curb and gutter are in need of upgrades along Broad Street, which should occur simultaneously with pedestrian facility upgrades.

The shopping centers along Peanut Road are inacessible to pedestrians.

B. Crosswalk and pedestrian signalization at Peanut Road and Broad Street.

Along with extending the sidewalk to the shopping centers west of Peanut Road, crosswalks and pedestrian signalization should be provided to provide safe access to the shopping centers and for pedestrians walking east to downtown. Handicap ramps will need to be installed on all four corners and upgrades made to existing sidewalk connections on the east side of Peanut Road on Broad Street. Curb cuts along Broad Street have reduced pedestrian connectivity.

Pedestrians walk in the street along King Street between the Farmer's Market and Leinwand Park.

C. Connect sidewalks on King Street between Town Hall and Farmer's Market.

Existing sidewalks on King Street run in front of Leinwand Park and the Town Hall, but end at Morehead Street. Continuing the sidewalks from these amenities to the Farmer's Market will complete an important connection between these destinations. There is existing curb and gutter along King Street.

D. Crosswalk and pedestrian signalization at Martin Luther King Drive and King Street.

Crosswalks will improve safety and connectivity in this popular area near the Farmer's Market. An urban park is planned

for the site adjacent to the Farmer's Market to the west, which will farther increase pedestrian activity in this area. There is existing curb and gutter at all four corners of this intersection but handicap ramps at only two corners.

E. Sidewalk to Tory Hole Park

The existing sidewalk on Poplar Street ends before reaching Tory Hole Park. Currently, a steep, poorly marked pedestrian path is available from the restaurant parking lot to enable pedestrians to reach the park. A clear, identifiable, safe and ADA accessible pedestrian walkway should be installed from the end of the existing sidewalk on Poplar Street to Tory Hole Park. This sidewalk connection will allow residents and visitors to walk from some of Elizabethtown's most popular attractions: the downtown businesses, the Farmer's Market and Tory Hole Park. There is existing curb and gutter along Poplar Street in this location and no curb and gutter on the entrance drive to Tory Hole Park.

Tory Hole Park is an attractive amenity near downtown that provides walking trails, picnic areas, an amphitheater and a boat launch.

F. Crosswalk enhancements at Poplar Street and Broad Street intersection

There are currently crosswalks and pedestrian signalization at this intersection, but it could use upgrades due to its proximity as a major intersection and its prominence as a part of the downtown streetscape enhancements. Crosswalks should be slightly raised and made of a different paver material to clearly distinguish them as pedestrian walkways to drivers. The crosswalks could also have signage in the road indicating the pedestrian crossing (see Section 5.7 for more detail) to drivers. This intersection serves as a gateway to downtown and should call visitors' attention to the newly enhanced streetscape. Coordination with the local NCDOT representative will determine what improvements will be allowed on this NCDOT

The crosswalks on Poplar Street at Broad Street would benefit from enhancements calling motorists' attention to this heavy pedestrian area.

road. There is existing curb and gutter on all four corners of this intersection.

G. Crosswalk and pedestrian signalization at King Street and Poplar Street

This intersection has sidewalks leading to it from most directions and has handicap ramps on all four corners of the intersection, but again there are no marked crosswalks nor pedestrian signalization indicating safe times to cross. There is existing curb and gutter on all four corners of this intersection.

H. Crosswalk and pedestrian signalization at Swanzy Street and Poplar Street

This is a busy intersection for both vehicles and pedestrians. Public input has indicated that residents from apartments to the east of Poplar Street are often trying to cross this intersection to reach commercial strips to the west of Poplar Street. There are sidewalks and handicap ramps that lead to all four corners of the intersection, but there are no marked crosswalks, giving drivers no indication to slow down or be aware of pedestrians crossing. A signalized pedestrian crossing signal would also alert walkers to safe times to cross. There is existing curb and gutter on all four corners of this intersection.

I. Crosswalk and pedestrian signalization at Mill Street/Mercer Road and Poplar Street

This intersection has sidewalks leading to it from most directions and has handicap ramps on all four corners of the intersection, but again there are no marked crosswalks nor pedestrian signalization indicating safe times to cross. There is existing curb and gutter on all four corners of this intersection.

J. Crosswalk and signage at Dunham Street and Poplar Street.

To provide a safe route to the hospital and doctor's offices, the

The intersection of Swanzy and Poplar Streets needs a marked crosswalk and pedestrian signalization.

sidewalk should continue south of Dunham Street to McDowell Street and provide a clearly marked crosswalk with handicap ramps for pedestrians. There is currently no vehicular signal at this intersection, so the crosswalk should include pedestrian crossing signage and blinking lights to slow traffic down. There is existing curb and gutter and handicap ramps on the north side of this intersection, but none on the south side.

K. Traffic signal at Dunham Street and Poplar Street.

In addition to providing a marked crosswalk and pedestrian signage, a traffic signal at this intersection would greatly improve safety for pedestrians. Poplar Street is a busy road with numerous businesses that distract drivers. A traffic signal will provide the opportunity for a push-button pedestrian signal to increase pedestrian safety when crossing from the hospital to businesses across the street. There is existing curb and gutter on the north side of this intersection, but not the south side. Road improvements should occur in conjunction with pedestrian improvements.

L. Additional sidewalk in front of the Bladen County Hospital on Poplar Street to McDowell Street.

In order to create a unified pedestrian system that connects this important destination, the sidewalk should be extended in front of the hospital to provide better, more clear access. This is one of the most important destinations in Town and should have safe access. There is no curb and gutter on Poplar Street in this area.

M. Mid-block crossing to Primary School on Mercer Road

Providing a safe, well-marked mid-block crossing with pedestrian signage will allow safe crossing from the overflow parking lot across the street from the Elizabethtown Primary

A safe mid-block crossing at the Primary School, along with additional sidewalks on Mercer Road will increase safety and accesssibility.

School during events. Currently, children and adults cross unsafely at this location in order to cross the street. There is existing curb and gutter along Mercer Road in this location.

N. Poplar Street Streetscape (*corridor improvement discussed later in this chapter*)

O. Sidewalk on Peanut Road

The Steering Committee and the public cited numerous pedestrians walking on Peanut Road where there is currently no sidewalk. Adding a sidewalk from Quail Street to Broad Street will connect a residential area with many pedestrians to the shopping areas on Broad Street. There is no existing curb and gutter along Peanut Road. Road upgrades should occur simultaneously with pedestrian upgrades.

P. Traffic calming roundabout at King Street and Martin Luther King Drive.

The intersection at King Street and Martin Luther King Drive will see more truck traffic as trucks are rerouted from Broad Street down King Street. In addition, the popularity of the Farmer's Market has increased both pedestrian and vehicular traffic in this area. The intersection has become more of a central node for downtown Elizabethtown that serves Broad Street and the Cape Fear River to the north, the Courthouse and commercial areas to the east, residential neighborhoods to the south, and Town Hall and Leinwand Park to the west. Providing a safe, attractive and effective traffic calming measure, such as a roundabout will assist with the traffic and create a prominent feature. Sidewalks and crosswalks should be incorporated into the design to ensure safety for pedestrians in this highly walkable area. There is currently curb and gutter at all four corners of this intersection.

The intersection of King Street and MLK Drive could using traffic calming and pedestrian improvements to increase safety in this busy, popular area of Town.

Q. Sidewalk on east side of MLK Drive

Extending the sidewalk network from where it ends on MLK Drive southward to Newkirk Street Extension will provide greater connectivity for pedestrians, particularly those who are trying to access the Elizabethtown Middle School via Newkirk Street Extension. There is currently no curb and gutter on the east side of MLK Drive, south of Martin Street.

The east side of Martin Luther King Drive needs sidewalks to connect to the existing pedestrian system.

R. Sidewalk on west side of MLK Drive

Extending the sidewalk network from where it ends on MLK Drive southward in front of the future charter school will provide greater connectivity for pedestrians trying to access the future charter school or the Elizabethtown Middle School via Newkirk Street Extension from residential neighborhoods. Currently, the curb and gutter on the west side of MLK Drive ends with the sidewalk, directly north of the school location. There is also a large parking lot/driveway along the road, making it unsafe for pedestrians. The parking/drive aisle should be reconfigured in front of the school in order to safely accommodate pedestrians.

S. Intersection improvements at MLK Drive and Newkirk Street Extension

A safe pedestrian crossing with marked crosswalk and pedestrian signage should be installed at this intersection. The pedestrian crossing will allow students to safely cross the street near the future charter school and allow for residents to cross MLK Drive to access Newkirk Street Extension. There is no traffic signal at this intersection, meaning the intersection will require pedestrian flashing signals and a marked crosswalk to ensure safety. There is currently no curb and gutter, nor sidewalks, at this intersection.

T. Install sidewalk along Newkirk Street Extension

This road is a popular path for students walking from the neighborhood to the west to the middle school on Poplar Street. A sidewalk along the road would improve safety and encourage walking to school. There is currently no curb and gutter along this entire stretch of roadway.

U. Crosswalk and signage for Middle School at Poplar Street and Newkirk Street extension

With the extension of sidewalks on Poplar Street to the middle school, a safe crossing should be installed at the intersection of Poplar Street and Newkirk Street Extension. This safe crossing should include pedestrian signage and a painted crosswalk. In addition, due to the high volume of traffic on Poplar Street, blinking lights or a raised platform crosswalk should be considered. Coordination with the local NCDOT representative will determine what improvements will be allowed on this NCDOT road. There is currently no curb and gutter at this intersection.

V. Connection from Smith Circle to Middle School on Poplar Street.

In order to encourage children to walk to school, a sidewalk should be provided along the east side of Poplar Street. Initially this sidewalk can end at Smith Circle to provide residents access to the school, with the plan to eventually continue the sidewalk north on Poplar Street to connect the gap south of the hospital. There is currently no curb and gutter on this portion of South Poplar Street.

W. Smith Circle sidewalk.

Providing a sidewalk on the north side of Smith Circle will provide pedestrian connectivity for many users, along

The Elizabethtown Middle School needs better pedestrian connections from Poplar Street commercial areas and residential neighborhoods.

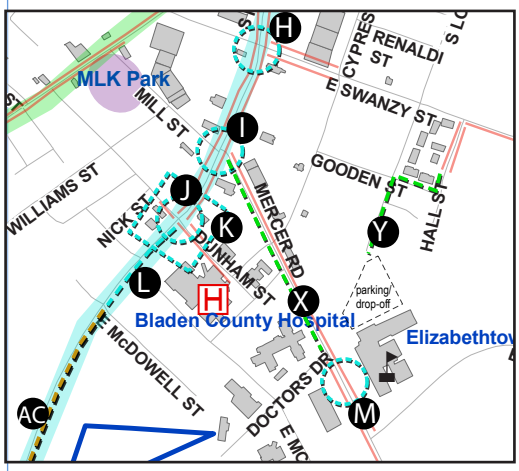
with additional sidewalks on Poplar Street. Residents along Smith Circle can use the sidewalk to access Poplar Street, and eventually the Elizabethtown Middle School. As sidewalks are eventually completed along Poplar Street, employees in the medical complex can use this walking loop for recreation. There is currently no curb and gutter along Smith Street.

X. Extend the sidewalk between Poplar Street and Doctor's Drive on Mercer Road.

To create greater pedestrian safety and connectivity between the elementary school, the shopping areas along Poplar and residences to the east, the gap in the sidewalk in this section should be completed. There is currently curb and gutter along this stretch of Mercer Road, although there are numerous curb cuts.

Y. Install sidewalk along Gooden and Lower Streets to connect to the Primary School.

Sidewalk connections along Gooden and Lower Streets will connect neighborhoods to the elementary school via the back of the school. Providing sidewalks in this neighborhood to the school will provide connectivity between neighborhoods and increase safety and walkability for children. The Town should coordinate with the school to ensure that a safe walkway is installed from the school to the Town sidewalk, keeping children out of the bus drop-off and parking lot. There is currently no curb and gutter on either of these sections of road.



Sidewalks on Gooden and Lower (Y) will connect nearby residences to the Primary School.

Sidewalks on additional Cross-Streets

The Town Council recommended that three east/west cross streets between MLK Drive and Poplar Street be considered for sidewalk installation as funding is available. Swanzy Street, Mill Street and Dunham Street should receive minimum 5' wide

concrete sidewalks. Pedestrians currently walk these sections from residential areas west of MLK Drive to the commercial districts on Poplar Street. As intersection improvements are considered along Poplar Street, sidewalks should also be installed on these streets to improve safety and connectivity.

Pedestrian Corridors (streetscapes):

These corridors have been identified as high-usage areas in need of immediate safety and connectivity improvements.

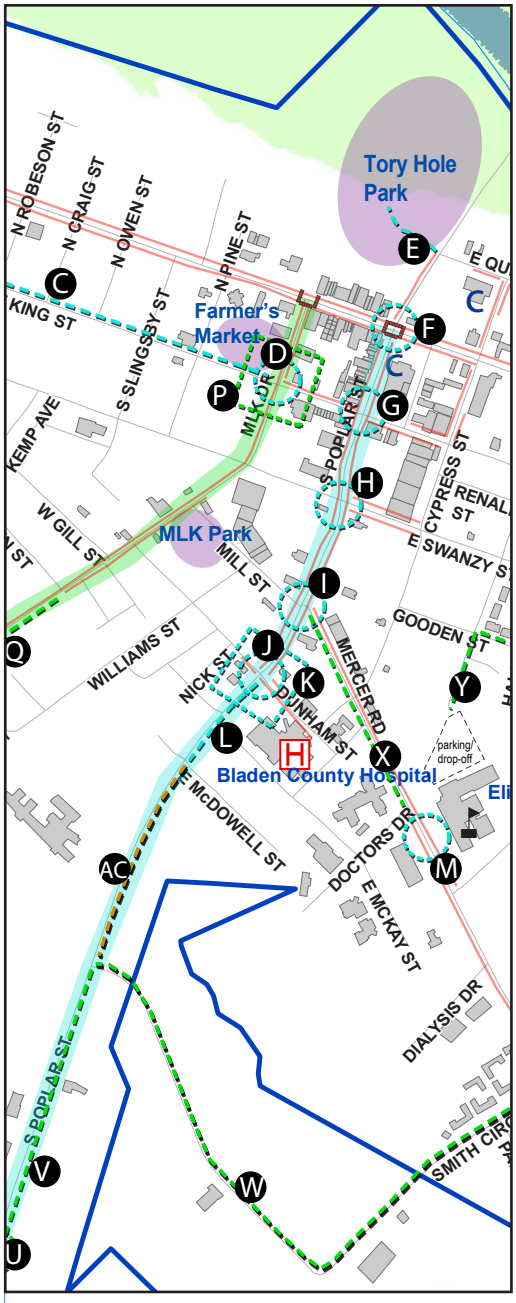
Some identified "corridor" improvements in Town are:

South Poplar Street from Broad Street to NC 87 Bypass (gateway)

As the main north/south corridor through Town, Poplar Street from Broad Street to the NC 87 Bypass should be enhanced to serve as a gateway into Town.

In addition to the specific "spot" improvements discussed earlier, this entire road corridor must be upgraded to improve pedestrian safety and enjoyment while walking between businesses and shops. Streetscape enhancements, including street trees, increased separation between sidewalks and roadways, wider sidewalks, clearly defined crosswalks, and road improvements should be considered. Road improvements would include elements discussed in Section 5, such as curb extensions and medians.

Improved street lighting should also be included in the corridor enhancement. Pedestrian level lighting will provide a more appealing aesthetic and lights that give off a pure, white light, rather than an amber light make visibility easier and increase the perception of safety.



South Poplar Street (V) is a major corridor through Elizabethtown and in need of streetscape improvements, including sidewalks, street trees, crosswalks, pedestrian-level lighting, and signage.

Peanut Road from Broad Street to the Town limits

The entire corridor should be upgraded to include sidewalks and crosswalks from residences to the shopping centers at the

corner of Broad and Peanut.

Improved street lighting should also be included in the corridor enhancement. Pedestrian level lighting will provide a more appealing aesthetic and lights that give off a pure, white light, rather than an amber light make visibility easier and increase the perception of safety.

Martin Luther King Drive from Broad Street to the Town limits.

This entire corridor should be upgraded to ensure sidewalks are wide enough, complete, and in good condition. In addition, crosswalks should be added in high-traffic areas as noted by the public. Consider extending the sidewalk to the former middle school location and adding a sidewalk on both sides of the road in some areas where it is missing.

Improved street lighting should also be included in the corridor enhancement. Pedestrian level lighting will provide a more appealing aesthetic and lights that give off a pure, white light, rather than an amber light make visibility easier and increase the perception of safety.

Streetscape improvements needed in the Martin Luther King corridor include installing sidewalks where they are missing, additional lighting, marked crosswalks, and signage.

4.3-LONG-TERM PROJECTS

Long-term projects have been identified as projects that would benefit the community, but are not considered a top priority for safety or connectivity. However, these projects would be valuable amenities to the Town and should be included in future requests for grant money or state funding.

The Pedestrian System Plan includes corridors in need of future improvement herein noted as Long Term Improvements. Following the Short Term Spot and Corridor Improvement projects, roadway corridors on the Long Term improvements list should be improved and enhanced as recommended when funding becomes available. These future corridors offer roadways with a finer degree of interconnectivity and pedestrian linkages throughout Elizabethtown and are not in as immediate need of improvement as the Major Pedestrian Corridors listed previously. Long-term projects are not as urgent a safety hazard as short-term improvement projects previously listed.

Greenway trail on West Broad connecting neighborhoods to downtown

The western side of Elizabethtown has numerous residential neighborhoods that lack connectivity to downtown and commercial areas within Town. Providing a minimum 10' wide asphalt multi-use trail on one side of the road will increase opportunities for recreation and transportation. This greenway trail can be connected to an overall system in the future.

Complete sidewalk system on east side of Poplar Street

Connecting this gap on Poplar Street after the Tier 1 and Tier 2 sidewalks are installed will provide a complete loop for hospital employees and Town residents utilizing Mercer Road, Smith Circle and Poplar Street.

Greenway trail on East Broad Street to Locks Road

Continuing a pedestrian walkway on the north side of East Broad Street will provide a pedestrian connection to the proposed greenway trail at Lock & Dam #2 and to the future Town Park on Broad Street. A minimum 10' wide asphalt multi-use trail on Broad Street would connect residential neighborhoods to the downtown core, as well as Town amenities. This greenway trail can be connected to an overall system in the future, creating enhanced recreational opportunities for residents and visitors.

Locks Road is a popular place to walk for residents.

Greenway trail along Locks Road to access Lock & Dam #2.

Members of the public and steering committee advised that walking and jogging down this road to the dam is a popular recreational activity. As funding is available, a minimum 10' wide asphalt multi-use trail should be installed along the road, especially if the Lock & Dam #2 is purchased by the Town. This stretch of greenway trail can eventually connect to the proposed greenway loop around Town.

Greenway trail loop around Town

The Town has identified a greenway loop connecting Tory Hole Park, Lock & Dam #2, the airport and industrial parks south of NC 87, and the Elizabethtown Middle School. This loop would connect existing and proposed parks, expand upon existing areas used for walking, and provide a valuable recreational amenity. A 10-12' wide asphalt greenway trail should be installed as funds are available and connections to facilities present themselves. The Town should consider starting conversations with land owners, particularly along the Cape Fear River, to discuss possible right-of-way opportunities for a future greenway trail. In addition, as mentioned earlier, the East Coast Greenway is planning a regional greenway trail that would

bypass Elizabethtown by travelling north of the Cape Fear River. By engaging in conversations with the East Coast Greenway now and starting future planning efforts, the Town has the opportunity to affect the greenway trail alignment, resulting in a more attractive option for Elizabethtown.

Widen existing sidewalks on Mercer Road from 3 feet to 5 feet.

As discussed in Section 5 of this document, standards now consider a 5' wide sidewalk to be the minimum for best practice. This allows two people to pass each other when walking on the sidewalk and provides a more comfortable width for those in wheelchairs or with strollers. The existing sidewalk on Mercer Road is the older, 3' standard. As funds are available, this sidewalk should be upgraded to meet the current standards.

The existing sidewalks on Mercer Road are narrow and should be a minimum of 5 feet wide.

4.4-PROJECT PRIORITIES

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.

The project areas were determined based upon public feedback, steering committee guidance, and site analysis. Each short-term project area was evaluated by using a "Project Priority Criteria Matrix" to determine its priority level. The priority matrix criteria represent the most heavily used pedestrian sections,

PROJECT PRIORITY CRITERIA MATRIX

	High	Med.	Low
Usage (How many people currently use this section or would likely use if there were facilities.)			
Connections (The proposed facility would provide links to key destinations, such as schools, commercial areas, parks or Town amenities.)			
Safety Issue (The proposed facility would inrease safety for pedestrians.)			
Functional Issue (The proposed facility would solve a functional problem in the pedestrian network, such as necessary ADA or other upgrades or completing a gap in the sidewalk system.)			

those which provide links between destinations such as schools and commercial areas, and those that address the most immediate safety or functionality concerns in the Town. Safety concerns include locations where pedestrians currently walk unsafely or where pedestrian facilities would greatly increase safety. Functionality concerns include upgrading existing facilities to meet ADA requirements, completing missing gaps in the sidewalk system, and making other needed upgrades.

Cost was not used as a criteria in this matrix. This gives the Town the flexibility to make project decisions based upon need. The Town can then utilize the *Funding Sources* list in Section 7.3 to attain funding to complete the listed priority projects.

See the charts on the next pages for the Prioritized Projects, based upon the Matrix.

Following the Short Term improvements, the Long Term Projects listed earlier in the document should take place as soon as funding sources or capital expenditures become available, or in conjunction with other capital improvement or maintenance projects. These improvements will provide a finer degree of connectivity throughout Elizabethtown, promoting the vision for the Town, but are not in immediate need of improvement.

SHORT TERM PROJECTS- TIER 1

1. Extend the sidewalk on Broad Street to the shopping centers west of the Peanut Road intersection

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

2. Crosswalk and pedestrian signalization at Peanut Road and Broad Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

3. Sidewalk on King Street from Town Hall to Farmer's Market

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue		X	
Functional Issue	X		

4. Crosswalk and Intersection improvements at King Street and MLK Drive

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

5. Extend existing sidewalk on Poplar Street to Tory Hole Park

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue		X	
Functional Issue	X		

6. Crosswalk enhancements at Poplar Street and Broad Street intersection

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.2. These projects are listed as Tier 1 based upon their high ranking in the Criteria Matrix.

SHORT TERM PROJECTS- TIER 1 (CONTINUED)

7. Crosswalk enhancements and pedestrian signalization at King Street and Poplar Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

8. Crosswalk and pedestrian signalization at Swanzy Street and Poplar Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

9. Crosswalk and pedestrian signalization at Mill Street/Mercer Road and Poplar Street (*crossing to school*)

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

10. Crosswalk and pedestrian signage at Dunham Street and Poplar Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

11. Traffic signal at Dunham Street and Poplar Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

12. Additional sidewalk in front of the Bladen County Hospital on Poplar Street

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.2. These projects are listed as Tier 1 based upon their high ranking in the Criteria Matrix.

SHORT TERM PROJECTS- TIER 1 (CONTINUED)

13. Mid-block crossing on Mercer Road to elementary school

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue	X		
Functional Issue	X		

14. South Poplar Street Corridor Enhancements

	High	Medium	Low
Usage	X		
Connections	X		
Safety Issue	X		
Functional Issue	X		

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.2. These projects are listed as Tier 1 based upon their high ranking in the Criteria Matrix.

SHORT TERM PROJECTS- TIER 2

1. Sidewalks on Peanut Road

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue	X		
Functional Issue		X	

2. Traffic calming roundabout at intersection of Martin Luther King Drive and King Street

	High	Medium	Low
Usage	X		
Connections		X	
Safety Issue		X	
Functional Issue	X		

3. Extend sidewalk on east side of MLK Drive

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue		X	
Functional Issue	X		

4. Extend sidewalk on west side of MLK Drive

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue		X	
Functional Issue	X		

5. Intersection improvements at MLK Drive and Newkirk Street Extension

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue	X		
Functional Issue		X	

6. Sidewalk along Newkirk Street Extension

	High	Medium	Low
Usage			X
Connections	X		
Safety Issue		X	
Functional Issue			X

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.2. These projects are listed as Tier 2 based upon their lower ranking in the Criteria Matrix.

SHORT TERM PROJECTS- TIER 2 (CONTINUED)

7. Crosswalk and pedestrian signalization at Poplar and Newkirk Street Extension

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue	X		
Functional Issue		X	

8. Sidewalk on east side of Poplar Street from Smith Circle to Newkirk Street Extension

	High	Medium	Low
Usage			X
Connections		X	
Safety Issue	X		
Functional Issue		X	

9. Sidewalk on northside of Smith Circle

	High	Medium	Low
Usage			X
Connections		X	
Safety Issue		X	
Functional Issue			X

10. Extend the sidewalk between Poplar Street and Doctor's Drive on Mercer Road (complete the gap)

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue		X	
Functional Issue	X		

11. Sidewalk on Gooden Street and Lower Street to northside of elementary school

	High	Medium	Low
Usage		X	
Connections		X	
Safety Issue	X		
Functional Issue	X		

12. Martin Luther King Drive Corridor Enhancements

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue			X
Functional Issue	X		

13. Peanut Road Corridor Enhancements

	High	Medium	Low
Usage		X	
Connections	X		
Safety Issue	X		
Functional Issue		X	

Priorities for implementation of the Pedestrian Master Plan are the projects listed in the Short Term Improvements category, as described in Section 4.2. These projects are listed as Tier 2 based upon their lower ranking in the Criteria Matrix.

4.5-TOP 5 PROJECTS FOR IMPLEMENTATION

The Steering Committee decided to recommend projects from the above prioritized Tiers as the top five projects the Town should work to acquire funding for implementation. These projects combine several of the above mentioned projects and come from both Tier one and Tier two. Although all of the Tier one, Tier two and Tier three projects should be implemented as funding is available, this list will provide guidance to the Town on projects that should be on the forefront of the Town's list of capital improvements.

Project 1 - Poplar Street

The first priority project for the Town of Elizabethtown should focus on Poplar Street, due to its congested nature and high usage. Poplar Street also acts as gateway street in Town, where many visitors and residents frequent. Upgrading pedestrian facilities along Poplar Street will promote Elizabethtown as a pedestrian friendly destination and will provide residents a safe way to walk from shopping centers, restaurants, residences, and other destinations. This project item includes upgrading and enhancing all intersections on Poplar Street listed as Tier One, as well as additional sidewalk in front of the hospital on Poplar Street.

**Approximate Cost

590 LF of sidewalk: $8,850 - $14,750 (depending on contractor's cost and utility constraints)

3 intersections with crosswalk improvements including striping and pedestrian signalization: $132,000 - $237,000 (depending on type of pedestrian signal)

2 additional handicap ramps: $1,000 - $1,600

1 crosswalk enhancement: $5,000-$15,000 (depending on treatment used)

Approximate Total: $146,850 - $268,350

Poplar Street is a busy corridor in need of pedestrian improvements to increase safety and connectivity.

*** Approximate Costs are a rough estimate and may vary based upon market fluctuation, specific details applied, site conditions, and contractor costs.*

Project 2 - King Street

The second area the Town should focus its efforts on upgrading is King Street. The sidewalk should be extended between the Town Hall and the Farmer's Market to increase connectivity in this popular area. This will provide a safe route for citizens to walk between the Town amenities of Leinwand Park, the Town Hall, the Farmer's Market and the planned pocket park adjacent to the Farmer's Market. In addition, pedestrian facilities at the intersection of King Street and Martin Luther King Drive should be included in this project in order to increase safety at this busy intersection.

**Approximate Cost

1,937 LF of Sidewalk: $29,055 - $48,425

2 HC ramps: $1,000 - $1,600

1 intersection with crosswalk improvements including striping and pedestrian signalization: $44,000 - $79,000 (depending on type of pedestrian signal and utility constraints)

Approximate Total: $74,055 - $129,025

The shopping centers on Broad Street west of Peanut Road have no pedestrian facilities.

Project 3 - Broad Street and Peanut Road

The intersection of Broad Street and Peanut Road, as well as the extension of sidewalks west on Broad Street to the shopping centers at this intersection is the third project cited as a priority by the Steering Committee. Providing sidewalks to the shopping centers will give pedestrians a safe route to encourage walking and reduce conflict with vehicles. Pedestrians currently walk to the shopping centers, but are forced to do so unsafely, with no sidewalks and no marked crosswalks at the intersection of Broad and Peanut.

**Approximate Cost

2,715 LF of sidewalk: $40,725 - $67,875

4 HC ramps: $2,000 - $3,200

1 intersection with crosswalk improvements including striping

*** Approximate Costs are a rough estimate and may vary based upon market fluctuation, specific details applied, site conditions, and contractor costs.*

and pedestrian signalization: $44,000 - $79,000 (depending on type of pedestrian signal and utility constraints)

Approximate Total: $86,725 - $150,075

Project 4 - Access to schools

The fourth project priority should be all school-related pedestrian projects. These projects can be grouped together to apply for Safe Routes to School funding and to highlight their focus on promoting student safety and walkability. These projects are the following:

- Additional sidewalk in front of the future charter school on Martin Luther King Drive.
- Crosswalk and pedestrian signage at the intersection of Newkirk Street Extension and Martin Luther King Drive.
- Sidewalk on Newkirk Street Extension.
- Crosswalk and pedestrian signage at the intersection of Newkirk Street Extension and Poplar Street.
- Additional sidewalk on Mercer Road.
- Sidewalk on Gooden Street and Lower Street.
- Mid-block crosswalk and pedestrian signage on Mercer Road.

Project 5 - Poplar Street Corridor

Due to the high usage and high visibility of Poplar Street, the street has been identified as a gateway into Town from both the north and the south. NCDOT has plans to enhance the streetscape from NC 87 northward to the Town limits. This provides an opportunity for the Town to coordinate with NCDOT on extending the streetscape project and ensuring enhancements complement the Town's objectives for pedestrian improvements.

SECTION 5 - FACILITY STANDARDS & GUIDELINES

5.1-STANDARDS OVERVIEW

The Division of Bicycle and Pedestrian Transportation (DBPT) of the North Carolina Department of Transportation (NCDOT) created pedestrian guidelines to assist municipalities in planning and engineering a safe and comfortable walking environment for pedestrians. The guidelines presented are in accordance with standards set by the American Association of State Highway Transportation Officials (AASHTO), the Manual for Uniform Traffic Control Devices (MUTCD) and the Americans with Disabilities Act (ADA).

5.2-SIDEWALKS

Sidewalks are extremely important public right of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street. Sidewalks are spaces where children play, neighbors meet and talk, shoppers meander casually, parents push strollers, and commuters walk to transit stops or directly to work. Because of the social importance of these spaces, great attention should be paid to retrofit and renovate areas with disconnected, dangerous, or otherwise malfunctioning sidewalks.

The Federal Highway Administration (FHWA) defines sidewalks as "walkways that are parallel to a street or highway" and walkways as generally being "pedestrian paths, including plazas and courtyards."

A 5' wide sidewalk in Raleigh, NC
Source: tompope2001

Sidewalk Widths

BPTD recommends a minimum travel path width of 5 feet for a sidewalk or walkway, in accordance with the American Association of State and Highway Transportation Officials

(AASHTO), the Federal Highway Administration (FHWA), and the Institute of Transportation Engineers (ITE). A sidewalk width of 5 feet is considered ample room for two people to walk abreast or for two pedestrians to pass each other.

Often downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for much wider sidewalks. Sidewalks are typically built with curb and gutter sections. The division recommends that areas with significant pedestrian traffic should feature eight- to ten-feet wide sidewalks. Where sidewalks align with the edge of an angled or 90-degree parking lot, a minimum of 30 inches of parked car overhang obstructing the sidewalk shall be taken into account in order to maintain the minimum travel path width.

AASHTO recommends the construction of sidewalks on all city or town streets, including those in rural areas. The Institute of Transportation Engineers (ITE) recommends sidewalk installation on both sides of the street whenever possible for new urban and suburban streets, especially in commercial areas, residential areas with 4 or more units per acre, or residential areas on major arterials and collectors. If sidewalks on both sides of the road are not possible, lower density rural residential or suburban areas might adequately serve its pedestrians with a sidewalk on only one side. Under certain low-traffic, low-density situations, a wide paved shoulder can serve as an adequate pedestrian path.

It is important to note the potential for conflict between pedestrians and bicyclists on a paved shoulder. Both bicyclists and pedestrians must exercise caution in order to avoid potential crashes on paved shoulders.

Examples of urban sidewalks

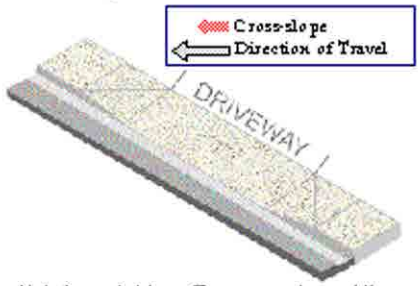
Construction Materials and Methods

Improvements for new, retrofitted, and repair to sidewalks throughout the municipality should be constructed using the following methods and materials:

♦ Materials — Sidewalks should be constructed of Portland Cement Concrete (PCC) with a 14-day flexural strength that is not less than 3,000 pounds per square inch (psi).
♦ Subgrade Preparation — Subgrade should be thoroughly compacted and finished to a smooth, firm surface, and should be moist at the time the concrete is placed.
♦ Subgrade Compaction — Except in areas where it is impractical to use standard type rollers, compaction should be by means of vibratory hand compactors.
♦ Final Finish — Surface finish for sidewalks should be completed by brushing (with brooms) or by another approved method to provide a uniform non-skid surface.
♦ Inspections and Performance — Sidewalk forms should be inspected by municipal staff prior to the placement of concrete. Concrete that does not meet minimum mixture and strength standards or settles after placement should be removed and replaced by the installer.
♦ Alternative Materials Usage — Use of materials for sidewalks other than concrete and the construction methods used therewith must be approved by the city or town engineer or designated representative on a case by case basis. There are some successful examples where other materials such as asphalt, crushed stone, granite fines, or other slip resistant material have been used. Concrete is a preferred surface, providing the longest service life and requiring the least maintenance.

Preferred – *The sidewalk is set behind the driveway apron and planting strip.*

Conditionally Acceptable – *The "dip" at the driveway apron allows for safer passage with no cross-slope.*



Not Acceptable – *The cross-slope at the driveway apron provides a difficult challenge for a person using a wheelchair or cane.*

Grade

AASHTO recommends the following grades for sidewalks: Continuous sidewalk grades should not exceed 5% (1:20). However, in areas where the existing topography or the adjacent street cause grades of more than 5%, sidewalk grades of up to 8.33% (1:12) may be used for a rise of no more than 2.5 feet, provided that level landings (grades less than 0.5%) are provided at the end of such grades and are at least 5 feet long.

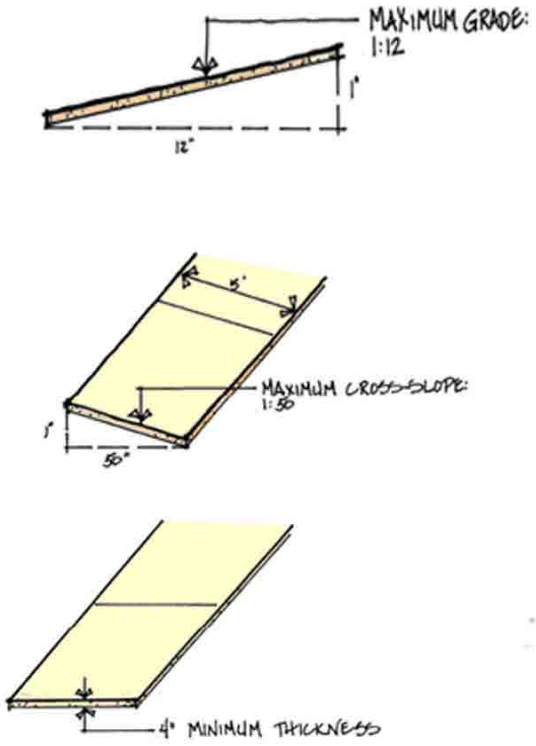
In cases where grades greater than 8.33% (1:12) must be negotiated, switchbacks or other approved ramping techniques must be provided and will conform to ADA requirements. Additional right-of-way and/or easements necessary to accommodate these features will be obtained by the applicant and legally dedicated to the city or town.

Cross-Slope

Sidewalks and walkways should be designed such that grades and cross slopes are minimized to allow those with mobility impairments to negotiate with greater ease. The maximum allowable cross-slope for sidewalks is 2% (1:50). At driveways, curb cuts, and both marked and unmarked crosswalks, the maximum allowable cross-slope must be maintained for a minimum width of 3 feet. Cross-slope should be oriented toward the adjacent roadway and sufficient to provide storm water runoff without creating standing water on the walkway.

Sidewalk Thickness

A minimum thickness (or depth) of 4 inches of concrete is required for all new sidewalks except as noted. To accommodate the additional loading caused by pedestrian density or by vehicles crossing a sidewalk, a thickness of 6 inches is required where sidewalks intersect at wheelchair/crosswalk ramps, and at driveways that use a ramp or apron-type access to cross the sidewalk from the adjacent public street.



Sidewalk grades and details; Source: DBPT

Transitions

Wheelchair ramp and driveway transitions to or crossing sidewalks must conform to current ADA requirements.

Tapers

Transitional tapers to and from sidewalks of different widths are to be at a maximum rate of 1-foot of width per 10 feet of length (1:10) except as approved by the city or town.

Sidewalk Alignment

Sidewalks should parallel the roadway. Typical exceptions include:

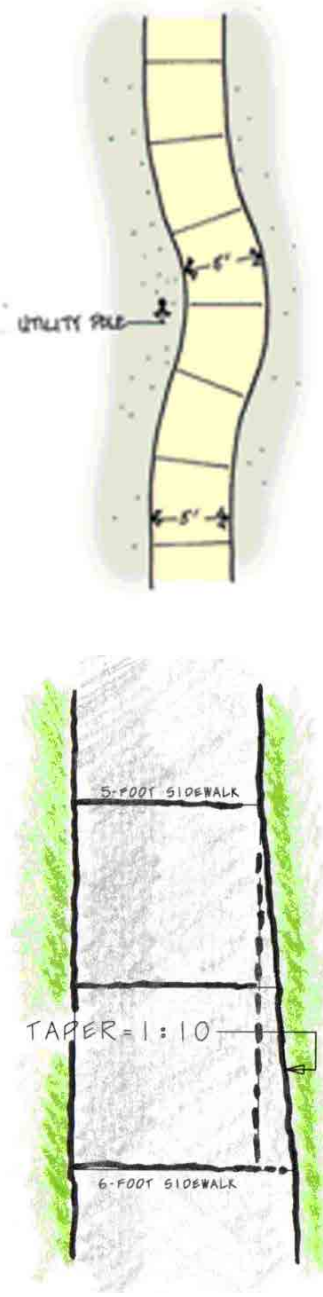
Horizontal Curve Sections on Roadways — In situations where a roadway curves at an angle greater than 60 degrees (and where right-of-way permits); the designer is permitted to adjust the curve of the sidewalk to more easily accommodate pedestrians.

Presence of Natural and Man made Features — The 5-foot minimum width of the travel path must be free of obstructions. The designer is permitted to alter the sidewalk path to avoid significant obstructions including but not limited to: transformers, utilities and utility poles, fire hydrants, and traffic signal hardware. Sidewalk path exceptions should be evaluated and approved on a case-by-case basis by the city or town. Care should also be used to ensure that the travel path does not interfere with the integrity of trees or of historic features.

Meanders — Sidewalk meandering is strongly discouraged. People generally prefer to walk in a straight line, particularly when walking for utilitarian purposes. Meanders must meet minimum ADA requirements unless otherwise approved by the municipality.

ADA: Dealing with Cross-Slope from Driveways

Design solutions for new driveways as they interface with sidewalks should be studied carefully. The intent is to make wheelchair travel safe along the sidewalk without directing the



Sidewalk typical details; Source: DBPT

user into traffic through angled (cross) slope designs. Cross-slope on sidewalks should not exceed 2%, preferably not 1.5% where possible.

Sidewalk Buffers

Buffer zones between pedestrian paths and vehicular traffic provide a sense of security to those on foot or in wheelchairs and give the path a comfortable scale and clear definition. Buffers can also provide other benefits to pedestrians depending on the type used. Buffer zones may either be paved, providing space between the pedestrian and traffic, or they may involve a planting strip with trees and shrubs. Much like the sidewalk itself, the form and topography of a buffer may vary greatly. AASHTO recommends a buffer width of two to four feet for local or collector streets, and a buffer width of five to six feet for arterial or major streets, whether for a paved buffer zone or a planting strip.

5.3-PLANTING STRIPS

Continuous zones of landscape, located between the sidewalk and the street curb or the edge of road pavement, perform a multitude of essential tasks. Planting strips contribute to the walkability of a street by providing shade. In addition to providing shade, street trees, along with turf and other plantings, help reduce urban temperatures, improve water quality, lower stormwater management costs, and add beauty to the street for the pedestrian, the driver, and the adjacent land use. The recommended planting width to permit healthy tree growth is 4 to 10 feet measured from the back of curb. Planting strips, or tree lawns, are the preferred means of providing a buffer, but are not feasible or appropriate in all pedestrian situations. The width of the planting strip shall increase with a greater plant density and potential as the intensity of development increases. This separation from motorized traffic may decrease road noise while

Planting strips provide a buffer between the road and the sidewalk.

increasing a pedestrian's sense of security and comfort. Added benefits of this separation include space for signage, utilities (fire hydrants), and vegetation.

Paved buffer zones

In some situations, continuous planting strips are not feasible, particularly where there is a high degree of foot traffic between the sidewalk and the street. As such, these planting strips are typically used in downtown or commercial areas. In these cases, a paved buffer zone should be provided between the travel path of the sidewalk and the curb. Though a constant width is preferred for this buffer zone, the width may vary as long as the buffer does not interrupt the pedestrian travel path. Items located in the buffer zone can include street furniture, planters, trees planted with tree grates, streetlights, street signs, fire hydrants, etc. Such items are placed in the buffer zones so as not to restrict pedestrian flow in the travel path.

Street tree plantings in tree pits, with grates and guards, have historically proven to work successfully within these buffer zones. They regulate micro-climate, create a desirable sense of enclosure, promote a local ecological identity and connection to place, and can act as a pleasant integration of nature into an urban environment. For healthy trees, attention should be given to amending the soil and providing drainage within the tree pits. In the event that a paved or vegetative buffer zone is not possible, a row of parked cars or a bike lane can be used to create this buffer.

Sidewalk with a paved buffer zone and planting zone; Source: DBPT

Buffer Paving Options

A different type of paving from the sidewalk paving could also be considered for the buffer zone. Textured pavements – pavers or pervious pavement – can be used to add significant aesthetic value and help define a unique place. Using pervious materials for parking, sidewalk furniture areas, and for frontage zones could reduce environmental concerns. A change in paving

type can help distinguish the pedestrian buffer zone from the pedestrian travel path. Sand-set pavers are recommended in the buffer zone for ease of utility maintenance. In designing sidewalk buffers, it is important to provide adequate clearance from potential obstructions.

Additional Considerations

Though the buffers described above each provide some sort of physical barrier from moving vehicular traffic, it is vital for pedestrians on the sidewalk to have a clear view of drivers and vice-versa. This is a particularly important consideration in designing and maintaining planting strips. It is important to eliminate both high and low contact points with tree branches, mast-arm signs, overhanging edges of amenities or furniture. In addition, it is necessary to provide two feet of clear space from store fronts to accommodate "shy distance" from walls and the opening and closing of doors.

5.4-PATHS/GREENWAYS

Multi-Use Paths

Multi-use paths are paved road-like facilities designed to be used by pedestrians and bicyclists as well as others, including those on roller blade, skateboards and other alternative modes of transportation. Paths can be along creeks or streams, and can be designed to accommodate a variety of path users.

The alignment of these corridors should avoid 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 pedestrian crosswalks, underpasses, culverts, or overpasses at each road crossing for safety.

Design Criteria

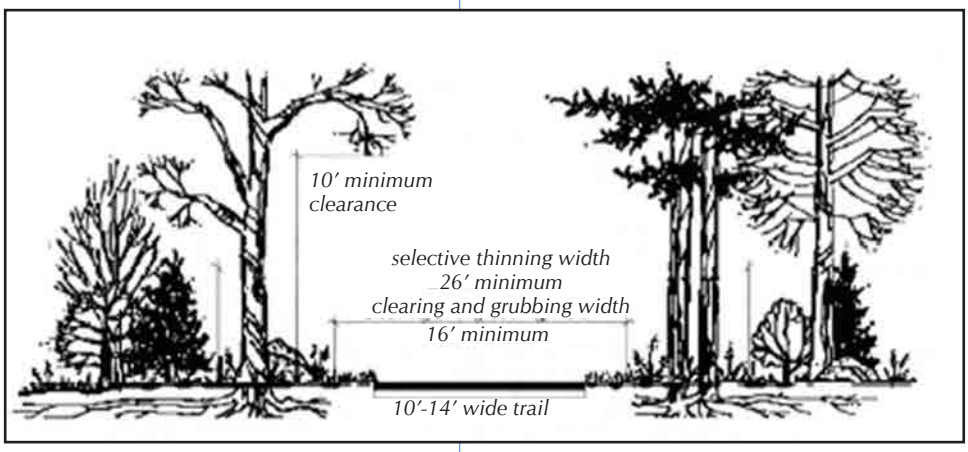
Multi-use paths shall be designed with clearance requirements, minimum radii, stopping sight distance

Multi-use paths are wide, paved sidewalks for pedestrians and bicyclists.

requirements, and other criteria — similar to the criteria for roadway design. High standards should be observed when designing these paths.

Multiple-use paths shall 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 elevated grade issues should have protection such as rails, fences, or hedges.

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 bidirectional 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, environmental or right-of-way constraints and topography.



Vegetation clearing guidelines for path; Source: DBPT

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.

Pavement Types

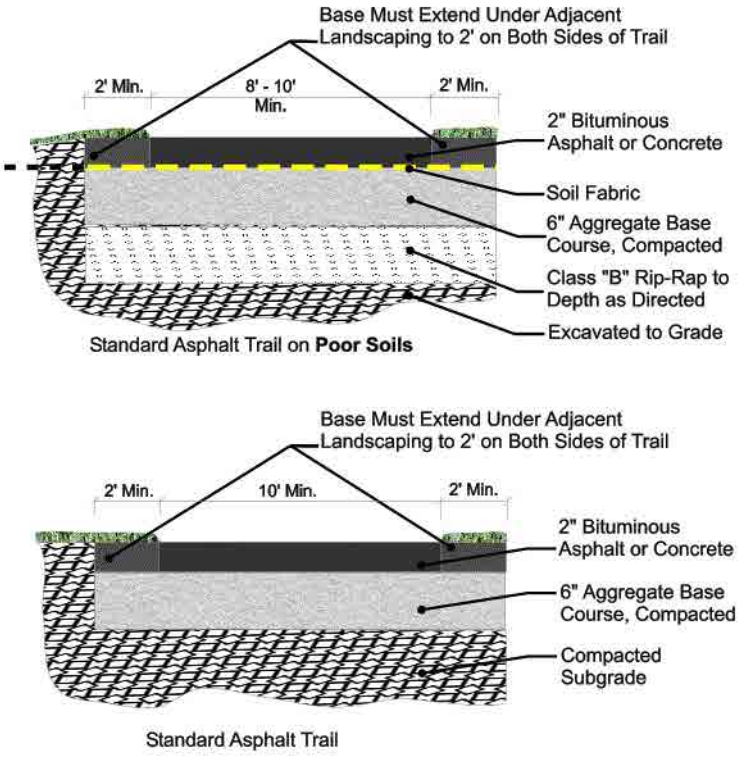
Each path is unique in terms of its location, design, environment, and intended use. For each segment of the path, care should be given to selecting the most appropriate pavement type, considering cost-effectiveness, environmental benefit, and aesthetics.

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 subgrade 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. Pigment can also be added to concrete at a minimal cost to provide a subtle, aesthetically pleasing look.

Pervious Concrete – This concrete is a newer invention which allows storm water to percolate, reducing pollutants in stormwater runoff when used over permeable soils. Although pervious concrete provides superior traction, it is unfavorable to in-line skates and skateboarding and has a 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, which is preferred by runners, in-line skates, cyclists, handicap users, and parents pushing baby strollers. In most cases, construction costs are significantly less. Standard installation calls for a minimum of 2-inch I-2 asphalt thickness with a 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.



Typical Asphalt trail details; Source: DBPT

Crusher fines – Crusher fines are constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix. The aggregate is excellent for running paths, as well as walking, mountain bike riding and equestrian use and can be constructed to meet ADA requirements. Paths must be smoothed out and graded several times per year. Consideration should also be given to the potential for erosion with this material, it can be a constant maintenance issue in

areas with steep slopes.

Dirt – Dirt paths can be utilized well for hiking trails, mountain bike tracks, and equestrian uses. It is particularly important in steep terrain to include swales and other measures to direct water off the paths in an effort to avoid erosion in a rain event.

Boardwalk – Boardwalks are structures made of wooden planks constructed for pedestrians or cyclists along beaches or through wetlands, coastal dunes and other sensitive environments. They are typically constructed on piers and are elevated, providing rare interaction with an ecologically unique area.

Greenway trails

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 and its tendency to degrade when the sub-base is inundated with water.

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 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 minimized as reasonably as possible and conform to all jurisdictional environmental policy and ordinances.

The protection of streams by easement and the creation of paths along a greenway easement can help to protect sensitive environments. Greenway trail users will see any littering or dumping that occurs and can report such events quickly.

However, greenway trails should be constructed in such a manner as to not disrupt the existing ecosystem and provide adequate space between any waterways and the trail to filter pollutants and mitigate ill effects from flooding. Wake County requires a 50-foot buffer on either side of a creek for greenway facility development, as measured from the top of streambank.

Path Amenities and Accessibility

Though paths should be thought of as roadways for 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. Wayfinding signs (e.g., how far to the library or the next rest area, or directions to restrooms) are important for non-motorized users.

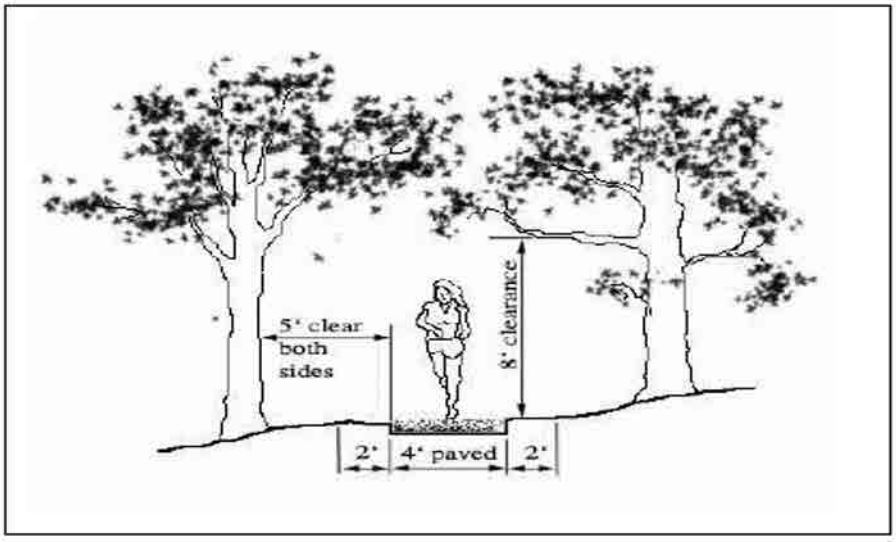
Path amenities, such as trash containers and benches, should be accessible to all users and located based upon expected usage and maintenance budgets. At a minimum, benches and trash cans should be located at entrances to the trail and after a long ascent.

5.5-SIDEPATHS/FOOTPATHS

Sidepaths/Wide Sidewalks

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 (or wide sidewalk) facility to investigate various elements of the roadway corridor environment and right-of-way before committing to its construction. If a road needs to be widened in the future, there will be costs associated with relocating the sidepath alongside the road.

However, sidepaths can also be important connectors within a larger greenway system. These roadside walkways can often provide a valuable link through a congested area to connect to the greenway or as a part of the greenway system.



Typical greenway detail; Source: DBPT

Foot Path

In environmentally sensitive areas, such as stream banks and lowlands, a four-foot wide soft surface should be used (crusher fines recommended), with two-foot wide shoulders. A minimum vertical clearance of eight-feet should be maintained and paths should have a five-foot cleared area from the edge of the path on each side. The paths should be sloped to drain with a 2% minimum grade.

5.6-MEDIANS

Medians are barriers in the center portion of a street or roadway. Medians allow for less interaction between cars and bicycle and pedestrians, and make more opportunities for bicycle lanes. A center turn lane can be converted into a raised or lowered median thus increasing motorist safety. Travel lanes may be narrowed to accommodate the placement of a median. Raised or lowered medians should provide ample cues for people with visual impairments to identify the boundary between the crossing island and the roadway. According to AASHTO guidelines, the length of a median should be a least 20 feet.

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there is a possibility for increased traffic speeds and unsafe U-turns at intersections. Additionally, the space occupied by medians may be using space that could be used for bike lanes. An alternative to the continuous median is to create a segmented median with left turn opportunities.

Sensitivity to large vehicles (buses, trucks and fire equipment) dictates some elements of the median design, curb style, and placement. Median-controlled roadways reduce the number of turning conflicts and are generally preferred for both pedestrians and cyclists over a two-way, left-turn lane (TWLTL) roadway.

Median; Source: DBPT

Landscaping

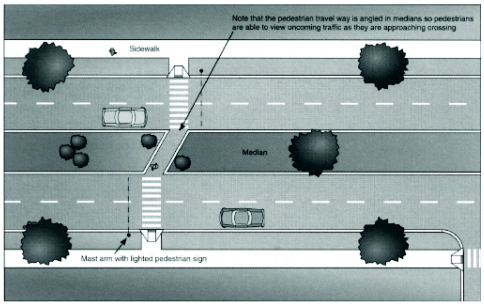
Medians provide opportunities for landscaping that in turn can change the character of the street and help to slow traffic. Landscaping should not obstruct the visibility between motorists and pedestrians.

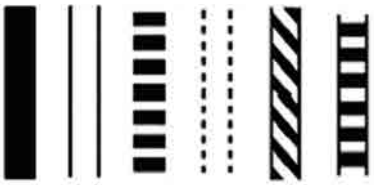
Median Pedestrian Refuge Islands

When used in conjunction with mid-block or intersection crossings, medians can be used as a crossing island to provide a place of refuge for pedestrians. Pedestrian refuge islands should be designed along roadways with fewer lanes and pedestrian signals that will allow the pedestrian enough time to cross the street.

Median pedestrian refuge islands should be provided as a place of refuge for pedestrians crossing busy or wide roadways at either mid-block locations or intersections. Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 8 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians.

The graphic below indicates the design and markings associated with refuge islands. Note that pavement markings delineate the approach to the islands and that the islands are "split" to allow for a level platform for wheelchair use. Median crossings should possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users. In cases where there are wide roads and high traffic volumes, a push-button pedestrian signal may be mounted in the refuge area to allow pedestrians to split their trip into two halves as they cross the street. Note that the crosswalk in the image is configured at a skewed angle as it crosses the median. This allows pedestrians to have a better angle of sight as they approach and cross each side of the street. In all cases, a minimum 10-foot travel lane is maintained for pedestrians.





Pedestrian refuge Island (top); Variety of possible patterns available to designate a crosswalk; Source: DBPT

5.7-MARKED CROSSWALKS

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings).

A study should be completed prior to placing crosswalks to determine the need and the best type and location of that crosswalk.

North Carolina state law permits crossing at all intersections whether the intersection is marked with a crosswalk or not. Every attempt should be made to install crossings in places where pedestrians are most likely to cross. A well-designed traffic calming location is not effective if pedestrians are using other unmodified and potentially dangerous locations to cross the street.

Marked pedestrian crosswalks may be used under the following conditions: 1) At locations with stop signs or traffic signals, 2) At non-signalized street crossing locations in designated school zones, and 3) At non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable.

There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise not difficult to maneuver by any person including those with physical mobility or vision impairments. Although marked crosswalks provide strong visual clues to motorists that pedestrians are present, it is important to consider the use of these elements in conjunction with other traffic calming devices to fully recognize low traffic speeds and enhance pedestrian safety.

Top: Striped crosswalk; Source: PBIC Bottom: Raised and stamped crosswalk; Source: caactive-communities.org

Width

Marked crosswalks should not be less than six feet in width. In downtown areas or other locations of high pedestrian traffic, a width of ten feet or greater should be considered. An engineering study may need to be performed to determine the appropriate width of a crosswalk at a given location.

Paint

Reflective paint is inexpensive but is considered more slippery than other devices such as inlay tape or thermoplastic. A variety of patterns may be employed as detailed in the figure above. Crosswalk markings should be white, per MUTCD. Crosswalk markings should extend the full length of the crossings. Crosswalk lines of 10-12 inches of width are the recommended minimum. Curb ramps and other sloped areas should be fully contained within the markings.

Pavement Treatment

A variety of colors or textures may be used to designate crossings. These materials should be smooth, skid-resistant, and visible. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Also, as it degrades from use or if it is improperly installed, it may become a hazard for the mobility or vision impaired.

Raised Crosswalk; Source: DBPT

Raised Crosswalk

In areas with a high volume of pedestrian traffic, particularly at mid-block crossings, a crosswalk can be raised to create both a physical impediment for automobiles and a reinforced visual clue to the motorist. Raised crosswalks are typical on two-lane streets with a speed limit of less than 35 mph. In conjunction with raised crosswalks, it is necessary to use detectable truncated dome warnings at the curb lines. Visible pavement markings are necessary for the roadway approach slopes.

Mid-block crossing with pedestrian refuge island and signage; Source: fhwa.dot.gov

Mid-Block Crossings

Mid-block crossings can help pedestrian access by supplementing crossing options. Mid-block crossings may be used in areas where there are substantial pedestrian generators

or where intersections along a roadway are spaced far apart. Mid-block crossings pose special problems for many state and local departments of transportation, since pedestrians will often choose to cross at the location that is the most convenient for them to do so, not necessarily where it is the safest. As a result, engineers and planners have developed guidelines for mid-block crossings.

Below are some general guidelines on mid-block crossings:

- Provide only on roads with a speed limit of less than 45 MPH.
- Do not install within 300 feet from another signalized crossing point.
- Base installation of a mid-block crossing on an engineering study or pedestrian route placement.
- These crossings are recommended near schools, pedestrian routes, retail areas, recreation, and residential areas.
- Require advance auto-warning signs and good visibility for both the driver and the pedestrian.
- Providing a safe crossing point is necessary since pedestrians tend to not walk far for a signalized intersection.
- Provide an audible tone.
- Include a pedestrian refuge island on wide streets that:
  - -Have fast vehicle speeds, or with large vehicle or pedestrian traffic volumes.
  - -Where children, people with disabilities, or elderly people would cross.
  - -Have complex vehicle movements.

Advance stop bar at a crosswalk; Source:caactive-communities.org

Advance Stop Bars

Vehicle and pedestrian visibility is increased by placing a vehicle advance stop bar 4 to 10 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings. In

certain situations, a larger setback of the advance stop bar may be required. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other's intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a "Stop Here for Pedestrians" sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90%.

Pedestrian Signals

Traffic signals assign the right of way to motorists and pedestrians and produce openings in traffic flow, allowing pedestrians time to cross the street. When used in conjunction with pedestrian friendly design, proper signalization should allow for an adequate amount of time for an individual to cross the street. The suggested amount of pedestrian travel speed recommended in the Manual on Uniform Traffic Control Devices (MUTCD) is 4 feet/sec. However, a longer crossing time may be necessary to accommodate the walking speed of the elderly or children. Therefore it is suggested that a lower speed of 3.5 feet/sec be used whenever there are adequate numbers of elderly and children using an area.

Engineering, as well as urban design judgment, must be used when determining the location of traffic signals and the accompanying timing intervals. Although warrants to fund pedestrian signal timing have been produced by the MUTCD, each site must be analyzed for factors including new facility and amenity construction (i.e. a popular new park or museum) to allow for potential future pedestrian traffic volume. In addition, creating better access to existing places may in fact generate a higher pedestrian volume.

International symbol for a pedestrian crossing, along with a countdown signal; Source: ITE Pedestrian Bike Council

5.8-TYPES OF PEDESTRIAN SYMBOLS

International Pedestrian Symbols

According to the MUTCD, international pedestrian signal indication should be used at traffic signals whenever warranted. As opposed to early signalization that featured "WALK" and "DON'T WALK", international pedestrian signal symbols should be used on all new traffic signal installations. Existing "WALK" and "DON'T WALK" signals should be replaced with international symbols when they reach the end of their useful life. Symbols should be of adequate size, and clearly visible to make crossing safe for all pedestrians.

Push Button Crossing; Source: ITE Pedestrian Bike Council

Countdown signals

Countdown signals are pedestrian signals that show how many seconds the pedestrian has remaining to cross the street. The countdown can begin at the beginning of the WALK phase, perhaps flashing white or yellow, or at the beginning of the clearance, or DON'T WALK phase, flashing yellow as it counts down.

Audible signals

Audible cues can be used to pulse along with a countdown signal. The signals are used for visually and audibly impaired individuals. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.

Audible Pedestrian Signal; Source: DBPT

Pedestrian signal timings

The timing of these or other pedestrian signals needs to be adapted to a given situation. There are three types of signal timing generally used: concurrent, exclusive, and leading pedestrian interval (LPI). The strengths and weaknesses of each

will be discussed with an emphasis on when they are best employed.

Concurrent signal timing refers to a situation where motorists running parallel to the crosswalk are allowed to turn into and through the crosswalk, left or right, after yielding to pedestrians. This condition is not considered as safe as some of the latter options, however this type of signal crossing generally allows for more pedestrian crossing opportunities and less wait time. In addition, traffic is allowed to flow a bit more freely. Concurrent signal timing is best used where lower volume turning movements exist.

Where there are high-volume turning situations that conflict with pedestrian movements, the exclusive pedestrian interval is the preferred solution. The exclusive pedestrian interval stops traffic in all directions. In order to keep traffic flowing regularly, there is often a greater pedestrian wait time associated with this system.

A proven enhancement that prevents many of the conflicts addressed under either of the former methods is Leading Pedestrian Signal (LPI). An LPI works in conjunction with a concurrent signal timing system and simply gives the pedestrian a few seconds head start on the parallel traffic. An advance walk signal is received prior to a green light for motorists. This creates a situation where the pedestrian can better see traffic, and more importantly, the motorists can see and properly yield to pedestrians. As with the exclusive pedestrian interval, an audible cue will need to accompany the WALK signal for the visually impaired.

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. Theses devices replace the traditional push-button system. Although still experimental, they appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts.

Perhaps the best use of these devices is when they are employed to extend crossing time for slower moving pedestrians. Whether these devices are used or the traditional push-button system is employed, it is best to provide instant feedback to pedestrians regarding the length of their wait. This is thought to increase and improve pedestrian signal compliance.

Passive pedestrian detection equipment is becoming more common, and can be recommended in high-volume locations where many pedestrians are crossing a five-lane (or greater) street cross-section.

Right Turn on Red Restrictions

Introduced in the 1970's as a fuel saving technique, the Right Turn on Red (RTOR) law is thought to have had a detrimental effect on pedestrians. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians. Often motorists will either nudge into a crosswalk to check for oncoming traffic without looking for pedestrians or slow, but not stop, for the red-light while making the turn. There is legitimate concern that eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. Consider elimination on case by case basis and only where there are usually high pedestrian volumes.

R10-11

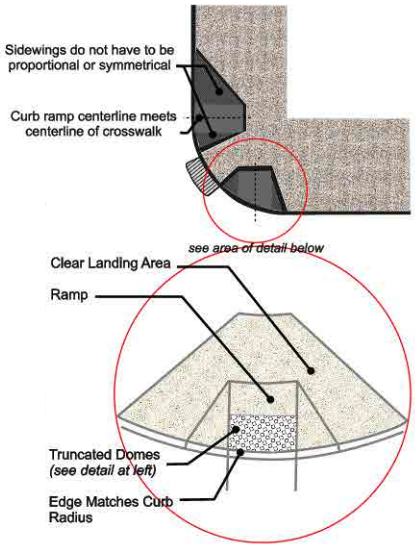
R1-5

Low-cost signs can restrict right turns on a red light to reduce pedestrian conflicts (top).; Source: PBIC; MUTCD Regulatory signs provide clear direction to drivers. (below)

5.9-CURB RAMPS/CURB EXTENSIONS

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcarts, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. In accordance with the 1973 Federal Rehabilitation Act and to comply with the 1990 Federal ADA requirements, curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist. In addition, these federal regulations require that all new constructed or altered roadways include curb ramps. Although the federally prescribed maximum slope for a curb ramp is 1:12 or 8.33% and the side flares (or "sidewings" as listed in the graphic) of the curb ramp must not exceed a maximum slope of 1:10 or 10.0%, it is recommended that much less steep slopes be used whenever possible. It is also recommended that two separate curb ramps be provided at each intersection. The minimum width for the curb ramp is four feet. With only one large curb ramp serving the entire corner, there is not safe connectivity for the pedestrian. Dangerous conditions exist when the single, large curb ramp inadvertently directs a pedestrian into the center of the intersection, or in front of an unsuspecting, turning vehicle. To provide a tactile warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete) should be used. Two separate curb ramps, one for each crosswalk, should be provided at each corner of an intersection.

For additional information on curb ramps see the Federal Highway Administration and Designing Sidewalks and Trails for Access, Parts I and II, by the Federal Highway Administration.

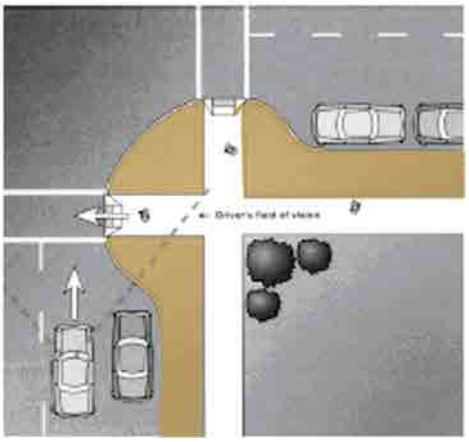


Curb Ramp detail; Source: DBPT

Curb Extensions ("Bulb Outs," "Chokers," "Neckdowns") and Curb Radii

A curb extension, or bulb out, is an extension of the sidewalk into the parking lane of a street. Because these curb extensions physically narrow the roadway, a pedestrian's crossing distance and consequently the time spent in the street is reduced. In addition, curb extensions may encourage motorists to drive slower by narrowing the travel lane and reducing vehicular speeds during turning movements at intersections. Curb extensions can be placed either at mid-block crossings or at intersections. Curb extensions at mid-block locations are known as "chokers." Curb extensions at intersections can also be referred to as "neckdowns."

Sight lines and pedestrian visibility are reduced when motor vehicle parking encroaches too close to corners creating a dangerous situation for pedestrians. When placed at an intersection, curb extensions preclude vehicle parking too close to a crosswalk. Also, curb extensions at intersections can greatly reduce turning speed, especially if curb radii are set as tight as possible. Finally, curb extensions also reduce travel speeds when used in mid-block crossings because of the reduced street width. Curb extensions should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders. The below table illustrates the relationship between posted speeds and the curb (often called "corner") radius. Motorists will travel more slowly around corners with smaller curb radii even without the use of curb extensions.



Curb extensions shorten the distance pedestrians must walk across a street; Source: coast-santabarbara.org (top); DBPT (bottom)

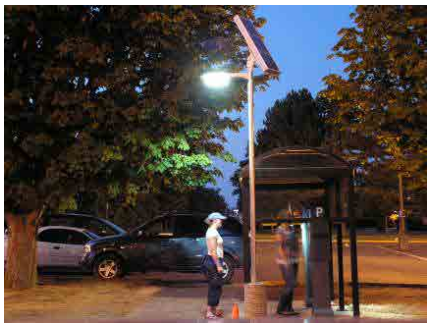
5.10-LIGHTING

Proper lighting in terms of quality, placement, and sufficiency can greatly enhance a nighttime urban experience as well as create a safe environment for motorists and pedestrians. Two-thirds of all pedestrian fatalities occur during low-light conditions. Attention should be paid to lighting walkways and crossings, so that there is sufficient ambience for motorists to see pedestrians. Pedestrian lighting should be considered for areas of higher pedestrian volume, including downtown and key intersections. Lighting in commercial areas should be provided on both sides of the street.

In most cases, roadway street lighting can be designed to illuminate the sidewalk area as well. The visibility needs of both pedestrian and motorist should be considered. In commercial or downtown areas and other areas of high pedestrian volumes, the addition of lower level, pedestrian-scale lighting to streetlights with emphasis on crossings and intersections may be employed to generate a desired ambiance. Lighting for sidewalks and off-street paths should be provided where considerable pedestrian traffic is expected at night, where there is insufficient available light from the surrounding area, and at all designated road crossings.

Each lighting situation is unique and must be considered on a case-by-case basis. Average maintained horizontal illumination levels of 5 lux (0.5 foot candles) to 22 lux (2 foot candles) should be considered. Sometimes, higher levels are advisable in special areas where security problems might exist. Light poles should generally be 12 to 15 ft. high for lighting pedestrian areas. Luminaries and poles should be at a scale appropriate for pedestrian use.

Light fixtures, as well as other on-street facilities, like street furniture, can add a great deal in terms of street aesthetics and reinforce community identity. It is recommended that the



Pedestrian level lighting enhances the walking environment
Top: LED lighting;
Source: carmanah.com;
Bottom: Decorative lightiing is incorporated with a banner;
Source: phillydweller.com

community adopt a particular style of street lighting fixture appropriate for the municipality's identity and coordinate this choice with stylistic choices in other street facilities.

Sophisticated lighting needs to be directional and focused upon the street. A flat lens light is the best choice in lighting the street. Fixtures that produce glare should be avoided, as they produce diffused light, and sometimes make visibility difficult. The pedestrian-level lighting that is preferred includes mercury vapor, metal halide, LED, or incandescent. Although low-pressure sodium lights may be energy-efficient, they are less desirable due to the color distortion they create. High-pressure sodium lights are preferable, as they create less color distortion.

Lighting should be sufficient so that pedestrians can see cars, and cars can see pedestrians. However, over lighting of an area can produce an environment that is unattractive to pedestrians, and the resulting glare becomes an environmental issue.

It is important to note that every effort should be made to address and prevent light pollution. Also known as photo pollution, light pollution is "excess or obtrusive light created by humans." Whenever urban improvements are made where lighting is addressed, a qualified lighting expert should be consulted early in the process. This individual should not only create a safe and attractive ambiance, but will do so with the minimum of fixtures, an awareness of the importance of minimizing photo pollution, and with a focus on minimizing future energy use. A thoughtful plan of how and where to light will reap benefits not only in potential reduced infrastructure cost, but future energy costs as well.

5.11-SIGNAGE

Signage can be an effective tool to alert drivers to reduce speeds, allow pedestrians to exercise extra caution and make visitors and residents aware of attractions. It is important not to cause "clutter" when using a variety of signage. This can cause complacency and noncompliance with signs in general. Signs, and the sign text, should be large enough to be seen from a distance. It is imperative that all signs be properly located so as not to obstruct the pedestrian and visibility triangles of motorists.

Signage is governed by the MUTCD, which provides specifications on the design and placement of signage on the right-of-way. There are three types of signage: 1) Wayfinding signage 2) Regulatory and 3) Warning signs. Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.

Examples of regulatory and instructional signage;

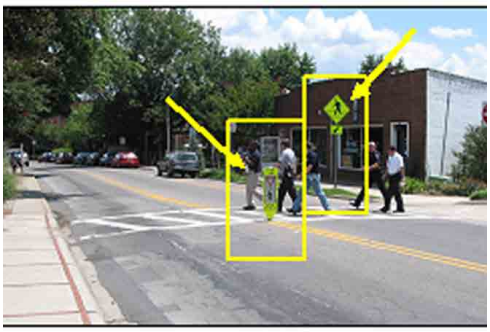
Wayfinding Signs

Wayfinding or guide signs provide directional cues to attractions, points of interest or main districts of a town. Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic. It is recommended that municipalities adopt consistent and descriptive graphics to identify pedestrian routes. This signage system would assure pedestrians that they are safe and will not encounter gaps in facilities along these routes. A map should be incorporated into each route illustrating the entire pedestrian system and their location. Bus stops, destinations, and

mileage should also be identified on the signs.

Regulatory and Warning Signs

Regulatory signs give notice of traffic laws or regulations that pedestrians, cyclists and motorists are required by law to follow. Warning signs call attention to unexpected conditions on, or adjacent to, a roadway, bike or pedestrian facility that can be potentially hazardous to users.



Pedestrian-related signage

This type of signage serves primarily to notify motorists and others of the presence of pedestrians. The intended effect is for motorists to drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area. Signs can be used in a variety of places, including at crosswalks, at intersections, in streets, and near schools. National standards for sign placement and use can be found in the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway. The signs shown at right are some recommended signs which municipalities should consider installing. For more signs and more detailed guidelines for sign installation and use, the municipality should consult the MUTCD. The S4-3/R1-6 crosswalk warning sign as well as the W11-2 signs are regulatory. The remaining signs shown directly below are warning signs. The R1-6 sign is usually installed within the street to warn motorists to yield to pedestrians in a crosswalk. The small "school" sign installed directly above (S4-3) is added to the in-street sign for placement near a school. The "Turning Traffic" sign is usually placed at intersections to warn motorists that are turning right or left to yield to pedestrians in crosswalks. For the W16-7P sign, the top sign can either be combined with the smaller "ahead" sign or the arrow symbol to indicate the

presence of a crosswalk to motorists in a school zone. The Trail sign shown at the bottom is an example of typical wayfinding signage to help direct cyclists at major decision points along a route.

The signs shown on this page are additional MUTCD signs related to pedestrians.

School Zone Treatments

Section 7 of the MUTCD is entirely devoted to "Traffic Controls for School Areas" and is the dominant guidance available to municipalities for installing signs and markings in school zones. The section provides valuable additional guidance for school crossing treatments that can be utilized for the planning and design of schools that should be considered when making safety improvements.

5.12-STREET TREES

Street trees enhance the landscape for pedestrians, creating an attractive and comfortable environment for walking. Street trees also act as a traffic calming device, encouraging drivers to drive more slowly. In addition, a large line of leafy street trees can absorb engine noise, providing enough of a buffer to block street traffic noise from reaching private yards and homes. Trees also improve air quality by consuming carbon dioxide and emitting oxygen. Street trees may also increase real estate values by increasing curb appeals of homes. This Plan strongly recommends that municipalities adopt a tree ordinance to give direction for tree installation and maintenance.

Planting requirements

All street trees should be selected according to the standards described in the American Standard for Nursery Stock of the American Nursery and Landscape Association. Install and maintain trees according to the International Society of Arboriculture (ISA) guidelines. A landscape architect should be consulted to select the proper tree and planting technique.

Visibility

Street trees should never be allowed to obscure the line of sight between pedestrians and drivers. A clear view should be maintained between 30″ and 72″ above the street. This area must be free of limbs and foliage for safe cross visibility. Other plantings should also follow this rule within 50 ft. proximity of street corners and other designated crossing points. In order to maintain visibility, provide shade, and a comfortable pedestrian corridor, street trees should primarily be vase shaped, columnar, or oval in form (habit) with large spreading crowns.

Street trees enhance the pedestrian environment and cool the heat island effect;

Roots

Avoid trees with aggressively invasive roots adjacent to pavement or buildings.

Size

Large trees (growing over 35 ft. in height at maturity) are preferred as street trees except near overhead utility lines. Small trees (growing less than 35 feet in height at maturity) should be used in areas directly adjacent to or under utility lines.

Spacing

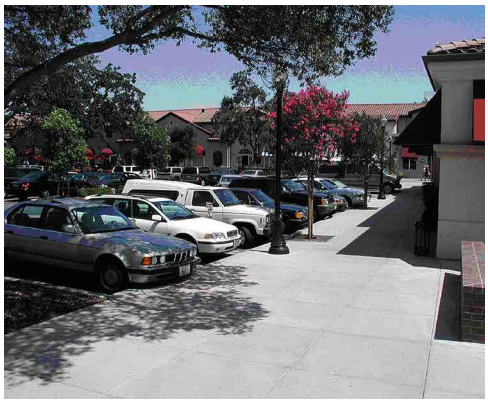
Typically, large trees should be spaced approximately 40 – 50 feet on center when planted in a line, and small trees spaced at approximately 30 ft. The spacing of street trees in a planting strip will depend upon the size of the tree and upon the demand for sidewalk furniture and parking.

Tree Pits and Tree Grates

Street trees should generally be located in open planting strips. However, tree pits with tree grates may be a practical, although more expensive, alternative in very high pedestrian traffic areas. Tree grates should generally not encroach upon the travel path. For optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway". Tree grates also require occasional maintenance to remove the radial spokes from the grate as the tree matures and the trunk grows in diameter.

Maintenance

Trees and landscaping require ongoing maintenance. Local municipalities typically take responsibility for maintenance of these amenities, although there are instances where local community groups have provided funding and volunteers for



Street trees create a sense of plaace and comfort to pedestrians; Source: PBIC

maintenance. In order to reduce the amount of maintenance necessary, it is helpful to use native plant material that is already adapted to the local soil and climate. Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and causing a pedestrian obstruction.

Sources:

- Vanguard Company, accessed November, 2005 (http://www.vanguardonline.com/downloads.asp)
- City of Durham Public Works "Reference Guide for Development," Table of Minimum Design Requirements for Public and Private Residential Streets. Rev. October, 2003. Page 154. (http://www.ci.durham.nc.us/departments/works/handbook/reference_guide.pdf)

Pedestrian bridges can be problematic in that they are expensive and sometimes pedestrians don't use them ; Source: DBPT

5.13-OVER/UNDER PASSES /TRANSIT STOP TREATMENTS/ BRIDGES

Underpasses/Overpasses

Pedestrian overpasses and underpasses efficiently allow for pedestrian movement across busy thoroughfares. These types of facilities typically feature very high construction costs. These facilities are problematic in many regards and should only be considered when no other solution is expected to be effective. Research shows that pedestrians will avoid using such a facility if they perceive the ability to cross at grade as taking about the same amount of time. ADA requirements for stairs, ramps, and elevators often require the construction of an enormous structure that is visually disruptive.

Overpasses and underpasses should only be considered with rail lines, high volume traffic areas such as freeways, and other high volume arteries.

In addition, they should be considered only for crossing

Pedestrian bridges, such as this one in Cary, NC, can provide connectivity and opportunities for art

arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over. Minimum widths for these structures should follow the guidelines for sidewalk width. Underpasses should have a daytime illuminance minimum of 10 foot candles achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle. In underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the roadway by more than a standard curb height. Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.

Pedestrian-friendly bus stop; Source: DBPT

Transit Stop Treatments

To accommodate as many users as possible, a transit system must include well-planned routes and safe, accessible stops. Bus stops should be designed to accommodate the appropriate number of users and should be highly visible to pedestrians and motorists. Bus or other transit stops should be located in places that are most suitable for passengers. For example, stops should be provided near higher density residential areas, commercial areas and schools, and be connected to these areas by sidewalks.

As with any human scale design element discussed, safety is an important factor to consider when locating bus stops. In the case of a bus stop, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus. It is good practice to construct a transit stop just beyond an intersection, which encourages riders to cross the intersection behind the bus and in full view of approaching motorists. The location also should be set back enough from the roadway to

buffer users from traffic without impeding pedestrian activity.

Safety and comfort at a bus stop is determined by the amenities offered to users. Bus stop signage including route information, shelter with seating, trash cans, and bicycle parking encourage transit use. Pedestrian-level lighting improves the visibility of pedestrians to motorists and increases the level of safety for users. At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be considered.

Pedestrian walkway on bridge; Source: PBIC

Bridges

Provisions should be made to include a walking facility as a part of vehicular bridges, if there is an indication that pedestrians would use the facility. It is important to consider the needs of pedestrians when planning for a bridge replacement or the construction of a new bridge. Sidewalks on bridges should be a minimum of 5 feet wide, with a minimum handrail height of 42.''

5.14-TRAFFIC CALMING TECHNIQUES

Traffic Calming Devices (TCDs) are physical measures in street design that cue drivers to slow down. The effectiveness of TCDs does not depend upon a driver's compliance with traffic signs and signals, or police enforcement, though they may be used effectively in conjunction with them. In coordinated combinations, TCDs reduce speeds, alert drivers to pedestrians, and reduce the severity of collisions. TCDs listed below are generally recommended for consideration on a project-by-project basis. These include traffic circles, roundabouts, speed humps, speed tables, textured pavements and curb extensions (bulbouts). Curb extensions are discussed in detail earlier in this section.

Traffic circle in Durham, NC; Source:photobucket.com

Neighborhood Traffic Circles

These are small, raised circular islands positioned in the

center of an intersection, designed to slow traffic by requiring traffic to maneuver around the island.

Roundabout

Circular intersections with raised circular islands in the center, with "yield on entry" and deflecting islands on all approaches designed to slow traffic. Traffic proceeds in a counterclockwise direction. Roundabouts are highly engineered to accommodate specific traffic types, volumes and speeds.

Speed Humps

Raised sections of a roadway. They are similar to a speed bump in their application, but a speed hump is wider and has a sloping side taper so they are easy to navigate at slower speeds. They are placed across residential streets to control chronic speeding problems where other methods of slowing traffic have not been effective. They are designed to calm traffic in residential areas, particularly near parks and schools. The physical impact on passing vehicles is less severe at slower speeds than at higher speeds. Studies indicate that speed humps reduce speeds by approximately six miles per hour. A standard speed hump has a length of approximately 22 feet and a height of 3 and 5/8 inches at its center.

Speed Tables

Flat-topped speed humps typically long enough for the entire wheelbase of a passenger car to rest on the flat section. They are often constructed with brick or other textured materials on the flat section. These are usually designated as crosswalks.

Textured pavements

Stamped pavement or alternate paving materials to create an uneven surface for vehicles and pedestrians to traverse. Textured

Speed Hump (top); Speed Table (bottom); Source: PBIC

street pavement provides a visual and tactile cue for drivers that they are driving in an area of high pedestrian usage. Similarly, they cue pedestrians that they are entering a vehicular zone, and are a particularly effective treatment to warn visually impaired pedestrians. Textured street pavements should be used in areas of substantial pedestrian activity and where noise is not a major concern.

Curb Extensions

Rounded extensions of the curb which slow vehicles by alerting drivers to potential pedestrians, visually tightening the vehicular path, and physically reduces turning radii, thereby encouraging a decrease in vehicle speeds. Curb extensions also increase safety for pedestrians by shortening the road crossing distance. Curb extensions are covered in more detail earlier in this section.

Chicanes

Chicanes are used to slow traffic down, usually on smaller, more residential streets.

Drivers are forced to slow down in order to navigate the bump outs, which can be either paved or landscaped.

One-lane chicane slows down traffic; Source:Richard Drdul

5.15-TEMPORARY WORK

Temporary work should be accessible. Where construction blocks a public sidewalk for more than a short time, an alternate accessible route should be provided that is cane-detectable. Sidewalk barriers should be continuous and cane-detectable as well. Temporary events and facilities should also meet accessibility criteria.

During construction, pedestrians should be re-routed on an accessible path; Source:SoundTransit

5.16-COMPLETE STREETS

NCDOT adopted a policy called "Complete Streets" in July 2009 that considers and incorporates several modes of transportation when building new projects or renovating existing infrastructure. Complete Streets provides an approach to creating an interdependent, multi-modal transportation network that safely accommodates access and travel for all users. Specifically, the benefits of a Complete Streets approach include:

- Making it easier for travelers to get where they need to go;
- Encouraging the use of alternative forms of transportation;
- Building more sustainable communities;
- Increasing connectivity between neighborhoods, streets, and transit systems;
- Improving safety for pedestrians, cyclists, and motorists.

The Complete Streets guidelines are intended to provide comprehensive guidance for incorporating complete streets into everyday practice.

Source: *Complete Streets Planning and Design Guidelines*, NCDOT, July 2012

SECTION 6 - ANCILLARY FACILITIES & PROGRAMS

6.1-ADDITIONAL SIGNAGE AND MAPPING

As mentioned earlier, wayfinding systems are a means for a municipality to increase directional clarity, visibility, and mobility within their jurisdiction, helping corporate and private individuals as well as visitors maneuver about their municipality with ease and certainty. Continuity of color, shape, size, and text aid in providing clarity within the town. The Town of Elizabethtown should engage a design professional for their assistance in developing these standards. There are many publications to research this topic prior to engaging any outside professional. The following types of signs are part of a town's wayfinding system.

Directional Signage OR Pedestrian Related Signage

Directional signage, referred to as **Pedestrian Related Signage** in the previous section, is effective in alerting motorists to reduced speeds and encourage pedestrians to exercise caution in certain conflict areas. It is important to not cause "visual clutter" when using a variety of signage. Signs and their text should be large enough to be seen from a viewing distance of around 50'. It is imperative that all signs are properly located so they do not obstruct pedestrians and visibility triangles of motorists. All signage for motorists and pedestrians must meet Department of Transportation and MUTCD signage standards.

Signage in Raleigh, NC, helps direct pedestrians and vehicles; Source:City of Raleigh

Interpretative Signage

Interpretative signage is an effective means of displaying information other than traffic rules and regulations. Visually consistent signage within Elizabethtown can help guide

visitors to important sites, destinations, or to share interesting information. These signs may be effective in encouraging people to experience a particular place or engage in an activity such as visiting a park, greenway, historic caboose, library, or retail corridor. This concept could be expanded to develop a self-guided walking tour of historic Old Town.

Sign Placement

Locate signs in prominent locations so they can be easily viewed. It is important to ensure they do not interfere with pedestrian and vehicular movement. For example, signs should not be placed within a sidewalk or reduce the clearance of a sidewalk to less than five feet.

Pedestrian Corridor Mapping

It is recommended that the Town of Elizabethtown adopt consistent illustrative graphics to identify pedestrian routes in Elizabethtown. Destinations such as schools, greenways, and the commercial development on Market Street should be identified so pedestrians are aware of distances and locations of these areas.

6.2-SCHOOL AREAS

Safe interconnectivity to schools from surrounding neighborhoods is a high priority and concern for everyone in any community. Safety programs should be developed and implemented at all schools within Elizabethtown's planning jurisdiction. It is recommended that the Town of Elizabethtown adopt a "Safe Routes to School" program to promote and support students walking and bicycling to school. This is a federal program to encourage and enable children to walk and

bike to school safely and hopefully increase an opportunity to incorporate exercise into the children's daily schedule. These routes are usually patrolled by bicycle police officers. The National Center for Safe Routes to School is available to assist communities in developing and implementing programs and strategies to create successful results.

Safe Routes to School Programs help to reduce traffic congestion and traffic speeds around schools which allow children to experience a greater sense of independence and personal responsibility, as well as encourage them to learn important traffic safety skills. Schools should work with their communities to develop routes for children to take to and from school. These routes should include those with adult crossing guards, stop signs, traffic signals, and traffic calming measures. Involvement with the local police force is highly encouraged.

In addition to the **School Zone Treatments** outlined in the previous section, the following safety standards should be implemented at all school locations:

- Install sidewalks within a half mile radius of all schools.
- Incorporate traffic calming measures such as decorative pavement and those discussed in Section 5 within a half mile radius of all schools.
- Incorporate signage to alert motorists that they are in a school zone. Signs placed in the median or the middle of the street are effective.
- Adopt a Safe Routes to School Program in all elementary and middle schools.
- Provide educational programs on pedestrian and bicycle safety at all schools.

6.3-SAFETY EDUCATION PROGRAMS

Pedestrian safety and health programs can help target problem areas and educate the residents of Elizabethtown about safety and accessibility issues. Below is a description of safety and health programs which should be implemented in the Town of Elizabethtown planning jurisdiction.

School Zone Safety Program

Creating a School Zone Safety Program provides information to students, parents, and community members of the safe routes to school and safe pedestrian behavior. It will also help identify areas in need of additional attention such as problem areas or locations in need of traffic calming devices. The School Zone Safety Program can be done in conjunction with a Safe Routes to School Program. The school, school district, and safety committee can develop a safety plan which consists of the following:

- Develop a school route plan
- Evaluate and configure the school site
- Consider other safety elements
- Distribute and maintain the plan

Safe Routes to School Program

Safe Routes to School (SRTS) is a program focused on encouraging and enabling children to walk and bike to school safely. The program assists in the facilitation of planning, developing and implementing projects that improve safety for pedestrians and bicyclists and helps make these an appealing mode of transportation for children and adults alike. SRTS encourages infrastructure improvements, education programs,

and funding to provide safe and comfortable pedestrian environments and instill active lifestyles at an early age. For more information please visit:

www.ncdot.org/transit/bicycle/safety/programs_initiatives/Safe_Routes.html

Pedestrian Safety Campaign

The Pedestrian Safety Campaign is available to municipalities and communities within North Carolina. States and communities are eligible to receive a free Pedestrian Safety Campaign Planner from the Federal Highway Administration which is a tool kit for municipalities to customize and apply within their communities. The materials provided in the Campaign Planner are available in multiple Medias: television, radio, cinema, and print advertising. A Step by Step Guide is also available to assist in implementing the campaign at the local level.

The purposes of the campaign are as follows:

- Educate motorists that pedestrians and bicyclists are legitimate road users and they should expect them on or near roadways.
- Educate pedestrians on how to minimize risks to their safety
- Develop program materials which explain pedestrian facilities such as sidewalks, crosswalks, pedestrian refuge islands, etc., and their purpose and function

For more information please visit:

safety.fhwa.dot.gov/local_program/pedcampaign/index.htm

Share the Road Initiative

The North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation is dedicated to educating the general public of pedestrian and bicycle rights

Share the Road

GENERATING GOODWILL BETWEEN MOTORISTS AND CYCLISTS

The Share the Road Initiative's goal is "to educate cyclists and motorists, to encourage safe roadway behavior, and promote safe travel spaces for all road users."

Source: bikesiliconvalley.org

and responsibilities. The Share the Road Initiative is an example of NCDOT's efforts to educate motorists of the presence of pedestrians and bicyclists in traffic areas. Additionally, the Division of Bicycle and Pedestrian Transportation assisted in the development of the North Carolina Driver's Handbook which includes sections devoted to pedestrian and bicycle rights and responsibilities.

For more information please refer to:

www.ncdot.org/transit/bicycle/safety/programs_initiatives/share.html

North Carolina School Crossing Guard Training Program and Manual

In 1998 NCDOT Division of Bicycle and Pedestrian Transportation developed a program to train law enforcement officers who in turn trained school crossing guards. The purpose of the course is to standardize procedures and instruction of school crossing guards, as well as educate children on how to cross streets safely. In 1999 the program was updated and is currently training law enforcement officers in 42 jurisdictions. The Town of Elizabethtown is not included on this list and the law enforcement department should contact the Division of Bicycle and Pedestrian Transportation to participate in the program.

For the NC School Crossing Guard Training Manual and more information please visit:

http://www.ncdot.gov/bikeped/about/training/school_crossing_guard/ or 919-707-2600

National Walk a Child to School Program

Together the Partnership for a Walkable America, the US Department of Transportation, and the Pedestrian & Bicycle Information Center sponsor the National Walk a Child to School Program. The purpose of the program is to increase the number of children who walk to school. The NCDOT Division of Bicycle and Pedestrian Transportation supports this program. Typically the program is held in October with the following objectives:

Encourage adults including teachers, parents, staff, and community members to teach children safe pedestrian behavior

Encourage adults to help children identify and use safe routes to school

Remind everyone in the community of the health benefits of walking on a daily basis

For more information please visit: www.ncdot.org/transit/bicycle/safety/programs_initiatives/walk2school_national.html

A parent leads a group of children to school creating a "Walking School Bus" where children along the way join the bus. Source: kingston-ny.gov

Walk a Child to School in North Carolina

To encourage North Carolina residents to walk to school, the State of North Carolina has its own initiative. Support from the NC Governor's Highway Safety Program has helped make this a growing and successful program. To view a list of schools participating visit: www.ncdot.org/transit/bicycle/safety.programs_initiatives/walk2school_NC2001.html

Walking School Bus

A walking school bus is a group of children walking to school with one or more adults. It can be as simple as two families taking turns walking their children to school to as structured as a route with meeting points, a timetable and a regularly rotated

schedule of trained volunteers.

For more information, visit: http://www.walkingschoolbus.org/

6.4-ENCOURAGEMENT AND PROMOTION

The Town of Elizabethtown is committed to improving the pedestrian environment and overall walkability of the Town. This section deals with how the Town and its residents can encourage and promote walking to improve residents' health, foster a dynamic community, and create better connectivity around Town.

Education about pedestrian facilities and routes is an important component in the development of Elizabethtown's Pedestrian Master Plan. Following the design and implementation process, it is imperative that pedestrian and bicyclist facility education continues to be addressed. This may be accommodated through advocacy groups, pedestrian citizen committees, schools and the media. This will ensure that safety is emphasized, new challenges are addressed and that opportunities are identified and realized.

Maintenance Policies and Enforcement

Maintaining an accessible, functional, and clean pedestrian environment is essential to a walkable community. Regular upkeep and maintenance that ensures sidewalks, greenways and other pathways are clear of debris and other obstructions demonstrates a municipal commitment to a walkable environment. In order to meet the needs of maintenance and enforcement, the Town of Elizabethtown should evaluate current maintenance policies to determine if they are adequate to include implementation of the recommendations outlined in this Pedestrian Master Plan.

Identify Funding Sources

Identifying sources of funding that support pedestrian facilities and their construction helps ease the burden of expensive pedestrian facility projects. There are a variety of funding programs and sources from the Federal, State, and local level. For a complete list of funding sources please see Section 7.3.

Education Programs and Events

Pedestrian and bicycle education programs aimed at all residents of Elizabethtown, regardless of age or ability, encourage people to walk and bike safely. These types of programs can easily be organized through the Parks and Recreation Department and public school systems. For example, the Safe Routes to School Program is an excellent example of how a school program can educate children about safe pedestrian behaviors and pedestrian routes. The Town has the opportunity to team with schools, senior centers, and other groups to educate all residents about safe pedestrian behavior and routes.

The Town of Elizabethtown should coordinate with Senior Centers and groups focusing on the health of seniors in order to encourage a walking safety program for the elderly. The program can focus specifically on safe routes to get around Town, crossing at safe intersections, and times of the day that are safer for walking. By working with the Senior community, the Town will also gain additional input on specific needs, such as traffic signals that should be longer for pedestrians to ease crossing for those with disabilities, areas in need of better lighting, and other concerns.

Elizabethtown should also work with business owners in the downtown area to encourage pedestrians to walk to businesses and use marked crosswalks. This can be done through a

Events that encourage walking, especially walks to see local artists, are popular ways to bring pedestrians downtown. Sources: Walk Tacoma (top); Raleigh Boylan Heights Art Walk

downtown business map, signage or special events.

Tourism and Local Events

Events such as "Walk-to-School" days and "Walk-for-Health" days can help spark interest, attract visitors, and bring the community together.

Walking Tour maps are a good way to encourage pedestrian activity in a Town. Source: Danville, CA

SECTION 7 - PROJECT DEVELOPMENT

7.1-COSTS

The Pedestrian Master Plan provides numerous recommendations for the integration and locations for pedestrian facilities.

A list of sample costs for recommended pedestrian facilities and greenway trails is shown on the next page. Specific site factors and cost fluctuations can increase actual costs; these estimates are intended to serve only as a rough guide.

Greenway Costs

Item	Approximate Cost
Multi-Purpose Path (10' wide asphalt)	$100-130/LF
Gravel Screenings Path (10' wide)	$15-22/LF (higher maintenance costs)
Information Sign	$250-$800 each (varies, depending on materials and size)
Benches	$600-$1,000 each
Trash Receptacles	$200-$800 each
Restrooms	$40,000 - $100,000 each
Boardwalk	$160 per linear foot

General Pedestrian Upgrade Costs

Item	Approximate Cost
Sidewalks (5' wide concrete)	$15-$25 per linear foot
Concrete Curb and Gutter	$14-$18 per linear foot
Standard Handicap Ramp	$500-$800 per corner
Simple Crosswalk (Signs and Pavement markings)	$500-$1,500 each
Decorative Crosswalk (stamped or colored)	$5,000-$15,000 each
Pedestrian Refuge Island (Signage and Markings)	$7,500-$40,000 each
Pedestrian Signal	$40,000-$75,000 each
Pedestrian Sign	$250 each
Speed Hump (Signage and Markings)	$2,500-$5,000 each
Bicycle Lane	$25,000-75,000/mile

Curb Extensions (creating larger pedestrian areas)	$10,000-$25,000 per corner
Chokers (narrowing street to slow traffic)	$10,000-$30,000
Chicane (shifting the travel lane to slow traffic)	$20,000-$40,000
Roundabouts (generally, larger than traffic circles)	$50,000-$550,000
Traffic Circle	$20,000-$40,000
Raised Intersections	$15,000-$20,000

The following list provides suggestions to reduce the total costs of pedestrian facilities:

- Include pedestrian facilities such as sidewalks in all road construction projects (water/sewer lines, underground utility projects, roadway widening, etc.).
- Combine pedestrian facility projects. Rather than constructing sidewalks along one side of a street, combine it with several other smaller sidewalk projects to help reduce costs. However, be sure to provide connectivity between segments of sidewalk, avoiding sidewalks that end abruptly.
- Combine pedestrian facility projects with other compatible uses, such as School Bonds.
- Advanced land and right of way acquisition can help disperse the total costs of pedestrian facility projects. Growth and development trends indicate where future pedestrian facilities may be necessary.
- Utilize funding sources such as Tax Incremental Financing Bonds to offset costs through incremental payment.

The following list provides suggestions to reduce the total construction costs for greenways and off-road trails:

- Collect *Impact Fees* from developers to help pay for improvements and necessary facilities to serve new growth. These fees are charged to all new development

and alleviate the burden on existing residents to pay for new growth. These fees can be used for greenways and obtaining the land necessary to serve a growing community.

- *In-Lieu-Of Fees* allow a developer to pay up front the cost of greenways rather than construct the section within their development. This allows a municipality to use the funds for the appropriation of optimum land for conservation and greenway as well as park development rather than accepting less than optimum parcels that meet the minimum standards for greenways.
- *Volunteers* have the potential to significantly contribute to the maintenance and development of greenways. The Parks and Recreation Department can organize a volunteer work day for participants, as well as encourage other groups such as scouts, churches, and schools to contribute to fund-raising and maintenance. This not only alleviates the burden of maintenance and fund-raising, it can also increase the awareness of the greenway system and bring the community together.

7.2-FUNDING SOURCES

Pedestrian projects like the Elizabethtown Pedestrian Master Plan are eligible for funding from many of the major Federal-aid highway, transit, safety, State, and private programs. This section will focus on potential funding sources for the implementation of the Elizabethtown Pedestrian Master Plan.

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 list identifies 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 trail systems prior to making an application for funding.

The following descriptions of funding resources were taken directly from each fund's marketing materials. Additional information can be gained from the contact or web site listed.

Federal and State Funding

Federal transportation dollars are a significant source of funding for greenway, bicycle and pedestrian projects. The federal government provides money to the states and the states manage the money. Local MPO's establish project priorities through a process resulting in a Long Range Transportation Plan. As the local MPO, federal transportation funding for local projects will be allocated through CAMPO.

For more information, visit: http://www.campo-nc.us

Some of the current applicable federal programs are listed here.

STP-DA

Surface Transportation Program/Direct Attributable funds may be used for bicycle/pedestrian projects, transit projects, or road projects. STP-DA funds are administered through the MPO. Local governments should work with the MPO to pursue funding.

CMAQ

Congestion Mitigation and Air Quality funds may be used for projects that improve transportation systems managements and operations that mitigate congestion and improve air quality. CMAQ funds are administered through the MPO. Local

governments should work with the MPO to pursue funding.

Transportation Enhancement Program

The Federal Transportation Enhancement funding is administered by the NCDOT Enhancement Unit. Transportation enhancement activities are awarded through the NC Call for Projects process (a process wherein projects can be submitted to NCDOT for consideration) and must benefit the travelling public and help communities increase transportation choices and access, enhance the built or natural environment and create a sense of place. Projects must have a relationship to surface transportation and fit into one of 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. The available fund amount varies. In previous Calls, the funds available ranged from $10 million to $22 million. The Call process usually takes

place on even numbered years or as specified by the Secretary of Transportation.

NCDOT has not had a Call for proposals in years and does not intend on having any in the near future. However, this is a potential future funding source. Local governments should work through the MPO to try to secure funds when they become available.

For more information, visit: www.ncdot.org/financial/fiscal/Enhancement/

Safe Routes to School Program

The NCDOT Safe Routes to School Program (SFTS) 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 amount of money available for funding this program is unclear at this time.

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 http://www.ncdot.org/doh/preconstruct/traffic/congestion/cm/msta/docs/SRTS.pdf

or contact Ed Johnson, Safe Routes to School Coordinator for the NCDOT Division of Transportation Mobility and Safety Program (919)-662-4344.

State Trails Program (NC Division of Parks and Recreation)

The NC Division of Parks and Recreation and its State Trails Program offers two grant programs:

Adopt-A-Trail (state money)

Recreational Trails Program (federal money)

Governmental agencies and non-profits are encouraged to apply for grants for trail construction and maintenance projects and for land acquisition projects.

The grant application and instruction handbook are available through the State Trails Program website at http://www.ncparks.gov/About/trails_grants.php

NCDOT Division Small Projects

Division 7 typically has funding for small projects that could potentially pay for portions of the greenway. These projects could include sidewalk, intersection improvements or other items approved by the Division.

For more information, visit: http://www.ncdot.gov

North Carolina Parks and Recreation Trust Fund (Parks and Recreation Authority)

The North Carolina Parks and Recreation Trust Fund (PARTF) 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 typically 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 usually awarded annually to county governments or incorporated municipalities. Funding available through PARTF varies from year to year, based upon decisions in the state budget.

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: http://www.ncparks.gov/About/grants/partf_main.php

The North Carolina Conservation Tax Credit (NCDENR)

This program, managed by the North Carolina Department of Environment and Natural Resources (NCDENR), 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/ and www.onencnaturally.org/pages/conservationtaxcredit.htm

Powell Bill Program (NCDOT)

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. Amount of funds are based on population and mileage of town-maintained streets.

For more information, visit http://www.ncdot.gov/programs/Powell_Bill/

Governor's Highway Safety Program (NCDOT)

The mission of the Governor's Highway Safety Program (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. The GHSP launched a new web-based grant system on April 1, 2011.

For information on applying for GHSP funding, visit: www.ncdot.org/programs/ghsp/default/html

Clean Water Management Trust Fund

The Clean Water Management Trust Fund (CWMTF) was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection. The CWMTF receives a direct appropriation from the NC General Assembly in order to issue 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/

Natural Heritage Trust Fund

The Natural Heritage Trust Fund (NHTF), managed by the NC Natural Heritage Program, has contributed more than $328 million through 518 grants 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/

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) announced 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.

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.

Fit Community grants are designed to support innovative strategies that help a community meet its goal to becoming a Fit Community. Eight, two-year grants of up to $60,000 annually are usually awarded to applicants that have a demonstrated need, proven capacity, and opportunity for policy and environmental change in addressing physical activity and/or healthy eating behaviors (e.g. designate and promote safe walking routes). The grant component of Fit Community is on hold at this time

For more information and an application, visit: http://www.fitcommunitync.com/

Land and Water Conservation Fund (NCDENR)

The Land and Water Conservation Fund (LWCF) program is a reimbursable, 50/50 matching grant program to states for conservation and recreation purposes, and through the states to local governments to address "close to home" outdoor recreation needs. This is a federal program managed by the state. 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 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 NCDENR. 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 $75 million in matching grants to protect land and support more than 875 state and local park projects. More than 38,500 acres have been acquired with LWCF assistance to establish a park legacy in our state. At this time, the level of funding available for the federal LWCF has not been determined.

For more information, visit: http://www.ncparks.gov/About/grants/lwcf_main.php

Ecosystem Enhancement Program (NCDENR)

Developed in 2003 as a new mechanism to facilitate improved mitigation projects for NC highways, the Ecosystem Enhancement Program (EEP) offers funding for restoration projects and for protection projects that serve to enhance water quality and wildlife habitat in NC. The EEP helps to preserve open space and sensitive wetlands and water bodies.

For more information, visit www.nceep.net

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, visit: www.ncwater.org/Financial_Assistance.

State Administered Community Development Block Grants

State-level Community Development Block Grants (CDBG) 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 and sidewalks 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. Planning activities, demolition, street construction and property acquisition are also qualifying activities.

For more information, visit www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/.

US Department of Agriculture's Natural Resource Conservation Service (USDA-NRCS)

NRCS offers various easement programs to landowners who want to maintain or enhance their land in a way beneficial to agriculture and/or the environment. All NRCS easement programs are voluntary. They provide technical help and financial assistance, but local landowners and organizations are

NRCS grants can help preserve open space and farmland; Source: nrcs_usda.gov

needed to make NRCS easement programs successful.

The easement programs include the following:

1. The Farm and Ranch Land Protection Program (FRPP) helps purchase development rights to keep productive farm and ranchland in agricultural uses.

2. The Grasslands Reserve Program (GRP) protects, restores, and enhances grassland, including rangeland, pastureland, shrubland, and certain other lands.

3. The Healthy Forests Reserve Program (HFRP) assists landowners in restoring, enhancing and protecting forestland resources on private lands

4. The Wetlands Reserve Program (WRP) protects, restores, and enhances wetlands. Achieving the greatest wetland functions and optimum wildlife habitat on every acre enrolled in WRP is the goal.

These programs can help to preserve prime land for greenway easements and protect natural corridors and farmland from development.

For more information, visit http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements.

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. Grants may be used for a number of projects, including acquisition of land, easements and constructions projects (such as sidewalks and other community facilities) that benefit small and emerging private businesses in rural areas. Small projects are given priority and grants usually range from $10,000-$500,000.

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 (NPS)

The Rivers, Trails, and Conservation Assistance Program (RTCA), is the community assistance arm of the National Park Service. RTCA supports community-led natural resource conservation and outdoor recreation projects. On average, RTCA helps project partners protect more than 700 miles of rivers, create over 1,400 miles of trails, and conserve more than 63,700 acres of open space annually.

The RTCA program does not provide funding for projects. The RTCA program provides technical assistance to its project partners by: building partner relationships; helping partners define goals through consensus; developing conceptual, strategic, and workable project plans; helping the public participate in defining community goals; identifying potential sources of funding for project implementation; and teaching "hands-on" conservation and other technical skills necessary to successfully realize conservation and outdoor recreation projects. Assistance is provided for one year and may be renewed for a second year, if warranted. Communities must apply for assistance.

For more information, visit: www.nps.gov/ncrc/programs/rtca/.

LOCAL FUNDING SOURCES

Capital Improvement Programs

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

Exactions

Exactions are similar to impact fees in that they both provide facilities to growing communities. The difference is that exactions can make it the responsibility of the developer to actually 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. Staff can also ensure the acquired land fits into the overall greenway system - providing better connectivity within the community.

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. Raleigh, NC, passed an $88 million bond issue for parks and greenway projects in 2007. Wake County, NC, passed a $50 million bond for open space in 2007 in an effort to preserve land along stream corridors to protect drinking water supplies.

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 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. Greenway trail projects in a watershed could qualify for these funds. 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).

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 or 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.

ADDITIONAL FUNDING SOURCES

Endowments

Creating a third-party organization that raises donations for the greenway trail can be a successful and instrumental funding source. For example, the Community Foundation of Greater Greensboro, NC, helped fund the Piedmont Greenway master plan.

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 multi-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/Sidewalk 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 or sidewalk enhancement. Particularly for a greenway, individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community work days. Volunteers can also work on fund-raising, maintenance, and programming needs.

PRIVATE FOUNDATIONS AND ORGANIZATIONS

Many communities have solicited sidewalk and greenway funding assistance from private foundations and other conservation-minded or health-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, citizens, interest groups and local governments committed

to securing support from the NC General Assembly for the state's conservation trust funds. 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, and historic downtowns and neighborhoods will exist 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, and to 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 4,250 land conservation projects nationwide, protecting more than 3 million acres. Since 1994, TPL has helped states and communities craft and pass over 380 ballot measures, generating almost $34 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 with environmental projects of local governments and non-profits in North Carolina for many years. The foundation has two grant cycles per year and looks for innovative community-based projects within its prescribed focus areas reaching low-resource and/or rural regions in the state. The foundation has a focus area dealing with environmental issues that may relate to greenway, open space and pedestrian projects.

For more information, visit 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.

For more information, visit: http://www.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. 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. Awards typically range from $500 - $5,000 per project.

For more information, visit: http://www.americanhiking.org/our-work/national-trails-fund/

The American Hiking Society funds trail improvements, sponsors National Trail Day and promotes volunteerism and advocacy; Source: americanhiking.org

SECTION 8 - SYSTEM MAPS

The following pages show maps made for the Elizabethtown Comprehensive Pedestrian Plan. These include:

- **Existing Conditions Map -** indicates existing sidewalks in red and the project limits (Town limits)
- **Steering Committee Constraints and Opportunities Map** - As defined by the Steering Committee, blue dots represent opportunities or destinations for sidewalks and orange dots indicate barriers or issues to pedestrians.
- **Public Workshop Constraints and Opportunities Map** - As above, with the exception that this map was defined by the public through open houses.
- **Proposed Pedestrian Plan -** This map shows all proposed sidewalk projects, identifying each project as a Tier One, Tier Two or Tier Three project. See Section 4 for additional descriptions of these projects.
- **Project Priority List charts** - These charts give detail on each recommended project and are lettered to reference the projects shown on the Proposed Pedestrian Plan.

These maps, charts and additional working maps from workshops are also located in the Appendix.

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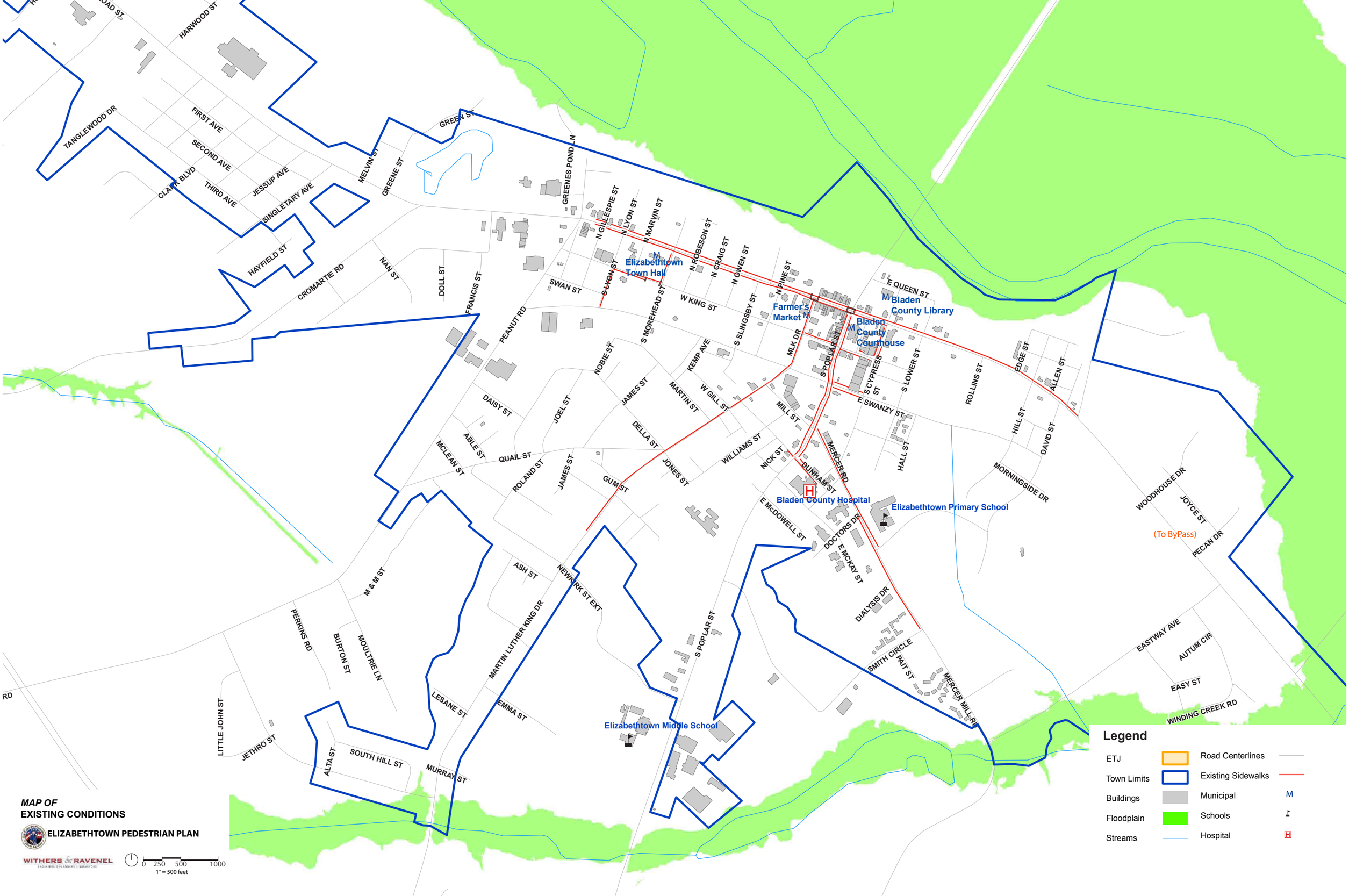


MAP OF
EXISTING CONDITIONS

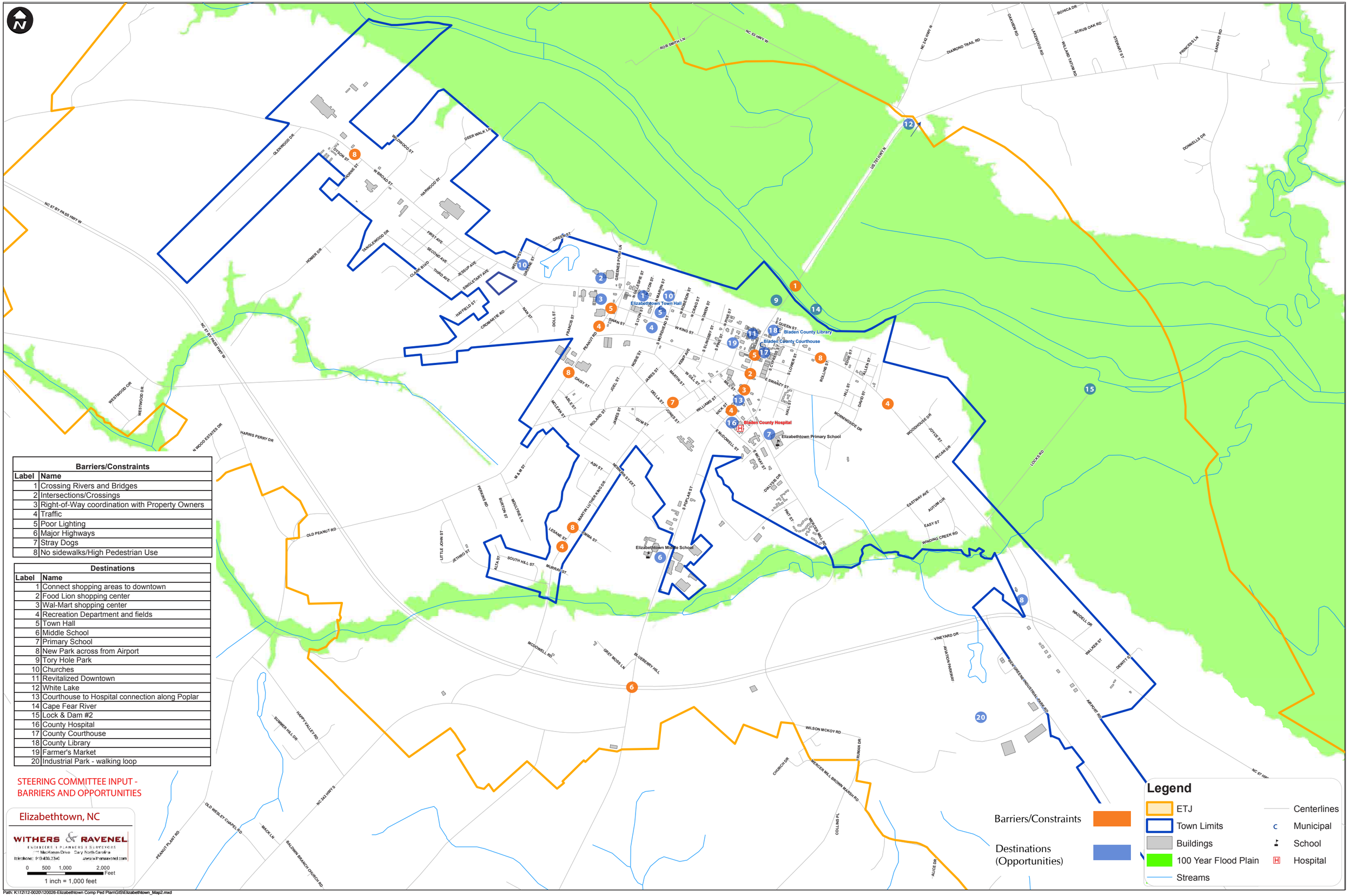
ELIZABETHTOWN PEDESTRIAN PLAN

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS

0 250 500 1000
1" = 500 feet

Legend

ETJ		Road Centerlines	
Town Limits		Existing Sidewalks	
Buildings		Municipal	M
Floodplain		Schools	
Streams		Hospital	H



Barriers/Constraints	
Label	Name
1	Crossing Rivers and Bridges
2	Intersections/Crossings
3	Right-of-Way coordination with Property Owners
4	Traffic
5	Poor Lighting
6	Major Highways
7	Stray Dogs
8	No sidewalks/High Pedestrian Use

Destinations	
Label	Name
1	Connect shopping areas to downtown
2	Food Lion shopping center
3	Wal-Mart shopping center
4	Recreation Department and fields
5	Town Hall
6	Middle School
7	Primary School
8	New Park across from Airport
9	Tory Hole Park
10	Churches
11	Revitalized Downtown
12	White Lake
13	Courthouse to Hospital connection along Poplar
14	Cape Fear River
15	Lock & Dam #2
16	County Hospital
17	County Courthouse
18	County Library
19	Farmer's Market
20	Industrial Park - walking loop

STEERING COMMITTEE INPUT - BARRIERS AND OPPORTUNITIES

Elizabethtown, NC

WITHERS & RAVENEL
ENGINEERS • PLANNERS • SURVEYORS
115 MacKenan Drive Cary, North Carolina
Telephone: 919.469.3340 www.withersravenel.com

0 500 1,000 2,000 Feet

1 inch = 1,000 feet

Legend

- ETJ
- Town Limits
- Buildings
- 100 Year Flood Plain
- Streams
- Centerlines
- Municipal
- School
- Hospital

Barriers/Constraints

Destinations (Opportunities)

Path: K:\12\12-0020\120026-Elizabethtown Comp Ped Plan\GIS\Elizabethtown_Map2.mxd

Barriers/Constraints	
Label	Name
1	Need crosswalk at Poplar and Mill Street
2	Need better connectivity from apartments - many walkers
3	Need sidewalk on both sides of road
4	Need sidewalk connector to south end of Town
5	Need sidewalk along road to create a walking loop
6	Need sidewalk connecting school to neighborhoods
7	Need sidewalks - many walkers
8	Need sidewalk connecting neighborhoods to downtown

Destinations	
Label	Name
1	Shopping Centers
2	River - access and walking along
3	Possible Charter School
4	Opportunity for a walking loop

GREEN ST
MELVIN ST
GREENE ST
GREENES POND LN
SINGLETARY AVE
HAYFIELD ST
CROMARTIE RD
NAN ST
DOLL ST
FRANCIS ST
PEANUT RD
SWAN ST
N GILLESPIE ST
N LYON ST
N MARVIN ST
N ROBESON ST
N CRAIG ST
N OWEN ST
N PINE ST
S LYON ST
S MOREHEAD ST
W KING ST
S SLINGSBY ST
MLK DR
S POPLAR ST
S CYPRESS ST
S LOWER ST
E QUEEN ST
ROLLINS ST
EDGE ST
ALLEN ST
E SWANZY ST
HILL ST
DAVID ST
HALL ST
MILL ST
MERCER RD
DUNHAM ST
NICK ST
WILLIAMS ST
JONES ST
GUM ST
ROLAND ST
JAMES ST
QUAIL ST
MCLEAN ST
ABLE ST
DELLA ST
MARTIN ST
JAMES ST
JOEL ST
DAISY ST
NOBIE ST
KEMP AVE
W GILL ST
MORNINGSIDE DR
WOODHOUSE DR
JOYCE ST
PECAN DR
E McDOWELL ST
DOCTORS DR
E McKAY ST
DIALYSIS DR
SMITH CIRCLE
PAIT ST
MERCER MILL RD
EASTWAY AVE
AUTUM CIR
EASY ST
WINDING CREEK RD
ASH ST
NEWARK ST EXT
MARTIN LUTHER KING DR
S POPLAR ST
PERKINS RD
BURTON ST
MOULTRIE LN
M & M ST
LESANE ST
EMMA ST
LITTLE JOHN ST
JETHRO ST
ALTA ST
SOUTH HILL ST
MURRAY ST
RD

Elizabethtown Town Hall
Bladen County Courthouse
Bladen County Library
Bladen County Hospital
Elizabethtown Primary School
Elizabethtown Middle School

PUBLIC INPUT MAP OF
BARRIERS AND OPPORTUNITIES

ELIZABETHTOWN PEDESTRIAN PLAN

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS

0 250 500 1000
1" = 500 feet

Legend

- ETJ
- Town Limits
- Buildings
- Floodplain
- Streams
- Barriers
- Road Centerlines
- Existing Sidewalks
- Municipal
- Schools
- Hospital
- Opportunities

Key		Type of Project	Location	Description
A	Tier 1	Sidewalk Construction/Improvement	Both sides of Broad Street from Peanut Road to Francis Street	Construct 5' wide concrete sidewalks to extend the existing sidewalk system.
B	Tier 1	Intersection Improvement	Peanut Road and Broad Street	Add marked crosswalks and pedestrian push button signals.
C	Tier 1	Sidewalk Construction/Improvement	North side of King Street from S. Morehead Street to Martin Luther King Drive	Construct 5' wide concrete sidewalks to complete a gap in the existing sidewalk system.
D	Tier 1	Intersection Improvement	King Street and Martin Luther King Drive	Add marked crosswalks and pedestrian push button signals.
E	Tier 1	Sidewalk Construction/Improvement	From existing sidewalk on Poplar Street to Tory Hole Park	Construct 5' wide concrete sidewalk to extend the existing sidewalk system to connect downtown to the existing park.
F	Tier 1	Intersection Improvement	Broad Street and Poplar Street	Add decorative raised concrete paver crosswalks
G	Tier 1	Intersection Improvement	King Street and Poplar Street	Add marked crosswalks and pedestrian push button signals.
H	Tier 1	Intersection Improvement	Swanzy Street and Poplar Street	Add marked crosswalks and pedestrian push button signals.
I	Tier 1	Intersection Improvement	Mercer Mill Road and Poplar Street	Add marked crosswalks and pedestrian push button signals.
J	Tier 1	Intersection Improvement	Dunham Street and Poplar Street	Add marked crosswalks and pedestrian signage.
K	Tier 1	Intersection Improvement - Traffic signal	Dunham Street and Poplar Street	Add traffic signal at intersection to increase pedestrian safety.
L	Tier 1	Sidewalk Construction/Improvement	East side of Poplar Street from Dunham Street to McDowell Street	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.
M	Tier 1	Intersection Improvement	Mid-Block crossing on Mercer Road to Elizabethtown Primary School	Add marked crosswalks and pedestrian signage.
N	Tier 1	Streetscape Enhancements	Poplar Street	Improve pedestrian lighting, incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at critical intersections: Swanzy Street, King Street, Broad Street
O	Tier 2	Sidewalk Construction/Improvement	Peanut Road from Broad Street to Quail Street	Construct 5' wide concrete sidewalk on the east side of the street.
P	Tier 2	Intersection Improvement - roundabout	Martin Luther King Drive and King Street	Incorporate traffic calming methods such as a roundabout at King Street with appropriate pedestrian accommodations.
Q	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk to the Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the east side of the street from the existing sidewalk.
R	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk in front of the future charter school	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the west side of the street in front of the future charter school to the proposed intersection improvements at Newkirk Street Extension.
S	Tier 2	Intersection Improvement	Newkirk Street Extension and Martin Luther King Drive	Add marked crosswalks and pedestrian crossing signage.
T	Tier 2	Sidewalk Construction/Improvement	Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.

Key		Type of Project	Location	Description
U	Tier 2	Intersection Improvement	Newkirk Street Extension and South Poplar Street	Add marked crosswalks and pedestrian crossing signage.
V	Tier 2	Sidewalk Construction/Improvement	East side of Poplar Street from Smith Circle to Newkirk Street Extension	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.
W	Tier 2	Sidewalk Construction/Improvement	North side of Smith Circle	Construct 5' wide concrete sidewalk to complete the gaps in the existing sidewalk system.
X	Tier 2	Sidewalk Construction/Improvement	Southwest side of Mercer Road from Poplar Street to Doctor's Drive	Construct 5' wide concrete sidewalk to complete a gap in the existing sidewalk system.
Y	Tier 2	Sidewalk Construction/Improvement	Gooden Street down Lower Street to Elizabethtown Primary School	Construct 5' wide concrete sidewalks to complete the gaps in the existing sidewalk system.
Z	Tier 2	Streetscape Enhancements	Peanut Road	Improve pedestrian lighting (consider changing light type to improve visibility), incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at Broad Street.
AA	Tier 2	Streetscape Enhancements	Martin Luther King Drive	Improve pedestrian lighting and incorporate landscape treatments.
AB	Tier 3	Greenway trail Construction/Improvement	Southside of Broad Street from Francis Street west to Glenwood Drive	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods.
AC	Tier 3	Sidewalk Construction/Improvement	Eastside of Poplar Street from McDowell Street to Smith Circle	Construct 5' wide concrete sidewalk to complete the gap between Tier 1 and Tier 2 proposed sidewalks.
AD	Tier 3	Greenway trail Construction/Improvement	Northside of Broad Street from the existing sidewalk to Locks Road	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods and parks.
AE	Tier 3	Greenway trail Construction/Improvement	Provide a greenway trail down Locks Road	Construct 10' wide asphalt greenway trail down this street.
AF	Tier 3	Greenway trail Construction/Improvement	Potential future greenway trail loop around Town	Construct 10' wide asphalt multi-use path around Town and between parks for recreational and transportation use.

SHORT-TERM TIER 1 PROJECTS
SHORT-TERM TIER 2 PROJECTS
LONG-TERM TIER 3 PROJECTS

SPOT (sidewalk) | INTERSECTION (pedestrian/vehicular) | CORRIDOR (streetscape)

MAP OF
PROPOSED SIDEWALK NETWORK

Elizabethtown, NC

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 MacKenan Drive Cary, North Carolina
telephone: 919.469.3340 www.withersravenel.com

0 250 500 1,000 Feet
1 inch = 500 feet

Legend
- ETJ
- Town Limits
- Buildings
- 100 Year Flood Plain
- Streams
- Centerlines
- Municipal
- School
- Hospital
- Existing Sidewalks

GREEN ST, GREENE ST, GREENES POND LN, NAN ST, DOLL ST, FRANCIS ST, SWAN ST, PEANUT RD, N GILLESPIE ST, N LYON ST, N MARVIN ST, N ROBESON ST, N CRAIG ST, N OWEN ST, N PINE ST, S LYON ST, S MOREHEAD ST, W KING ST, S SLINGSBY ST, Tory Hole Park, Leinwand Park, Farmer's Market, E QUEEN ST, BROAD ST, S LOWER ST, EDGE ST, ALLEN ST, SCOUT LN, ROLLINS ST, HILL ST, DAVID ST, MLK DR, S POPLAR ST, CYPRESS ST, RENALDI ST, E SWANZY ST, MILL ST, GOODEN ST, HALL ST, MERCER RD, DUNHAM ST, NOBIE ST, KEMP AVE, JAMES ST, MARTIN ST, W GILL ST, MLK Park, Johnson Park, FOX ST, JOEL ST, DAISY ST, ABLE ST, MCLEAN ST, QUAIL ST, ROLAND ST, JAMES ST, GUM ST, JONES ST, DELLA ST, WILLIAMS ST, NICK ST, MORNINGSIDE DR, Bladen County Hospital, parking drop-off, E MCDOWELL ST, DOCTORS DR, E MCKAY ST, Elizabethtown Primary School, ELIZABETH RD, WOODHOUSE DR, JOYCE ST, PECAN DR, LOCKS RD, To Lock & Dam #2, M & M ST, ASH ST, NEWKIRK ST EXT, MARTIN LUTHER KING DR, PERKINS RD, BURTON ST, MOULTRIE LN, DIALYSIS DR, SMITH CIRCLE, PAIT ST, MERCER MILL RD, EASTWAY AVE, AUTUM CIR, EASY ST, WINDING CREEK RD, Proposed Town Park, LESANE ST, EMMA ST, SOUTH HILL ST, MURRAY ST, Elizabethtown Middle School, VINEYARD DR

Elizabethtown Pedestrian Plan Project Priorities

Key		Type of Project	Location	Linear Feet	Description	Issue/Justification	Designation
A	Tier 1	Sidewalk Construction/Improvement	Both sides of Broad Street from Peanut Road to Francis Street	1357.41 (x2)	Construct 5' wide concrete sidewalks to extend the existing sidewalk system.	Extending sidewalks in this area will provide greater safety and access to popular shopping centers along Broad Street.	Spot Improvements/ Short-Term
B	Tier 1	Intersection Improvement	Peanut Road and Broad Street		Add marked crosswalks and pedestrian push button signals.	With the extension of sidewalks west of Peanut Road and south on Peanut Road, this intersection will need intersection improvements to increase safety and connectivity for residents and visitors.	Spot Improvements/ Short-Term
C	Tier 1	Sidewalk Construction/Improvement	North side of King Street from S. Morehead Street to Martin Luther King Drive	1,937.07	Construct 5' wide concrete sidewalks to complete a gap in the existing sidewalk system.	Providing a sidewalk along King Street will connect the Town Hall and Leinwand Park to the Farmer's Market.	Spot Improvements/ Short-Term
D	Tier 1	Intersection Improvement	King Street and Martin Luther King Drive		Add marked crosswalks and pedestrian push button signals.	With the extension of the sidewalk on King Street, and the popularity of the Farmer's Market, as well as the addition of a pocket park adjacent to the Farmer's Market, intersection improvements will be needed to increase safety and connectivity.	Spot Improvements/ Short-Term
E	Tier 1	Sidewalk Construction/Improvement	From existing sidewalk on Poplar Street to Tory Hole Park	388.20	Construct 5' wide concrete sidewalk to extend the existing sidewalk system to connect downtown to the existing park.	Extending the sidewalk in this area will provide a convenient, safe, clear connection to Tory Hole Park from downtown.	Spot Improvements/ Short-Term
F	Tier 1	Intersection Improvement	Broad Street and Poplar Street		Add decorative raised concrete paver crosswalks	This intersection serves as a gateway to downtown and to the new streetscape enhancements. As a busy vehicular intersection, the addition of concrete pavers in the crosswalk will enhance the streetscape and alert drivers to slow down as they approach the intersection.	Spot Improvements/ Short-Term
G	Tier 1	Intersection Improvement	King Street and Poplar Street		Add marked crosswalks and pedestrian push button signals.	This intersection has sidewalks leading to it from most directions and handicap ramps on all four corners, but is in need of clearly marked crosswalks and pedestrian push button signals to increase safety and visibility for pedestrians.	Spot Improvements/ Short-Term
H	Tier 1	Intersection Improvement	Swanzy Street and Poplar Street		Add marked crosswalks and pedestrian push button signals.	This is a busy intersection with numerous residents attempting to cross the street from homes to retail areas. There are sidewalks and handicap ramps on all four corners, but no marked crosswalks. A signalized pedestrian crossing would increase safety.	Spot Improvements/ Short-Term

Key		Type of Project	Location	Linear Feet	Description	Issue/Justification	Designation
I	Tier 1	Intersection Improvement	Mercer Mill Road and Poplar Street		Add marked crosswalks and pedestrian push button signals.	This intersection has sidewalks leading to it from most directions and handicap ramps on all four corners, but is in need of clearly marked crosswalks and pedestrian push button signals to increase safety and visibility for pedestrians.	Spot Improvements/ Short-Term
J	Tier 1	Intersection Improvement	Dunham Street and Poplar Street		Add marked crosswalks and pedestrian signage.	This intersection is a popular crossing for pedestrians coming and going to the hospital and restaurants and shopping. There is currently no vehicular signal at this intersection, but one is proposed. Even in the event of no vehicular signal, clearly marked crosswalks and pedestrian crossing signage with a blinking light would help alert drivers to be aware of pedestrians and would increase pedestrian safety.	Spot Improvements/ Short-Term
K	Tier 1	Intersection Improvement - Traffic signal	Dunham Street and Poplar Street		Add traffic signal at intersection to increase pedestrian safety.	Poplar Street is a busy road with numerous businesses that distract drivers. A traffic signal at this intersection, along with a proposed crosswalk will increase pedestrian safety as walkers cross the street from businesses to the hospital.	Spot Improvements/ Short-Term
L	Tier 1	Sidewalk Construction/Improvement	East side of Poplar Street from Dunham Street to McDowell Street	590.53	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.	Extending the sidewalk in this area will provide safer access to the hospital.	Spot Improvements/ Short-Term
M	Tier 1	Intersection Improvement	Mid-Block crossing on Mercer Road to Elizabethtown Primary School		Add marked crosswalks and pedestrian signage.	Providing a mid-block crossing that is clearly marked will improve safety during overflow events when school attendees park across the street.	Spot Improvements/ Short-Term
N	Tier 1	Streetscape Enhancements	Poplar Street	9,874.96	Improve pedestrian lighting, incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at critical intersections: Swanzy Street, King Street, Broad Street	Poplar Street serves as a gateway corridor into Town from both the north and the south. Improving the aesthetics and safety for pedestrians will create a positive gateway through Town.	Corridor Improvement/ Short-Term
O	Tier 2	Sidewalk Construction/Improvement	Peanut Road from Broad Street to Quail Street	4,059.21	Construct 5' wide concrete sidewalk on the east side of the street.	Constructing sidewalks in this area will allow for greater connectivity from residences to businesses and retail along Broad Street. Residents area already walking along the road in this area. Sidewalks will increase safety.	Spot Improvements/ Short-Term
P	Tier 2	Intersection Improvement - roundabout	Martin Luther King Drive and King Street		Incorporate traffic calming methods such as a roundabout at King Street with appropriate pedestrian accommodations.	With the proposed increase in truck traffic on King Street, a roundabout will help alleviate traffic congestion and minimize conflict near the Farmer's Market.	Spot Improvements/ Short-Term

Key		Type of Project	Location	Linear Feet	Description	Issue/Justification	Designation
Q	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk to the Newkirk Street Extension	2,708.51	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the east side of the street from the existing sidewalk.	Extending the sidewalks in this area will allow for greater connectivity from residences to the middle school and connect to S. Poplar Street via the new sidewalk on Newkirk Street Extension.	Spot Improvements/ Short-Term
R	Tier 2	Sidewalk Construction/Improvement	Martin Luther King Drive from the existing sidewalk in front of the future charter school	472.97	Construct 5' wide concrete sidewalk to extend the existing sidewalk system on the west side of the street in front of the future charter school to the proposed intersection improvements at Newkirk Street Extension.	Extending the sidewalk in this area will allow for greater connectivity from residences to the charter school and to the middle school via the proposed new sidewalk on Newkirk Street Extension.	Spot Improvements/ Short-Term
S	Tier 2	Intersection Improvement	Newkirk Street Extension and Martin Luther King Drive		Add marked crosswalks and pedestrian crossing signage.	To increase safety for students crossing Martin Luther King Drive to reach the middle school via Newkirk Street Extension or students walking to the future charter school, add marked crosswalks and pedestrian crossing signage to alert drivers to pedestrian activity.	Spot Improvements/ Short-Term
T	Tier 2	Sidewalk Construction/Improvement	Newkirk Street Extension	2,591.74	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.	Adding a sidewalk on one side of the road in this area will provide students a safe way to walk to school from neighborhoods west of Elizabethtown Middle School.	Spot Improvements/ Short-Term
U	Tier 2	Intersection Improvement	Newkirk Street Extension and South Poplar Street		Add marked crosswalks and pedestrian crossing signage.	To increase safety for students crossing S. Poplar Street, add marked crosswalks and pedestrian crossing signage to alert drivers to pedestrian activity.	Spot Improvements/ Short-Term
V	Tier 2	Sidewalk Construction/Improvement	East side of Poplar Street from Smith Circle to Newkirk Street Extension	1,711.85	Construct 5' wide concrete sidewalk to extend the existing sidewalk system.	Adding a sidewalk on the east side of Poplar Street will provide residents a way to access Elizabethtown Middle School, increasing safety and connectivity.	Spot Improvements/ Short-Term
W	Tier 2	Sidewalk Construction/Improvement	North side of Smith Circle	3,937.99	Construct 5' wide concrete sidewalk to complete the gaps in the existing sidewalk system.	Adding a sidewalk on one side of the road in this area will provide residents and employees of businesses a walking loop connecting to Mercer Road and Poplar Street for both exercise and access.	Spot Improvements/ Short-Term
X	Tier 2	Sidewalk Construction/Improvement	Southwest side of Mercer Road from Poplar Street to Doctor's Drive	1,213.74	Construct 5' wide concrete sidewalk to complete a gap in the existing sidewalk system.	Completing this gap in the sidewalk system on Mercer Road will provide greater connectivity and safety for residents who live farther southeast on Mercer Road, students at the elementary school, employees who work in the area, and residents at the nursing home to reach retail and commercial destinations along Poplar Street.	Spot Improvement/ Short-Term

Key		Type of Project	Location	Linear Feet	Description	Issue/Justification	Designation
Y	Tier 2	Sidewalk Construction/Improvement	Gooden Street down Lower Street to Elizabethtown Primary School	824.09	Construct 5' wide concrete sidewalks to complete the gaps in the existing sidewalk system.	Completing these gaps in the sidewalk system will connect apartments to the elementary school, providing safe access for children who live nearby.	Spot Improvements/ Short-Term
Z	Tier 2	Streetscape Enhancements	Peanut Road	4,818.55	Improve pedestrian lighting (consider changing light type to improve visibility), incorporate additional landscape treatments, incorporate traffic calming methods such as "bulb-outs" or curb extensions at Broad Street.	Pedestrians already use Peanut Road to walk from residences to shopping at the corner of Peanut and Broad. In order to increase safety and connectivity, sidewalks should be added along this stretch or road, along with enhanced lighting and landscape treatments.	Corridor Improvements/ Short-Term
AA	Tier 2	Streetscape Enhancements	Martin Luther King Drive	8,965.89	Improve pedestrian lighting and incorporate landscape treatments.	Martin Luther King Drive is a major north/south connection through Town and already includes sidewalk along the west side of the street from Broad Street to the old school. Sidewalks exist on the east side of the street from Broad Street to Martin Street. Sidewalks should be extended to the Newkirk Street Extension and landscape and lighting improvements incorporated to increase safety along this corridor.	Corridor Improvements/ Short-Term
AB	Tier 3	Greenway trail Construction/Improvement	Southside of Broad Street from Francis Street west to Glenwood Drive	8,633.32	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods.	Extending the pedestrian network in this area will provide greater connectivity to downtown for residences west of Town, along with access to businesses and commercial areas.	Spot Improvement/ Long-Term
AC	Tier 3	Sidewalk Construction/Improvement	Eastside of Poplar Street from McDowell Street to Smith Circle	1,200.80	Construct 5' wide concrete sidewalk to complete the gap between Tier 1 and Tier 2 proposed sidewalks.	Connecting this gap in the sidewalk system after the Tier 1 and Tier 2 sidewalks are installed will provide a complete loop for employees and residents to walk down Mercer Road to Smith Circle to Poplar Street and provide greater connectivity.	Spot Improvement/ Long-Term
AD	Tier 3	Greenway trail Construction/Improvement	Northside of Broad Street from the existing sidewalk to Locks Road	4,482.41	Construct 10' wide asphalt greenway to extend the pedestrian system to neighborhoods and parks.	Extending the sidewalk in this area will provide greater connectivity to downtown for residences east of Town and will allow all residents to safely access the parks on the east side of Town.	Spot Improvement/ Long-Term
AE	Tier 3	Greenway trail Construction/Improvement	Provide a greenway trail down Locks Road	4,642.79	Construct 10' wide asphalt greenway trail down this street.	Providing a multi-use trail down Locks Road will allow residents to safely access Lock & Dam #2 park and will provide a connection to any future greenway trail along the river, creating a larger loop back to Tory Hole Park.	Spot Improvement/ Long-Term
AF	Tier 3	Greenway trail Construction/Improvement	Potential future greenway trail loop around Town	27,845.71	Construct 10' wide asphalt multi-use path around Town and between parks for recreational and transportation use.	A greenway trail around Town and possibly along the river connecting Tory Hole Park with the Lock & Dam #2 will provide residents and visitors with an attractive and viable option to use for exercise and recreation.	Spot Improvement/ Long-Term

SECTION 9 - PROJECT RECOMMENDATIONS

9.1-SPECIFIC RECOMMENDATIONS

The following projects are recommended for immediate implementation in Elizabethtown. A detailed description and explanation of the tiered hierarchy are in Section 4 of this document. Additional "long-term" projects are also described in Section 4 as potential future projects for the Town as funding and support are available.

Tier One Projects

- South Poplar Street Corridor Enhancement
- Sidewalks extending to the commercial areas west of Peanut Road on Broad Street.
- Sidewalk on King Street from the Town Hall to the Farmer's Market.
- Intersection at Peanut Road and Broad Street.
- Enhanced intersection at Broad Street and Poplar Street.
- Intersection at King Street and MLK Drive.
- Intersection at King Street and Poplar Street.
- Intersection at Mill/Mercer and Poplar Street.
- Intersection at Dunham Street and Poplar Street.
- Intersection at Swanzy Street and Poplar Street.
- Mid-block crossing on Mercer Road to elementary school.

Tier Two Projects

- Martin Luther King Drive Corridor Enhancement
- Peanut Road Corridor Enhancement
- Sidewalks on Peanut Road
- Additional Sidewalks on MLK Drive.
- Sidewalk on Newkirk Street Extension.

- Sidewalk on Smith Circle.
- Intersection of Poplar Street and Newkirk Street Extension.
- Sidewalk on Mercer Road.
- Sidewalk to north side of elementary school.
- Traffic calming roundabout at intersection of MLK and King.

9.2-RECOMMENDATIONS FOR POLICIES

As discussed in Section 3.1, Elizabethtown staff and Council should review and update the Unified Development Ordinance (UDO) to strengthen the language related to sidewalks and give more specific guidance on pedestrian walkways.

Specifically, installed sidewalks should be a minimum of 5' wide in order to meet current standards and a minimum 3-6' wide planting/utility strip should be required.

In addition, the Town should either require new development to install sidewalks that meet the standards within the site and along the right-of-way or require a "fee in lieu" of these upgrades, at the Town's discretion.

Stronger language within the UDO will help the Town to meet its pedestrian safety and connectivity goals.

SECTION 10 - GUIDANCE ON PLAN IMPLEMENTATION

10.1-ADOPTING THE PLAN

After approval from Town staff, the Elizabethtown Town Council should adopt the Comprehensive Pedestrian Plan. This step will be required when the Town seeks funding in the future.

Following adoption of the plan, the Town and the Mid-Carolina RPO can utilize this master plan as a guide and tool for future sidewalk connections and installations and for access to funding. The following action plan denotes specific steps that will best position the Town to implement the plan in its entirety.

10.2-ACTION STEPS

1. Create a Bicycle and Pedestrian Advisory Committee, similar to the Steering Committee, comprised of representatives from Town staff, the Mid-Carolina RPO, and Town Council. This committee will spearhead efforts to advance the sidewalk network and future greenway planning in Town.
2. Review plans and timelines for future NCDOT highway projects impacting the sidewalk system to align planning efforts and funding. Cost savings can be realized by the joint development of road and sidewalk projects. Missed opportunities could significantly delay or even make certain sidewalk segments prohibitively costly to implement.
3. Evaluate the existing Unified Development Ordinance and make modifications as appropriate to protect sidewalk corridors prior to residential and commercial development and to guide the aesthetics of sidewalk installation.
4. Develop plans and coordinate efforts for the design and construction of sidewalk segments with existing funding committed by the Town of Elizabethtown and NCDOT.

5. Using the list of funding sources in Chapter 7, create a strategy and timeline for seeking financial assistance from various agencies and private foundations.
6. Increase public awareness and actively develop a volunteer citizen base to support greenway trail development, host trail-related events, conduct fundraising activities, and aid in the management and operation of the trail.
7. Create a line item for the Town's Capital Improvement Plan to fund pedestrian improvements every year. This will create a pool of money for the Town to use in the future for recommended pedestrian improvements.

SECTION 11 - CONCLUSION

By adopting a comprehensive pedestrian master plan, the Town of Elizabethtown is showing its commitment to encourage increased pedestrian connectivity for residents, safer access businesses for visitors, and greater clarity in how to reach destinations.

The proposed Pedestrian System Plan promotes increases connectivity in Elizabethtown by:

- Installing additional sidewalks on both sides of the street where possible.
- Including sidewalks to outlying residential neighborhoods.
- Connecting sidewalks to proposed greenway trails for a different user experience and added recreational opportunities for tourists and residents.
- Providing highly visible crosswalks and traffic-calming measures at high-volume intersections, particularly intersections along South Poplar Street.

This Comprehensive Pedestrian Master Plan also recommends the following:

- The Town of Elizabethtown should expand their wayfinding signage system to create a unified aesthetic around the Town and make attractions and destinations easily identifiable.
- The Town of Elizabethtown should use the list of possible funding sources in the master plan document to identify ways to implement the Pedestrian System Plan.
- The Town of Elizabethtown should make short-term improvements as identified in the report, as soon as funding is available to increase safety and connectivity immediately.

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