

# ANGIER



## COMPREHENSIVE PEDESTRIAN PLAN

JANUARY 2014



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Division of  
Bicycle &  
Pedestrian  
Transportation



# Acknowledgements

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## Citizens of Angier

Thank you to all of the many citizens of Angier, young and old, who participated in community meetings and through the project website. Your input was extremely important; incorporated by the project team into the vision, goals, and recommendations of this plan.

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## **Date of Adoption**

February \_\_\_\_, 2014

# Executive Summary

## A. Angier Comprehensive Pedestrian Plan

The Angier Comprehensive Pedestrian Plan is intended to be a “roadmap” to improve the opportunities for walking as a safe and realistic form of transportation throughout the town, while serving as a way to enhance the overall appearance of the community. The plan sets forth a long range vision, along with goals and strategies that were built upon a firm foundation of data and extensive public input from Angier’s leaders, future leaders, and residents. The Town received a matching grant offered through the North Carolina Department of Transportation’s Division of Bicycle and Pedestrian Transportation (DBPT) to prepare this comprehensive pedestrian plan.

## B. The Plan Process

Town staff, the project consultant, and NCDOT’s project manager formed the project management team, whose primary task was to ensure that the plan stayed on task and met NCDOT’s requirements for developing the pedestrian plan. A steering committee was formed to oversee the planning process and garner participation from the community. The basic process involved a project kick-off meeting, background research, the development of a draft plan, and review of the draft plan by the steering committee and NCDOT, followed by the adoption process of the final plan. Citizen participation during this process was obtained through four steering committee meetings, two public meetings, and the completion of over 280 surveys by the Town’s residents.



*Pedestrian Facilities at NC 55 and 210*

## C. Vision and Goals

Input was gathered from the steering committee and the public to develop the plan's vision and goals. This vision, shown in the box to the right, is supported by the community goals outlined below:

### Goal 1: Leverage pedestrian improvements as community improvement tool.

- Objective 1.1 Establish an overall sidewalk and infrastructure improvement strategy that helps improve community appearance by embracing a community-wide program.
- Objective 1.2 Repair, install and construct specified pedestrian improvements to existing and future sidewalk and crosswalk facilities, warning devices and overall pedestrian environment.
- Objective 1.3 Develop sidewalk improvements with community revitalization and improvement projects that incorporate lighting improvements and landscaping where appropriate.

### ***Pedestrian Plan Vision Statement***

*The Town of Angier desires to develop a safe and complete pedestrian system that will serve as a community-wide improvement tool -- strengthening its growing local economy, while providing realistic transportation alternatives and recreational options to encourage residents in achieving a healthy lifestyle.*

### Goal 2: Improve pedestrian safety and awareness throughout the Town.

- Objective 2.1 Establish educational activities, programs and advertising campaigns focused on pedestrian safety.
- Objective 2.2 Repair, install and construct specified pedestrian safety improvements to existing and future sidewalk and crosswalk facilities, warning devices and overall pedestrian environment.

**Goal 3: Improve pedestrian connectivity throughout the Town.**

Objective 3.1 Design and install the identified sidewalk improvements and intersection improvements in accordance with the priority

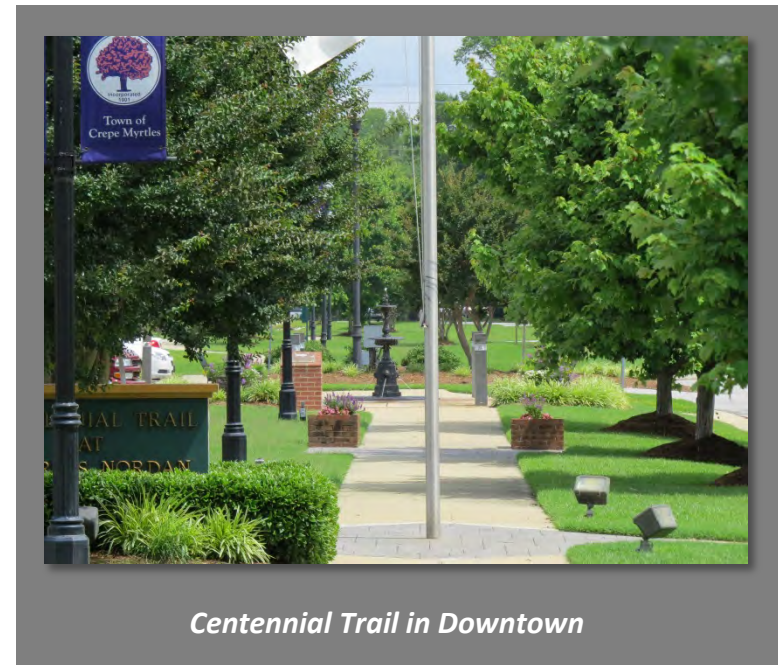
**Goal 4: Increase the utilization of pedestrian facilities as an alternative to motorized transportation.**

Objective 4.1 Decrease the dependence on motorized transportation for conducting daily activities such as going to work, school or shopping.

Objective 4.2 Expand the ability of elderly residents, children, and others who may not have motorized transportation to access all areas of the Town and participate fully in its civic and economic life.

**D. The Plan's Importance**

In the long-term, the Town of Angier will experience benefits by moving forward with the implementation of this plan, its vision, objectives and recommended actions. In general, becoming a pedestrian friendly town provides a realistic transportation alternative, promotes environmental stewardship, encourages good health and wellness through increased physical activity, builds the local economy, and improves the overall quality of life. In the short-term, many of the priority projects identified will have immediate positive impacts on the residents' ability to move around the town by foot. The short-term projects will be completed within the context of the comprehensive pedestrian transportation plan, ensuring that the long-term vision is steadily being achieved one action step at a time.





## E. The Plan Context

Angier has a basic grid pattern in the core of the Town, which has supported a relatively safe walking environment over the years. At the heart of the grid lies the Centennial Trail, which runs through the center of downtown, serving as a central connecting corridor for pedestrians. Over the last decade Angier has utilized the Centennial Trail as a means of connecting to other areas of Town creating more options and connections for Angier's residents to walk safely. Angier has also utilized pedestrian improvements in conjunction with lighting and landscaping improvements as part of an overall community improvement and revitalization strategy. The livability of several neighborhoods has been improved greatly by those improvements. Today, the opportunity exists to extend the existing pedestrian network into other areas of town as part of this strategy. This will in turn help to make walking in Angier a safer and more attractive option for residents who choose to walk for their daily transportation needs or for exercise.



## F. Recommendations

The recommendations were developed in three broad areas that included projects, programs and policies. Utilizing citizen input, steering committee guidance and an extensive background research process, recommendations were developed for each of these areas.



## Pedestrian Projects

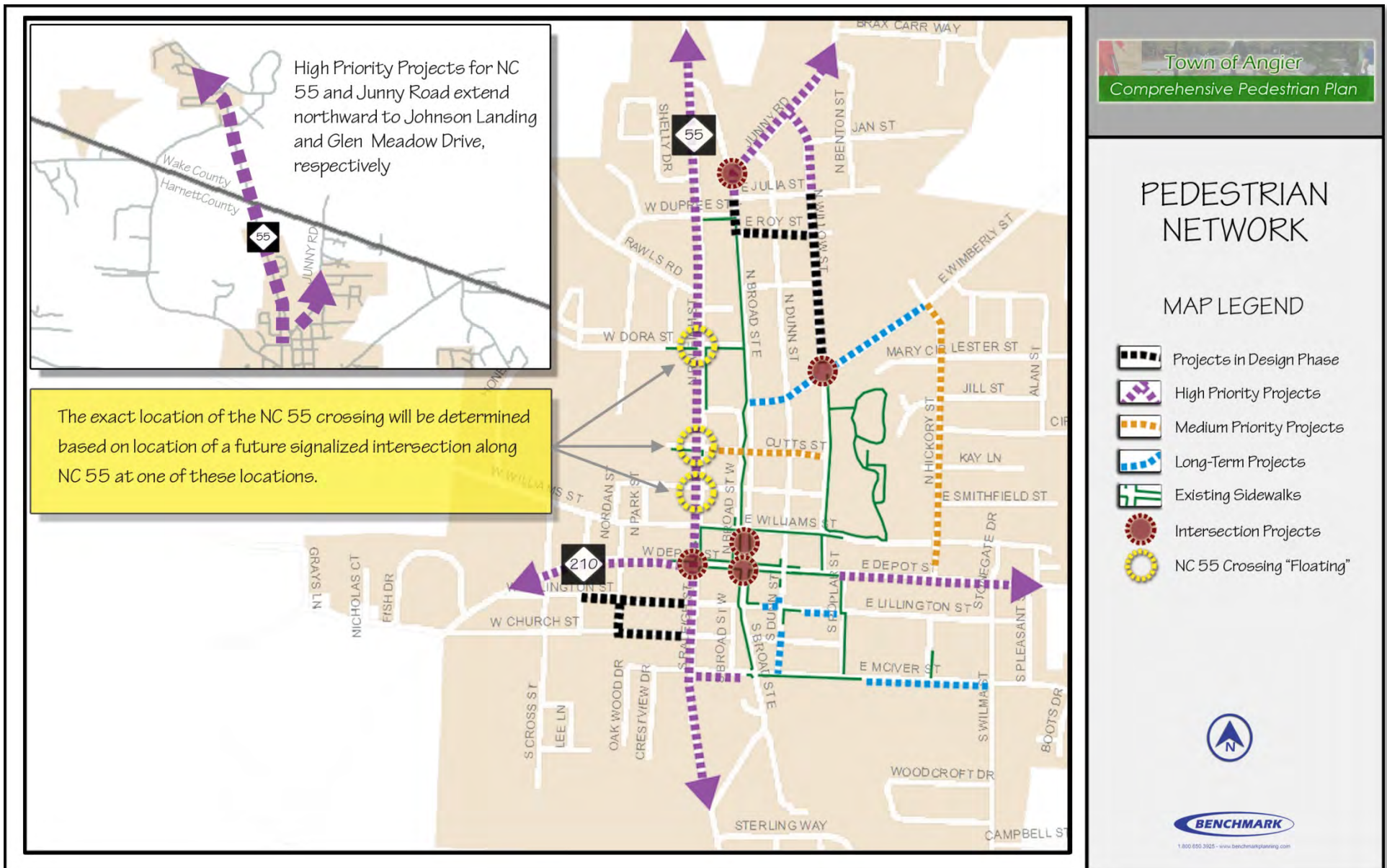
General recommendations were made for completing and extending the pedestrian network, primarily through the installation of new sidewalks, as well as the improvement of key intersections where pedestrians and vehicles encounter dangerous points of conflict. A total of 17 pedestrian improvement projects were identified: eleven (11) pedestrian network improvements along with six (6) recommendations for intersections. While all of the recommendations are important to fully developing a safe pedestrian network in Angier, a prioritization system was developed to identify top priorities for the Town to construct as funding and town/private resources may become available.

The top five pedestrian network / sidewalk projects are:

- NC 55 (within Town Limits)
- NC 210 (within Town Limits)
- East McIver Street from South Broad Street to NC 55
- North Willow Street from Julia Street to Junny Road
- Junny Road from intersection of North Broad/Julia Street to Glen Meadow Drive

The intersection improvement projects are:

- NC 210 at Broad Street
- NC55 at NC 210 / Depot Street
- North Willow Street at East Wimberly Street
- Junny Road at North Broad Street
- NC 55 (floating location not yet determined)
- Broad Street Mid-Block Warning Signage



Pedestrian Network Map

## Pedestrian Programs

In North Carolina and across the country, communities are investing their resources to create safer environments for pedestrians and increase the usage and usability of their pedestrian networks through projects and programs that are categorized as follows: 1) education; 2) encouragement; and 3) enforcement. All three activities need to take place concurrently as they all depend on each other to creating a safer walking environment. Key recommendations for each area include the following:

- The transitioning of the pedestrian plan steering committee into an advisory and oversight committee to help ensure the implementation of the plan. The advisory committee does not have to include the entire steering committee, but should include the core group of stakeholders and responsible departments to ensure that the key actors are involved going forward. This committee will help with coordinating educational events and keeping the plan recommendations moving forward. The committee should consider engaging one or two additional citizens to participate.
- Perhaps the most important program recommendation is to apply for participation in the Safe Routes to School program, establish a pedestrian education program in the public schools and implement a pedestrian safety enforcement program in the Angier Police Department. The Safe Routes to School program will allow the Town to access additional NCDOT resources and brings the potential for funding priority projects to enhance connectivity and access to schools as well as the improvement of pedestrian safety in the immediate vicinity of schools. With support of the Angier Elementary School Administration, NCDOT will work closely to help the school establish an educational opportunity for its students.
- Residents should be encouraged to walk more. One way that the town could help support this would be to organize and sponsor regular walking events. These events could start at Jack Marley Park and travel from there into the community using the Centennial Trail and other facilities to make a loop around town.

## **Pedestrian Policies**

One of the top priorities for policy implementation include the dedication of a funding mechanism for capital investments in pedestrian facilities and the appropriation of adequate annual funding for sidewalk maintenance. Without the financial backing to achieve the connectivity and safety enhancement goals of the plan, the overall vision of a healthy pedestrian network cannot be achieved. The Town should also closely examine its adopted street cross section to consider incorporation of the broader NCDOT Complete Streets Policy to include all modes of transportation along NC 55 as it is improved in the years ahead.

## **G. The Next Steps**

The Town of Angier completed the development of this Comprehensive Pedestrian Plan to identify pedestrian improvements and the direction that needs to be taken to implement the various improvements. Strategies or action steps were developed as a guide for carrying out the plan over the next five to fifteen years. Many of the actions can and should be completed during the first year after the plan's adoption, while other improvements will require a much greater time period to make them a reality. Following the adoption of the plan, the implementation process will officially begin.

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## Section 1. Introduction

### A. Pedestrian Plan Overview

Over the last decade, Town leaders have recognized the importance of creating an interconnected pedestrian network in Angier and the need for a comprehensive approach to guide future projects, programs and policies regarding pedestrian transportation improvements. The resources to accomplish the task of creating a comprehensive pedestrian transportation plan were limited; however, the Town moved ahead and created the Centennial Trail with the help of an NCDOT TEA-21 grant to form the central corridor of its pedestrian system that exist today. This sidewalk was labeled “the sidewalk to nowhere” and now connects Angier’s residents to the downtown, post office and park. In order to build on the desire to create more pedestrian options, Town officials recognized having a pedestrian plan that complements and enhances the existing pedestrian network would provide for a better quality of life in the future for the citizens of Angier. In furtherance of this goal, the Town became aware of, and applied for, a matching grant offered through the North Carolina Department of Transportation’s Division of Bicycle and Pedestrian Transportation (DBPT) to prepare a comprehensive pedestrian plan.

In 2012, the Town of Angier’s grant application to develop this Comprehensive Pedestrian Transportation Plan was funded by DBPT and the NCDOT Transportation Planning Branch. NCDOT’s Bicycle and Pedestrian Transportation program is the oldest program of its kind in the nation, established in 1973, and is one of the most recognized in the country. The program seeks to integrate bicycle and pedestrian safety, mobility and accessibility into the overall transportation program through engineering, planning, education and training. The



Figure 1-1: Pedestrian Crosswalks Downtown

annual matching grant program – the Bicycle and Pedestrian Planning Grant Initiative – was created by DBPT to encourage municipalities to develop comprehensive bicycle and pedestrian plans administered through DBPT. As of 2012, the Town of Angier is one of 135 municipalities to have received a Bicycle or Pedestrian Plan grant since its inception in 2004.

Working closely with a steering committee of stakeholders in the community, and with technical assistance provided by a consultant, the Town Administration and Planning Staff oversaw the preparation of this Comprehensive Pedestrian Plan. The document is based on sound research, public input and hours of review by steering committee members, Town staff, NCDOT and others. The plan's foundation includes an assessment of the existing pedestrian facilities and extensive findings from a survey completed by **over 280 residents** and stakeholders of a variety of age groups.

## B. Pedestrian Plan Vision

It is important to develop a clearly articulated vision that is representative of a variety of interests, setting forth the direction of the plan. Without a vision for the plan, the priority projects, goals, and objectives can become less meaningful or may be viewed as arbitrary. The vision set forth in this Comprehensive Pedestrian Plan for the Town of Angier is an expression of the desired future pedestrian patterns, improving the existing pedestrian environment experienced by residents in Angier today. The vision established in this plan is a reflection of the desired future based on input from the steering committee and the broader community through input at public meetings, steering committee meetings and the pedestrian plan surveys. Figure 1-2, shows the vision statement adopted for this plan.

### *Town of Angier's Pedestrian Transportation Network Vision*

*The Town of Angier desires to develop a safe and complete pedestrian system that will serve as a community-wide improvement tool -- strengthening its growing local economy, while providing realistic transportation alternatives and recreational options to encourage residents in achieving a healthy lifestyle.*

Figure 1-2: Pedestrian Plan Vision Statement

## C. Goals and Objectives

The goals and objectives were established within the framework set forth by the overall pedestrian connectivity vision. In order for the Town of Angier to achieve its vision of connecting citizens with places of recreation, business, and their homes, a realistic road map was established to make the vision a reality. The road map to reach the vision was based on Steering Committee feedback, broad input from the community, Town Staff review, and guidance from NCDOT. Each goal consists of key objectives and actions necessary to achieve them, which are described in greater detail in Chapter 5 of the plan. The primary goals and their associated objectives are listed below:

### **Goal 1: Leverage pedestrian improvements as community improvement tool.**

- Objective 1.1 Establish an overall sidewalk and infrastructure improvement strategy that helps improve community appearance by embracing a community-wide program.
- Objective 1.2 Repair, install and construct specified pedestrian improvements to existing and future sidewalk and crosswalk facilities, warning devices and overall pedestrian environment.
- Objective 1.3 Develop sidewalk improvements with community revitalization and improvement projects that incorporate lighting improvements and landscaping where appropriate.

### **Goal 2: Improve pedestrian safety and awareness throughout the Town.**

- Objective 2.1 Establish educational activities, programs and advertising campaigns focused on pedestrian safety.
- Objective 2.2 Repair, install and construct specified pedestrian safety improvements to existing and future sidewalk and crosswalk facilities, warning devices and overall pedestrian environment.

### **Goal 3: Improve pedestrian connectivity throughout the Town.**

- Objective 3.1 Design and install the identified sidewalk improvements and intersection improvements in accordance with the priority ratings set forth in the plan.

**Goal 4: Increase the utilization of pedestrian facilities as an alternative to motorized transportation.**

Objective 4.1 Decrease the dependence on motorized transportation for conducting daily activities such as going to work, school or shopping.

Objective 4.2 Expand the ability of elderly residents, children, and others who may not have motorized transportation to access all areas of the Town and participate fully in its civic and economic life.

**D. The Planning Process**

This comprehensive pedestrian plan was based on extensive field work, research, best practices, and diverse public input. The process began with the formation of a steering committee made up of individuals with a variety of backgrounds and positions within the community, including representatives from Town departments, community organizations, school officials and regional transportation officials. This committee was responsible for reviewing the information prepared by Town staff and the planning consultant throughout the process, and recommending the final draft of the plan to NCDOT and Town Board of Commissioners for their evaluation and final approval. The committee was also responsible for helping to raise awareness throughout the community and encouraging broad participation in the plan. Another important part of the process was the collection and analysis of background data and information, which provided a picture of the current pedestrian environment within the Town. The broader community participated in the planning process through online surveys, public workshops where citizens were allowed to give direct input to the planning team and through comments at a public hearing held by the Town Board of Commissioners. Figure 1-3, displays the overall steps taken during the comprehensive pedestrian planning process.

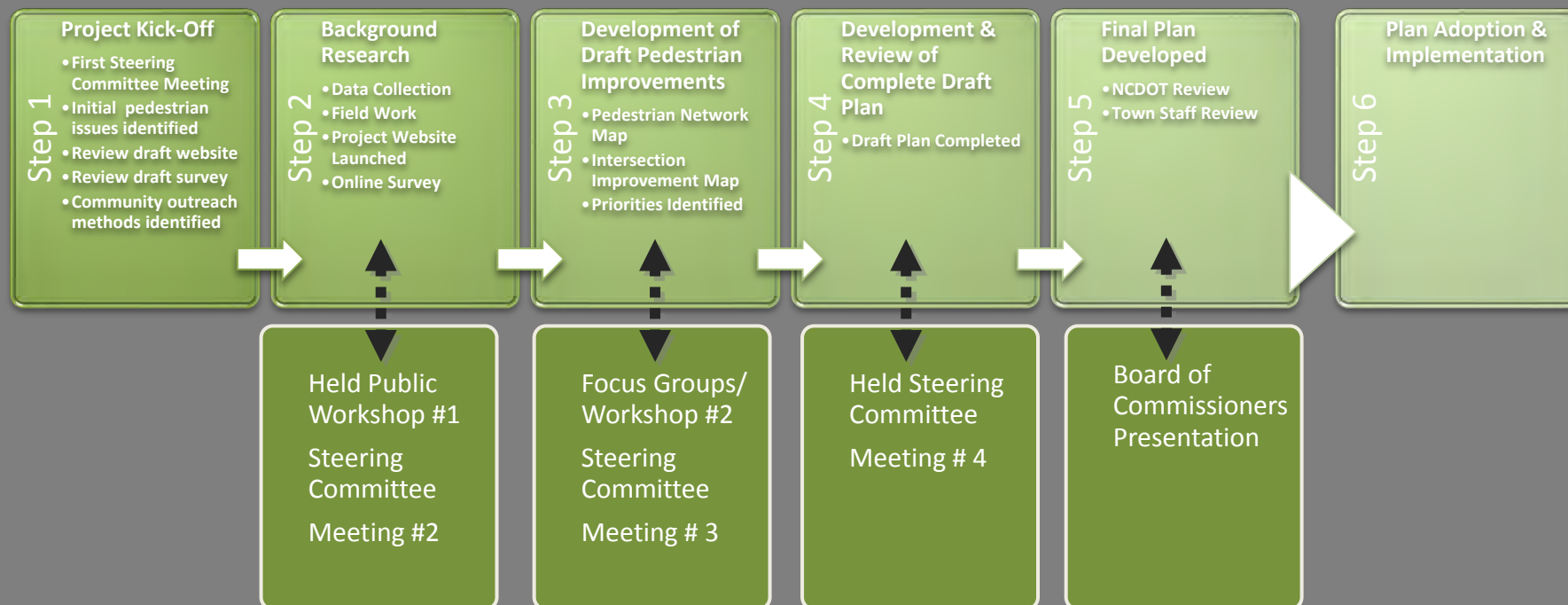


Figure 1-3: Pedestrian Planning Process

## E. Benefits of Pedestrian Planning in Angier

In the long-term, the Town of Angier will experience benefits by moving forward with the implementation of this plan, its vision, objectives and recommended actions. In general, becoming a pedestrian friendly town provides a realistic transportation alternative, promotes environmental stewardship, encourages good health and wellness through increased physical activity, strengthens the local economy, and improves the overall quality of life. All pedestrian projects completed within the context of the comprehensive pedestrian transportation plan will help ensure that the long-term vision is steadily being achieved one action step at a time.

### Providing a Realistic Transportation Alternative

Many of Angier's citizens are already out walking during their normal daily routines, with almost 20 percent of survey participants indicating they walk every day. However, many barriers were identified that discourage more residents from enjoying the benefits of walking. These included the need for more pedestrian facilities and better connectivity to residential areas throughout town. This plan sets forth a guide to extend the pedestrian system out from the downtown core to all areas of town, connecting pedestrians safely across major barriers. The improvements will enable citizens of Angier to make walking a realistic transportation alternative, help to lessen traffic congestion and expand the ability of residents to improve their health and well-being.

### Promoting Environmental Stewardship

Residents of Angier have long enjoyed the benefits of a small town environment with a rich agricultural heritage; however, urban development emanating from the greater Research Triangle area has expanded toward Angier and is steadily approaching the town. Providing a better pedestrian transportation network in Angier will help lessen the Town's reliance on vehicular traffic as the dominate mode or choice of travel in the future as the town grows. Although many of the Town's residents walk on a daily basis, most of its residents drive their own car or ride with someone else, as regularly scheduled public transportation is nonexistent in Angier. Creating safe, connected walking opportunities to destinations that are important to the Town's residents will encourage people to walk more; thereby reducing emissions from the use vehicular forms of transportation. Less traffic on Angier's roadways will help reduce noise levels in neighborhoods from vehicles, and the numerous pollutants that end up in the cherished natural areas of the Town from various forms of stormwater run-off and discharge.



Figure 1-4: Centennial Trail



## Encouraging Good Health and Wellness

Most of the survey respondents who walk regularly indicated that they primarily walk for fitness or recreational purposes. Providing a well-planned and maintained pedestrian system provides the opportunity for residents to walk for recreation and exercise. The nation as a whole is battling a looming health crisis caused by obesity, including an alarming rise in childhood obesity rates as noted in reports from the American Academy of Pediatrics' Trust for America's Health (<http://healthyamericans.org/report/88/>). In North Carolina, nearly two-thirds of adults are either overweight or obese, and the state has the 5<sup>th</sup> highest rate of childhood obesity in the United States ([http://www.eatsmartmovemorenc.com/ObesityInNC/Texts/OBESITY\\_BURDEN\\_2009\\_WEB.pdf](http://www.eatsmartmovemorenc.com/ObesityInNC/Texts/OBESITY_BURDEN_2009_WEB.pdf)). Many researchers have concluded that children in this generation will likely have shorter life expectancies than their parent. Angier has the opportunity to help combat this disturbing trend by raising awareness within the community, educating its citizens on the benefits of walking and providing the needed facilities and safe places to walk. Walking and/or daily exercise and improved participation in other healthy activities will help reduce the rate of the various diseases related to inactivity and obesity. Angier continues to make improvements that will allow children to walk to school relatively safely and help reverse some of these trends. Finally, with the physical improvements noted in the plan, all of Angier's residents will feel much safer and be more willing to walk, helping Angier (Harnett County) raise its "D" score from North Carolina's Eat Smart, Move More program to an "A." The Eat Smart, Move More program is a statewide movement that "promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play and pray." The program is led by a multi-disciplinary team of partners from across the state that is charged with the mission of reversing the epidemic of obesity and chronic disease. More information on the program can be found at [www.eatsmartmovemorenc.com](http://www.eatsmartmovemorenc.com).

## Building the Local Economy

Removing long established barriers to pedestrian mobility will help encourage an environment where more residents are willing to walk when they go about their daily errands. This opportunity to walk will help reduce the number of vehicle trips residents make to nearby communities and to purchase goods and services. A walkable town will also encourage residents to seek recreational and entertainment opportunities within Angier. As indicated in the survey, residents frequently identified downtown, parks, trails and greenways, friends and families homes, and restaurants as places they either walk now or would like to walk to in the future. Angier enjoys the basic street layout and urban design needed to enable residents to patronize local businesses while traveling by foot, saving money by not driving, and

helping the community prosper by spending local dollars “at home.” Also of note, walking more may save residents the costs associated with vehicle maintenance and may even help residents make do with fewer vehicles per household. As noted by the Pedestrian and Bicycle Information Center’s research, a typical household spends 18 percent of their income on motor vehicle ownership ([http://www.pedbikeinfo.org/collateral/pbic\\_summary\\_report\\_2008-2009.pdf](http://www.pedbikeinfo.org/collateral/pbic_summary_report_2008-2009.pdf)). With more opportunities to walk, Angier’s residents may find savings for their families as they reduce transportation costs, while also improving their health and well-being. Local businesses may also derive a greater benefit from increased pedestrian traffic, given the slower pace of travel past their shops and offices, which increases the likelihood of unplanned stops by passers-by that may not have been considered by motorists.

### **Improving the Overall Quality of Life**

Many of the primary benefits of establishing a pedestrian network that is safe and better connected, as described above, all lead to an improved quality of life. Creating an environment where motor vehicles aren’t the only choice for transportation helps reduce traffic congestion, improves air and water quality, and increases health and wellness, all while providing opportunities for an enhanced local economy. Residents may be less likely to “jump in the car,” bypassing shopping opportunities close to home, and traveling to a nearby town – exporting those potential dollars outside of the town in which they live. All of these factors relate to the livability of a community, the attitude of residents, local opportunities and the overall perception of pedestrian transportation in the town by its residents. As the Town establishes more opportunities for pedestrians through improved facilities, and the greater awareness of the benefits of walking, its residents will experience a better quality of life as the facilities are constructed and the recommended programs and policies are implemented.

## Section 2. Existing Conditions

### A. Introduction

The purpose of this section of the plan is to provide a summary of the characteristics present in the Town of Angier that influence the existing pedestrian environment. The data, along with the other information contained in this section of the plan, is intended to provide the reader with a greater understanding of the underlying pedestrian conditions, including spatial distribution patterns of land uses, population and existing facilities in Angier.

### B. Demographic Data

The Town of Angier has a total population of 4,350 people, 1,672 households and 1,104 families according to the 2010 Census figures. There were approximately 1,494 people per square mile with approximately 646 housing units per square mile. Figure 2.1 displays the population density in Angier as related to the existing sidewalk network. The racial makeup in Angier in 2010 was 62 percent White, 22 percent African American or Black, with Native Americans and Asians accounting for less than 1 percent each. Other races accounted for 13 percent, while Hispanic or Latino of any race was 20 percent.

Within the 1,672 households, 33 percent had children under the age of 18 living with them, 43 percent were married couples living together, 17 percent had a female householder with no husband present, and 34 percent were non-family households. Approximately 27 percent of households were made up of individual residents with 25 percent of the households where someone who was 65 years of age or older was living alone. The average household size in Angier was 2.58.

The age distribution of Angier's population was fairly balanced with approximately 30 percent of the population under the age of 19 and the 20 to 39 age group respectively. The population group 40 – 64 years of age accounted for 28 percent of the population, with persons 65 years or older representing almost 13 percent of the total population. The median age in Angier was 34 in 2010.

## C. Vehicle Ownership and Commuting Data

In addition to the basic demographic characteristics of the community, it is important to understand other factors that affect the demand for pedestrian facilities, including income, vehicle ownership rates, distance to employment and usual method of transportation to work. In 2010, households in the Town of Angier had a median income of \$43,004, which is below the median household income for the State of North Carolina as a whole (\$45,570) and the national median household income (\$51,914). In 2010, only 5% of households in the Town of Angier did not own at least one motor vehicle. This is below the rate of 8.9% found at the national level, and the rate of 6.5% found in North Carolina as a whole. In Angier, households with only a single vehicle make up nearly 38% of the households with at least one vehicle available, compared to 34.2% at the state level and 36.5% at the national level. Households with two or more vehicles totaled 37% with three or more vehicles at nearly 20 percent.

It is no surprise that travel by automobile is the predominant means of transportation to work for the 2,116 residents who are employed. Nearly 91 percent of Angier's residents who are employed travel to work in a motor vehicle, which is a rate that is slightly lower than the state rate of 92 percent and slightly higher than the national rate of 86.5 percent. Of those traveling to work by automobile, a larger share are also commuting alone, with 18 percent of the employed residents carpooling, which when compared to 10.5 percent at the national level and 11.4 percent at the state level, is a better rate of carpooling. Walking to work was the choice for 3 residents or 0.2 percent of the town's employed residents, compared to 1.8 percent at the state level and 2.8 percent at the national level. Finally, approximately 1.5 percent of workers traveled by other means to work with 7.5 percent of those working, working at home.

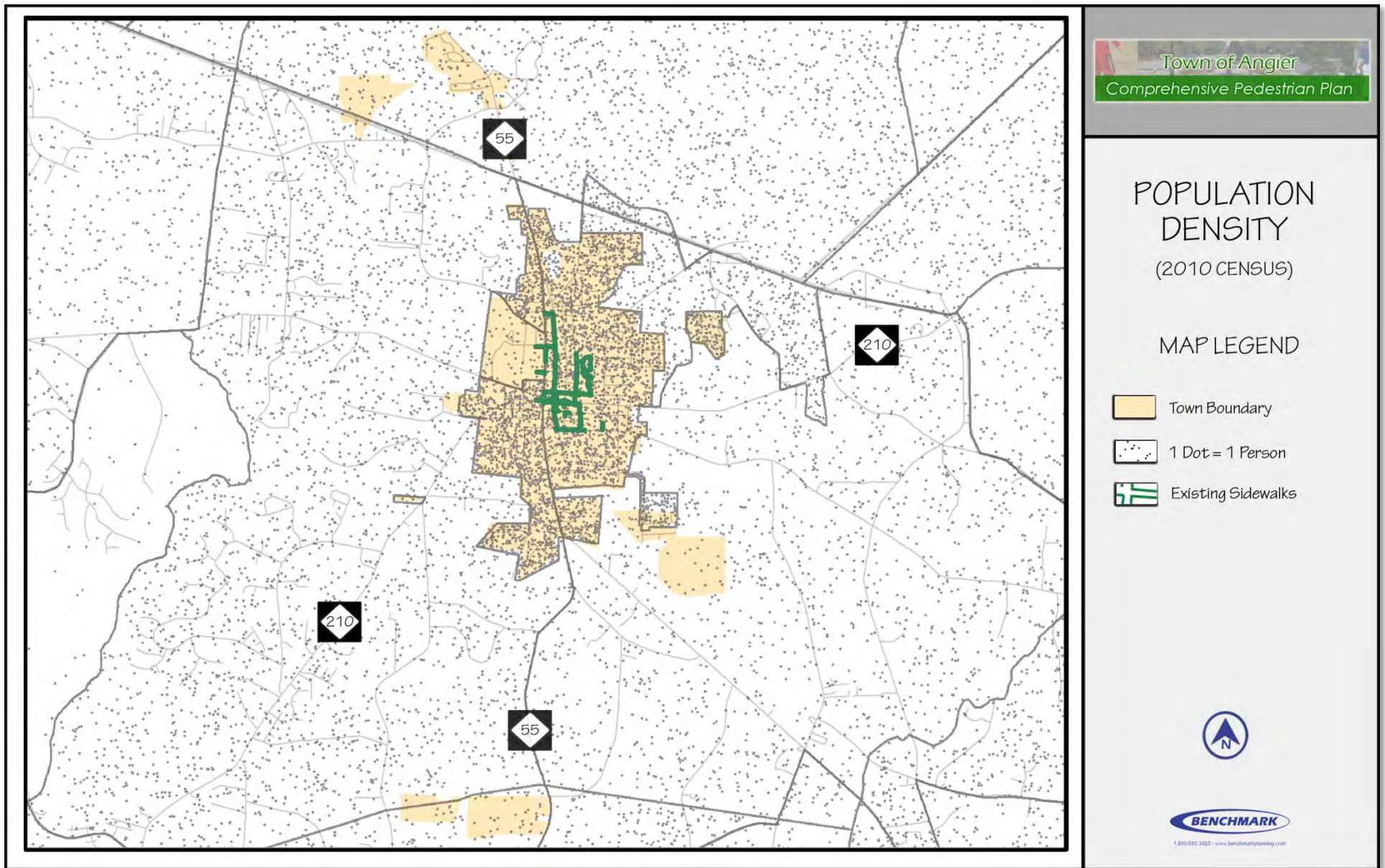


Figure 2-1: Population Density



## D. Land Development Patterns

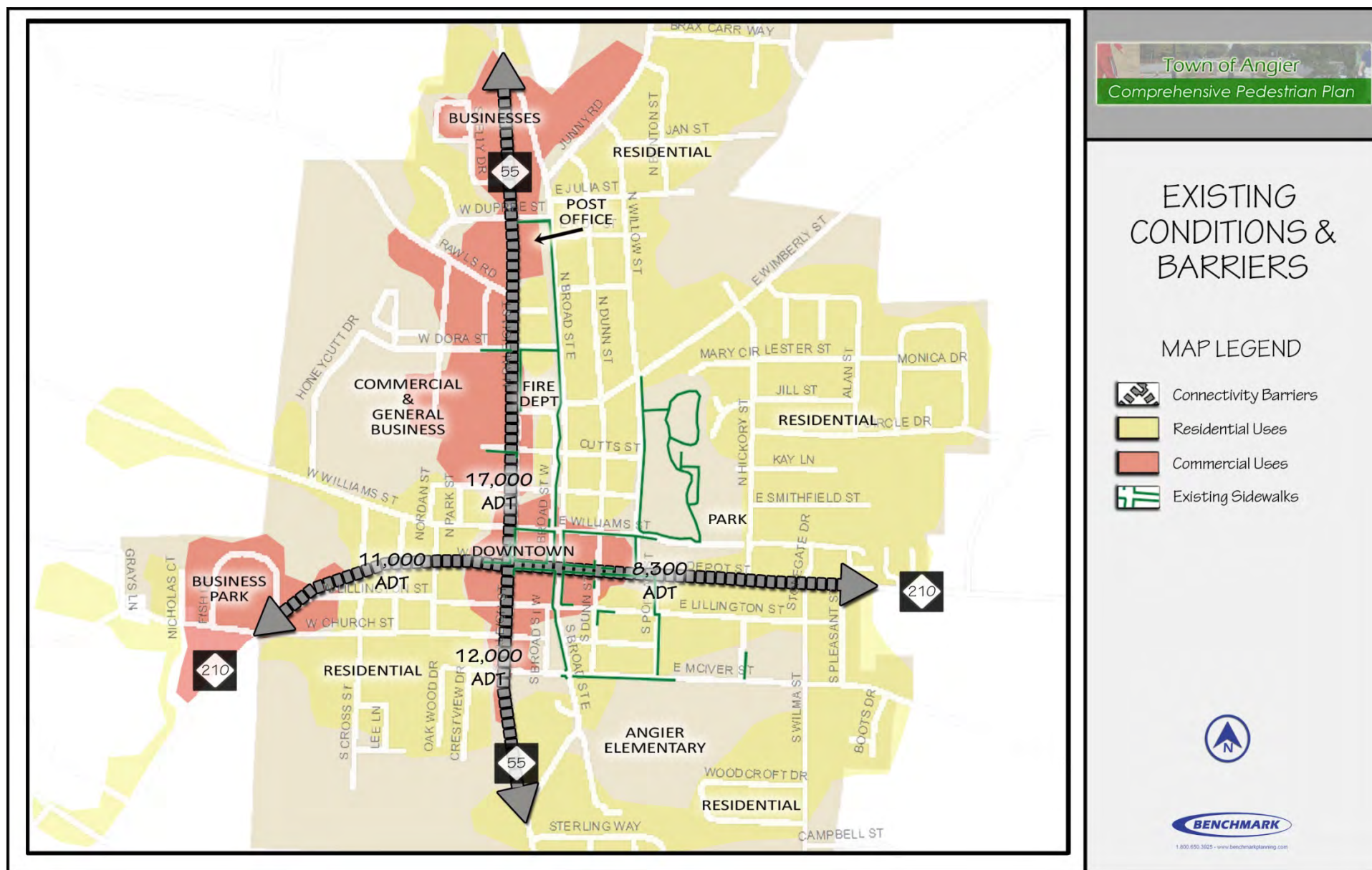
Angier has developed with a relatively compact core of business uses in the downtown surrounded by residential neighborhoods. Over time, the corridors have developed more commercially as new areas were developed for residential use outside of the traditional core of town. As the town grew, sidewalks were not put in place when new developments were completed. The town is now working to extend the sidewalk network to new areas and now requires new development to incorporate sidewalks. As shown in Figure 2-3, Existing Conditions and Barriers, the core of the town was mostly connected and well established. However, NC 210 and NC 55 create significant barriers for pedestrians with limited safe crossing points cutting off pedestrian access from several areas in town to downtown and Jack Marley Park.



Figure 2-2: New Development on Northern end of Town with new sidewalks.

## E. Destinations in Angier

The table shown in Figure 2-4 below shows survey respondents' current and desired destinations that they either enjoy walking to now or would like to in the future. The most common destination chosen was parks, downtown, restaurants, shopping (downtown), library, trails and greenways, and friends / family's homes. A map of major destinations in Angier is displayed in Figure 2-5.





Do you walk to these destinations now or would you like to walk to these destinations in the future? (Check all that apply)

Answer Options	Response Percent	Response Count
Downtown	67%	155
Parks	79%	183
Place of work	7%	16
School	5%	12
Restaurants	52%	120
Shopping (downtown)	42%	96
Shopping (highway locations)	18%	42
Entertainment	18%	41
Trails and greenways	46%	105
Library	43%	100
Recreation Centers	16%	37
Friends/Family's Homes	43%	100
Other (please specify)		20

Figure 2-4: Survey Responses – Preferred Destinations

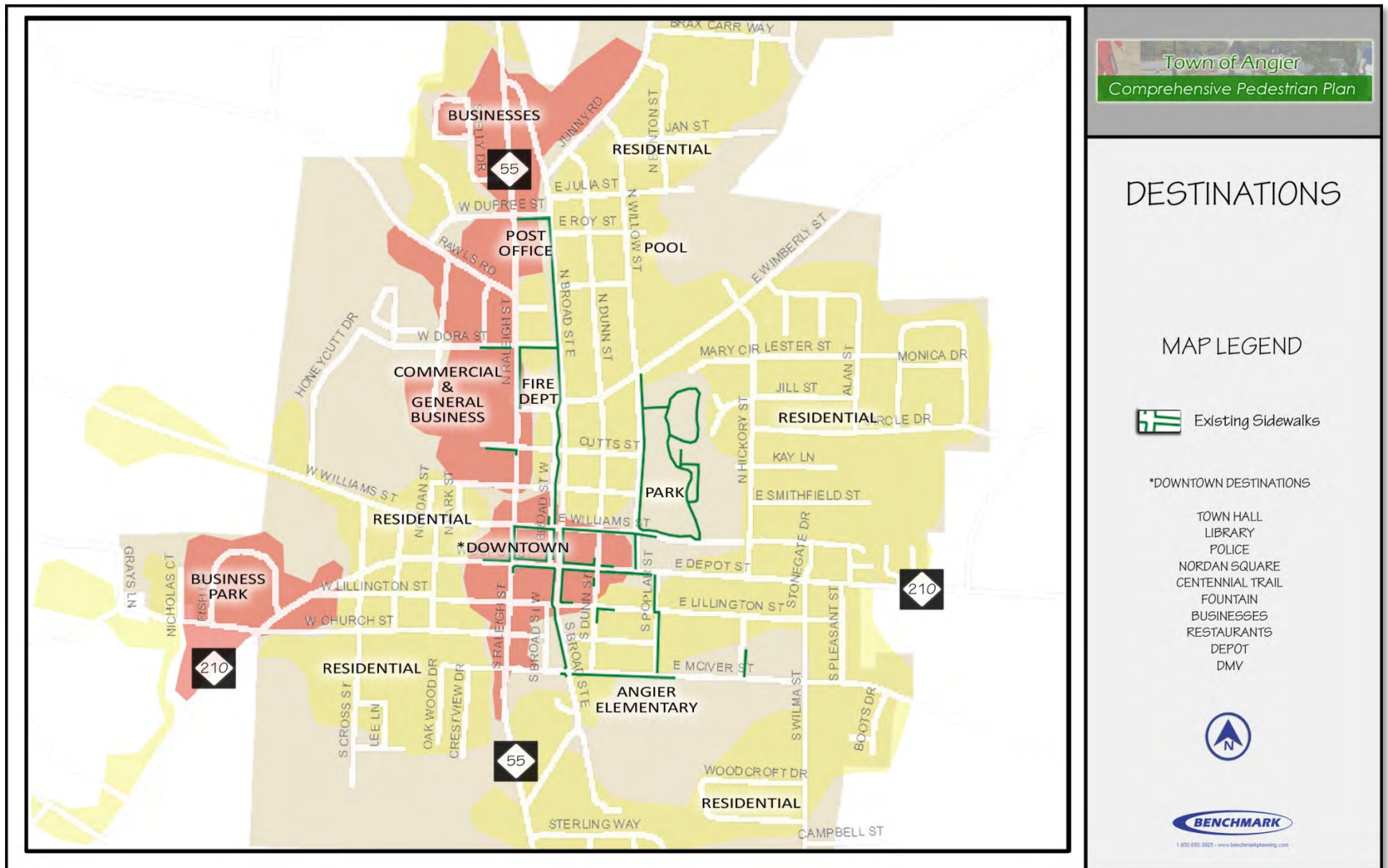


Figure 2-5: Major Destinations

## F. Pedestrian Conditions and Barriers

In Angier, most of the pedestrian facilities are downtown, in part because it was originally designed with pedestrians in mind. Pedestrian connections extending out from the downtown into immediately adjacent neighborhoods, schools and the park are good; however, connections are much more limited beyond the town core as exhibited in Figure 2-3: Existing Conditions. Specifically, a lack of pedestrian facilities and crosswalks exist for safely connecting pedestrians across NC 55 and some areas along NC 210.

Pedestrian crossing and facility improvements across NC 55 in particular, will help connect residents living on the west side of NC 55 with the downtown and the park. Other areas were identified in the town that are in need of crosswalks and pedestrian warning signage. Survey respondents indicated basic improvements to lighting were needed in areas where sidewalks were present, enabling older residents to navigate more safely in the early morning and evening hours. Survey respondents indicated better lighting in these areas would increase their perception of safety, helping them to be more aware of their surroundings and the condition of the sidewalks. Many of the major barriers were noted previously in Figure 2-3 and images



Figure 2-6: Pedestrian curb ramp that was planted with landscaping presents a barrier at NC 55 & 210.

### Existing Sidewalk Network

As described earlier and as can be seen in Figure 2-3, the majority of Angier's sidewalks are in or immediately adjacent to the downtown core. The sidewalks vary in condition; however, they form a solid network within the core of the town. Many opportunities exist to better connect the core with the surrounding areas if key connections can be made across the major highways that form the primary pedestrian barriers.

## Pedestrian Crossings and Warning Signage

During the background research, areas were identified that had crosswalks or needed pedestrian crosswalks. Most notably, improvements need to be made to several crossings at NC 55 and NC 210 as well as areas that can benefit from crosswalk markings and pedestrian warning signage. Although crosswalks are marked at several key intersections downtown and at NC 55 and 210, the signal light timings, particularly at NC 55, make it difficult to cross with the intense traffic activity at certain times of day (see Figure 2-7). Additional safety measures can be taken at this intersection and others to alert drivers and pedestrians to be aware of their surroundings.

## 2012 Annual Average Daily Traffic Counts

The Traffic Survey Group with the Transportation Planning Branch of the North Carolina Department of Transportation maintains annual average daily traffic counts across the state. Traffic Volume (AADT) Maps are a product created by the Traffic Survey Group in cooperation with the Information & Mapping Unit. Information & Mapping supplies the county (and urban) maps, which serve as a foundation for Traffic Survey employees to identify locations known as "count stations". Traffic Survey then labels each count station on these maps with the Annual Average Daily Traffic (AADT) volume. Within Angier, several areas have traffic volumes over 10,000. The traffic counts along NC 55 range from 12,000 to 17,000 near the intersection with NC 210. The traffic counts along 210 near NC 55 range from 8,300 to 11,000. Figure 2-3 displays the 2012 AADT for the Town of Angier.

## Pedestrian Crashes 1990 - 2013

Over the past twenty-three years there have been seventeen (17) official police reports of pedestrian crashes of varying degree of injury, as shown in Figure 2-8. During this time period there were four disabling injuries, four crashes where an injury was evident, four where injury was possible and seven where only property damage was recorded. Raleigh Street (NC 55) was the roadway with the highest

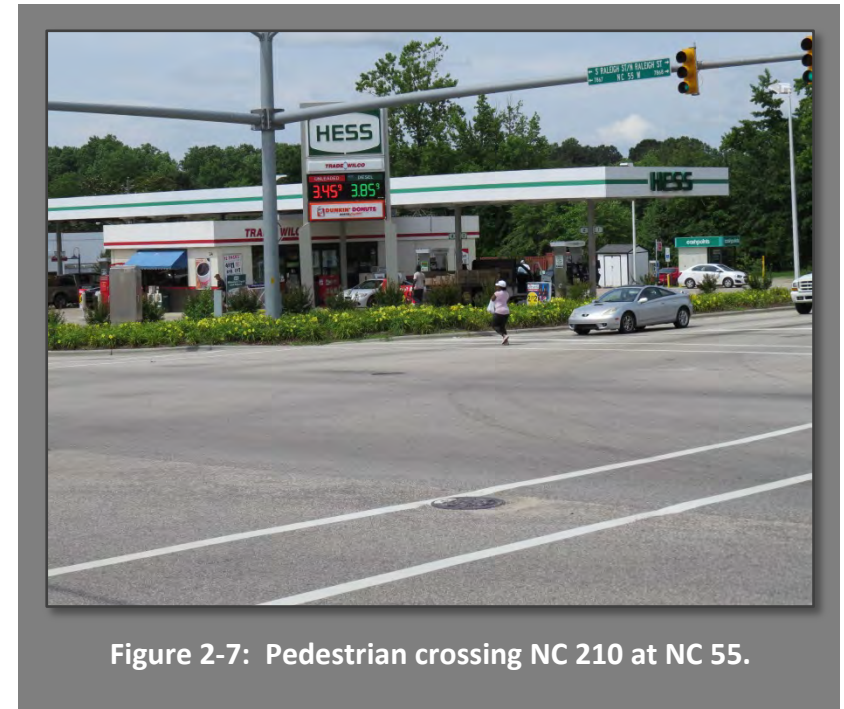


Figure 2-7: Pedestrian crossing NC 210 at NC 55.



incident of pedestrian crashes. Depot Street (NC 210) had the second most reported pedestrian crashes. However, as noted in Figure 2-9: Pedestrian Crashes Map, a high concentration of pedestrian crash incidents have occurred in the areas in the neighborhoods that are southwest of the intersection of NC 210 and NC 55. The Town is currently in the design phase on several sidewalk facility projects in the West Lillington and Church Street area, which will hopefully create a safer environment for pedestrians in that neighborhood.

<i>On Road</i>	<i>Miles</i>	<i>Dir</i>	<i>From Road</i>	<i>Toward Road</i>	<i>Crash Severity</i>	<i>Date of the Crash</i>	<i>Time of the Crash</i>
<b>RALEIGH ST</b>	0		LILLINGTON ST	CHURCH ST	A-Injury (Disabling)	5/28/1991	7:43 AM
<b>SHELLEY DR</b>	0.052	S	COATS CIR		A-Injury (Disabling)	5/30/1991	8:50 PM
<b>CROSS ST</b>	0.014	N	CHURCH ST	LILLINGTON ST	C-Injury (Possible)	5/1/1993	7:35 PM
<b>RALEIGH ST</b>	0.027	S	WILLIAMS ST	DEPOT ST	A-Injury (Disabling)	4/12/1995	2:21 PM
<b>MCIVER ST</b>	0	W	DUNN ST	BROAD ST	B-Injury (Evident)	9/12/2000	6:59 PM
<b>N RALEIGH ST</b>	0		SHELLY DR	BROAD ST	B-Injury (Evident)	12/30/2002	5:36 PM
<b>N RALEIGH ST</b>	0	N	E DEPOT ST	E WILLIAMS ST	B-Injury (Evident)	4/21/2004	3:23 PM
<b>W DEPOT ST</b>	0		N PARK ST		C-Injury (Possible)	2/7/2005	7:15 PM
<b>W CHURCH ST</b>	0		S PARK ST		Not Stated	3/21/2005	8:35 PM
<b>OAKWOOD DR</b>	0		W MCIVER ST		Property Damage Only	3/30/2005	6:00 PM
<b>W WILLIAMS ST</b>	0		S PARK ST		Property Damage Only	4/29/2006	3:30 PM
<b>W SMITHFIELD ST</b>	0	E	NORDAN ST	N RALEIGH ST	A-Injury (Disabling)	4/26/2008	5:28 PM
<b>WEST CHURCH ST</b>	0	S	SOUTH PARK ST	SOUTH RALEIGH ST	B-Injury (Evident)	4/4/2009	7:30 PM
<b>W DEPOT ST</b>	0	E	RALEIGH ST	N PARK ST	Property Damage Only	8/16/2010	3:50 PM
<b>W LILLINGTON ST</b>	0	E	S RALEIGH ST	W CHURCH ST	Property Damage Only	11/12/2011	5:40 PM
<b>SHELLEY DR</b>	0	E	COATS CIR	NORTH RALEIGH	Property Damage Only	5/11/2012	6:10 PM
<b>W WIMBERLY</b>	0		NORTH RALEIGH		C-Injury (Possible)	8/5/2012	6:35 PM
<b>NORTH RALEIGH ST</b>	0		W WILLWAMS ST	NORTH RALEIGH	C-Injury (Possible)	11/9/2012	6:45 PM

Figure 2-8: Pedestrian Crashes by Roadway from 1990 - 2010

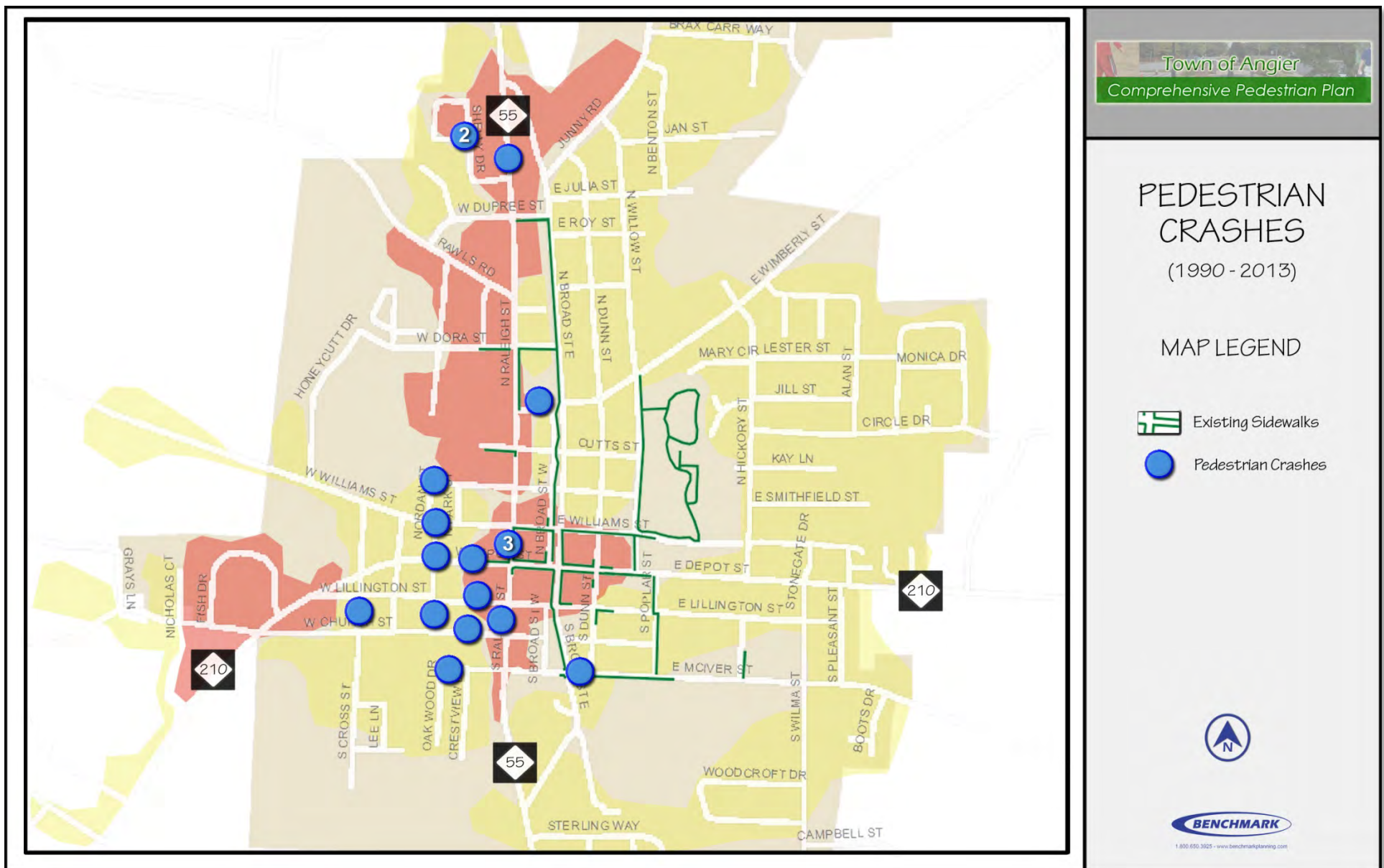


Figure 2-9: Pedestrian Crash Map (1990 -2013)

## G. Current Pedestrian Activities and Future Needs

As part of the development of the plan over 280 residents participated in a survey that inquired about their experiences and needs related to pedestrian activity and infrastructure in Angier. In order to reach a broad cross section of the community, the survey was made available online, and was also available in hard copy in utility bills. The pedestrian planning survey revealed information about the walking habits and future desires of Angier's citizens. In this section, the key findings from the survey are listed, while the detailed results of the survey are summarized in Appendix A.

### Walking is important to most of Angier's residents:

In Angier, most people either drive or ride with a friend to move around the town. However, the survey revealed that nearly 44 percent walk and 14 percent ride a bike as part of their transportation options. Some responded that they use a taxi or some other private form of transportation, since regularly scheduled public transportation is not available. Almost 16 percent of those who responded indicated that walking was not important, and that they did not walk anywhere in the Town. Of the 85 percent that thought it was important, 47 percent of those said it was very important to them. Approximately 38 percent of those surveyed said they walk several days a week. The survey results were confirmed by the Steering Committee and comments from individuals who participated in the public meetings. In addition, numerous pedestrians were observed throughout Angier as field work was being conducted for the plan. Finally, 54 percent of the survey respondents think that walking should be a high priority in Angier, with 21 percent not concerned about it at all.

### Angier's residents will walk more if improvements are made:

Nearly 30 percent of those surveyed indicated that the walking conditions were good in Angier. Fifty-two percent agreed that walking conditions were fair and some improvement was needed, while only 18 percent indicated that walking conditions were poor, indicating that they don't feel safe and improvements were needed. Eighty-one percent of those surveyed said they would walk more frequently if there were safe pedestrian crossings, sidewalks, trails and adequate lighting near where they lived. The top issues discouraging residents from walking now include:

- Lack of sidewalks and trails in general
- Lack of connectivity
- Lack of crosswalks at traffic signals
- Too much vehicular traffic



- Lack of pedestrian signals at intersections
- Aggressive driving behaviors
- Poor street lighting
- Potential of crime

### **Angier's residents primarily walk for recreational purposes:**

One of the key points of the Pedestrian Plan vision is to create an environment where Angier's residents will want to choose walking, not just for recreation, but for daily transportation needs to help reduce the number of vehicles on Angier's roads. As indicated in the surveys, 87 percent of those responding walk for recreation or fitness, while 40 percent choose walking to interact with neighbors. An encouraging result of the survey was that 22 percent indicated they walk as a form of transportation for daily activities and also for short trips. Providing a safe pedestrian environment will help increase the number of residents choosing walking as a realistic alternative for their daily transportation needs in moving around Angier.

### **Angier's residents desire to walk to entertainment, dining, shopping and recreational opportunities:**

Respondents answering the survey selected the following key destinations that they currently walk to or desire to be able to walk to:

- Parks
- Downtown
- Restaurants
- Shopping (downtown)
- Trails and/or Greenways
- Library
- Friends and/or Family Homes



**Figure 2-10: Recreational walker along the Centennial Trail.**

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**Roadways and Intersections needing sidewalks and improvements as identified by Angier's residents:**

When answering the open ended question on the survey regarding the survey respondent's top three roadways that needed sidewalks and pedestrian improvements, one roadway was the topic of discussion more than any other: NC 55 / Raleigh Street. This roadway, as discussed earlier, acts as a barrier separating residents on the western side of NC 55 from downtown and Angier's largest park. This roadway has also had a significant number of pedestrian crashes with only one area with marked crosswalks – NC 55 at NC 210. Pedestrians are often observed crossing in an unsafe manner at unmarked intersections or hurrying to make it across the intersection of NC 55 and NC 210. This intersection is marked for pedestrian crossing; however several deficiencies and corresponding improvements have been identified. One of the primary issues at this intersection is the need to either improve the traffic signal timings or install pedestrian activated signals. Specifically, pedestrian signals with countdown timers will enable pedestrians to better estimate how long they have to cross, while allowing more time in general, to make a safe journey. In addition, the southwestern corner of NC 55 and NC 210 has a landscaped area that impedes safe access by pedestrians as they are preparing to enter the roadway or stepping out of the roadway. The landscape area should be improved with concrete and sidewalks to allow for safe pedestrian access to the crosswalks.

Other roadways identified by residents as needing improvements included NC 210 / Depot Street, McIver Street, North Willow Street and Junny Road. A new crosswalk was recently installed along NC 210 at Poplar Street, which completes an important pedestrian connection to Angier Elementary and Jack Marley Park. Another area that needs improvement is the NC 210 crossing at Broad Street. Although the crossing area is marked with crosswalks, the lengthy time between traffic signal changes encourage pedestrians to cross prior to the light changing for a safe crossing. NCDOT should work with the town to improve the timing of the traffic signals or install pedestrian activated signals to help eliminate long waits for pedestrians attempting to cross in any direction. A segment of McIver Street, between Broad Street and NC 55 is heavily traveled by pedestrians who currently walk in the road along this segment due to the current lack of sidewalks. Based on the heavy use of this area, it is recommended that this segment of McIver be improved with sidewalks. Although not identified as a key intersection improvement as part of this plan, consideration will need to be given to a potential pedestrian crossing south of NC 55 and NC 210 as sidewalk facilities are constructed in this area. North Willow Street is traversed by pedestrians to reach the swimming pool and the park. This street will help complete the pedestrian network to Junny Road, which will eventually connect to residential areas located in the northeastern area of the town. All of the roadways documented for this question in the survey are listed in Appendix A.

In summary, the top roadways and intersections needing improvements are as follows:

The top five pedestrian network / sidewalk projects are:

- NC 55 (within Town Limits)
- NC 210 (within Town Limits)
- East McIver Street from South Broad Street to NC 55
- North Willow Street from Julia Street to Junny Road
- Junny Road from intersection of North Broad/Julia Street to Glen Meadow Drive

The intersection improvement projects are:

- NC 210 at Broad Street
- NC55 at NC 210 / Depot Street
- North Willow Street at East Wimberly Street
- Junny Road at North Broad Street
- NC 55 (floating location not yet determined)
- Broad Street Mid- Block Warning Signage

## **H. Summary of Existing Plans and Policies**

In recent years, the Town has been able to complete many important pedestrian projects in the core areas of town, even without a formalized plan of action. Now, the Town has the opportunity to comprehensively address pedestrian improvements, which is one of the primary reasons for pursuing this planning process. The Town had previously adopted as a goal in its earlier plans to prepare a plan for pedestrians and bicycles; however, progress has not been made, until now, due to the lack of funding opportunities.

Angier recently adopted a new Unified Development Ordinance and future street cross-sections for NC 55, requiring new development to incorporate sidewalks in accordance with the adopted street cross-sections. As part of this process, the steering committee reviewed alternative cross-sections for NC 55 that also incorporated bicycle facilities. The time to consider a new street cross-section is now, before any additional development is construction along NC 55. Similarly, a cross-section should be adopted for NC 210 to encourage the construction of pedestrian and bicycle facilities along that corridor as development occurs.

## Section 3. Pedestrian System Improvements

### A. Introduction

Most towns developed around a traditional downtown with interconnected places to live, work, shop and play. It was not until the widespread use of the automobile and the expansion of our national highway systems following World War II that our towns began to become less connected and decentralized. The Town of Angier followed this general development pattern. In its early years, Angier was well connected, with the downtown in the center surrounded by residential neighborhoods, places of work, schools, and churches. Residents could easily walk as a form of transportation to accomplish almost all of their daily tasks. As Angier grew, the farm fields that surrounded the town were developed and the town expanded outward from its core; however, the interconnected pattern that allowed for pedestrians to walk had disappeared.

This section highlights Angier's plans for reestablishing pedestrian connectivity, crossing barriers and creating a better connected town and pedestrian system. During the pedestrian planning process, many barriers were identified which hindered connectivity between residential neighborhoods, parks, places of employment and commercial/retail development. The proposed improvements in this section set forth a clear path to establishing a safe and well-connected system for pedestrians throughout the town, not just its traditional center.

Although Angier did not continue to expand sidewalks into its growth areas, the town is now working to ensure sidewalks and other pedestrian facilities will be constructed in the future to create a more walkable and connected Angier. The backbone of the pedestrian network proposed to connect these outlying growth areas with the core of the Town relies primarily on new sidewalks along major transportation corridors and improving connections along side streets and at key intersections. Implementing this improved pedestrian network over the long-term will help make the entire town of Angier safer for pedestrians and allow unimpeded travel by foot throughout the community.

## B. Basis for Determining Pedestrian System Improvements

After months of research, including direct input from town residents, working with NCDOT and Town Staff, plans were established to improve the overall pedestrian system through a series of sidewalk and intersection improvements. The public input received from surveys, field work and research on the existing pedestrian conditions made it clear where the priorities existed in Angier. The diagram in Figure 3-1 demonstrates the various sources of information and input that went into recommendations for the pedestrian network, intersection improvements and overall pedestrian system.

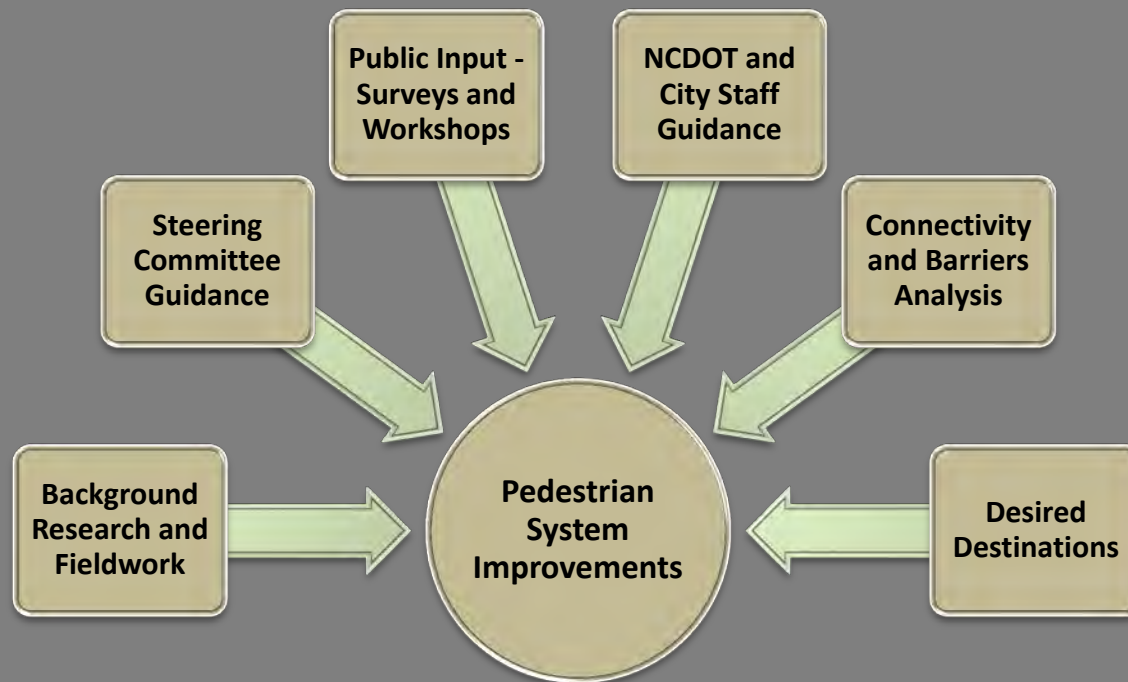


Figure 3-1: Pedestrian System Design Process



## C. Pedestrian Network Recommendations

A series of recommendations were prepared that clearly establish a much safer and better connected pedestrian system for Angier in the future. The improvements include sidewalks, crosswalks and improvements to pedestrian warning devices. The detailed phases for implementation are described in greater detail in Section 5 of the plan.

The proposed pedestrian network map in Figure 3-2, displays the pedestrian facilities improvements that will be needed over the long-term to improve pedestrian connectivity in Angier. The table in Figure 3-3 displays the detailed recommendations and notes to accompany the pedestrian network map. A total of 17 pedestrian improvement projects were identified: eleven (11) pedestrian network improvements along with six (6) recommendations for intersections. While all of the recommendations are important to completing a safe pedestrian network in Angier, a prioritization system was developed to identify top priorities as funding and town/private resources may become available. The priorities for the sidewalk projects were defined as high priority, medium priority and long range priority. Although one project maybe identified ahead of another, as time and resources allow, a lower priority project may rise above a higher priority project.

The pedestrian network / sidewalk projects and their corresponding priorities are as follows with their locations identified on the Pedestrian Network map in Figure 3-2:

### *High Priority Sidewalk Projects*

- NC 55 (within Town Limits)
- NC 210 (within Town Limits)
- East McIver Street from South Broad Street to NC 55
- North Willow Street from Julia Street to Junny Road
- Junny Road from intersection of North Broad/Julia Street to Glen Meadow Drive

### *Medium Priority Sidewalk Projects*

- Cutts Street from North Willow Street to NC 55
- North Hickory Street from Wimberly Street to NC 210

### *Long Range Sidewalk Projects*

- Wimberly from Broad Street to North Hickory Street
- McIver from Angier Elementary to Wilma Street
- South Dunn Street from East Church Street to East McIver Street
- East Lillington (2 small segments to complete the pedestrian network)

The intersection improvement projects are as follows with their locations identified on the Pedestrian Network map:

- NC 210 at Broad Street
- NC55 at NC 210 / Depot Street
- North Willow Street at East Wimberly Street
- Junny Road at North Broad Street
- NC 55 (floating location not yet determined)
- Broad Street Mid-Block Warning Signage

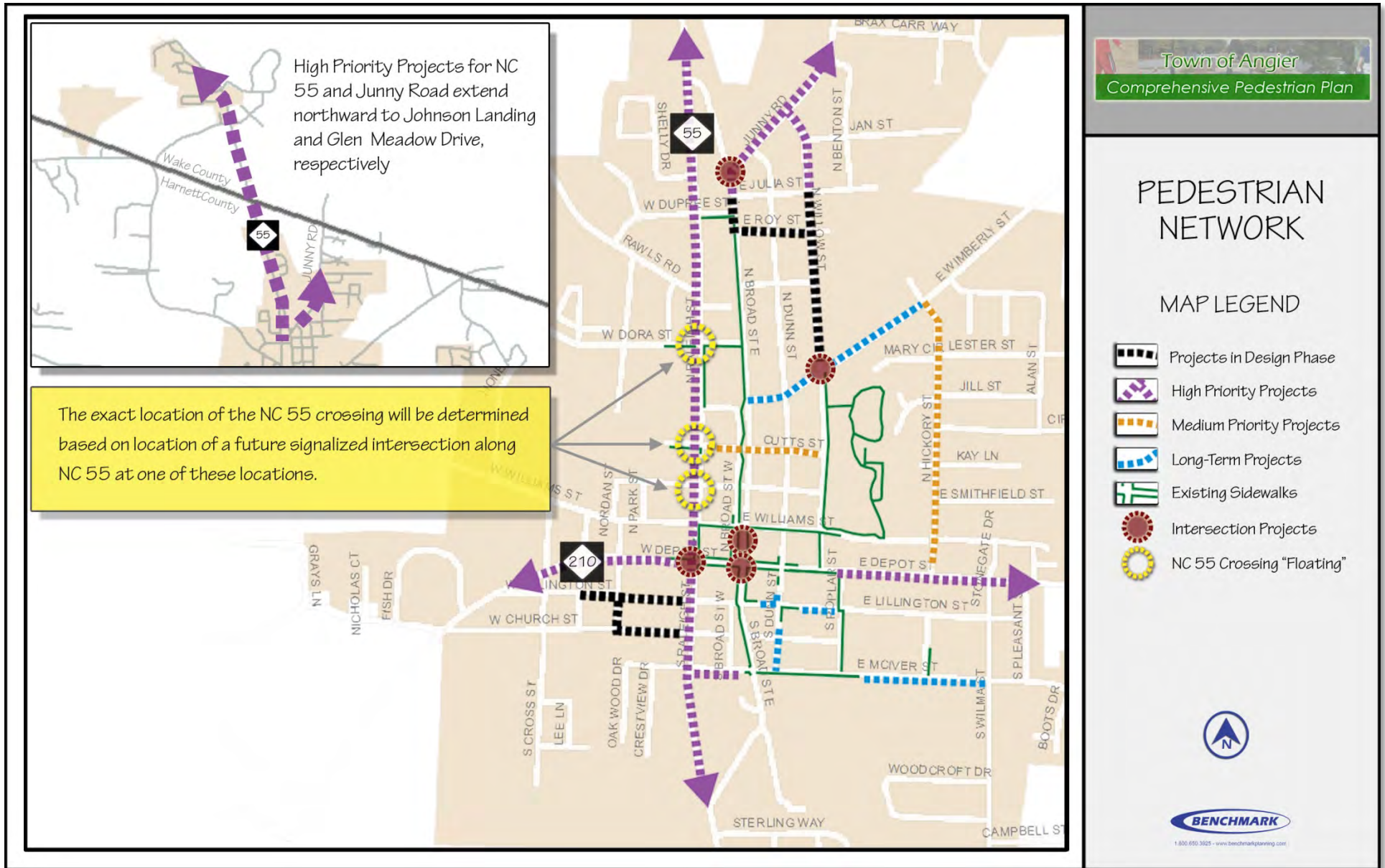


Figure 3-3: Pedestrian Network Improvements Table

No.	Pedestrian Corridor	Location	Recommendations	Comments
1	NC 55 / Raleigh Street	Town Limit to Town Limit	Sidewalks both sides of roadway and crosswalks	Coordinate with NCDOT on plans to integrate recommended pedestrian facilities and update street section to potentially include bicycle lanes as part of a complete street concept. A need exists for an additional pedestrian crossing north and in the long-term future, the south ends of NC 55.
2	NC 210 / Depot Street	Town Limit to Town Limit	Sidewalks both sides of roadway and crosswalks	
3	Mclver	Broad St. to NC 55	Sidewalk	Complete sidewalk network, long-term consideration of potential NC 55 crosswalk near this location.
4	North Willow Street	Julia Street to Junny Road	Sidewalk	This will complete the pedestrian connection from Junny Road to the Park and Downtown.
5	Junny Road	Intersection of North Broad/Julia Street to Glen Meadow Drive	Sidewalk	This will complete pedestrian connection to northeastern residential areas.
6	Cutts Street	N. Willow St. to NC 55	Sidewalk	Sidewalk addition will make a connection to NC 55 midway along Centennial Trail.
7	North Hickory Street	Wimberly St. to NC 210	Sidewalk	Connects residents to the eastern entrance of Jack Marley Park.
8	Wimberly Street	Broad St. to N. Hickory St.	Sidewalk	Connection for neighborhoods along Wimberly.
9	Mclver Street	Agnier Elementary to Wilma St.	Sidewalk	Completes pedestrian network to school.
10	South Dunn Street	Just north of Church St. to East Mclver St.	Sidewalk	Completes a segment for residents to downtown, school and park.
11	East Lillington Street	2 Small Segments (see map)	Sidewalk	Fills in the gap for the existing sidewalk along East Lillington Street.

Figure 3-4: Intersection Improvements Table

No.	Intersection Location	Recommendations	Comments
1	NC 55 & 210	Pedestrian Signals and construction of appropriate curb ramp and sidewalk at southwestern corner.	Intersection is difficult to cross in a timely manner. If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT. Southwestern corner of the intersection is landscaped and needs to be improved to comply with ADA and provide safe pedestrian access to crosswalk.
2	NC 210 & Broad Street	Pedestrian Signals	If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT.
3	N. Willow St. & E. Wimberly St.	High visibility Ladder style crosswalk	This improvement will be needed to connect with the sidewalk that is currently under design on N. Willow St. from Wimberly to Julia St.
4	Junny Road	High visibility Ladder style crosswalk	This improvement will be needed to connect the future Junny Road sidewalk with the Centennial Trail across Broad Street.
5	NC 55 (Floating/Future Crossing)	Pedestrian Signals and high visibility Ladder style crosswalk when final location is determined.	The final location of a future signalized intersection will determine the safest place to install a pedestrian crossing facility along North Raleigh Street / NC 55.
6	Broad Street Mid-Block Warning Signage	Install an in street Pedestrians in Crosswalk Sign	Crosswalk needs additional identification to alert drivers of potential pedestrian activity.

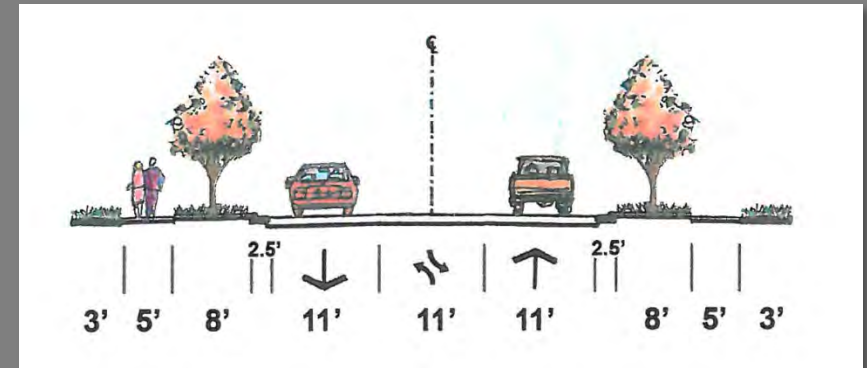
### Priority Network Improvements

A total of five projects of the aforementioned pedestrian network improvements are considered to be high priorities for helping to complete the pedestrian network and improve connectivity. As indicated through survey responses, field work and review by the Steering Committee, NCDOT, and Town Staff, the following five projects were recognized as priorities over the next five to ten years:

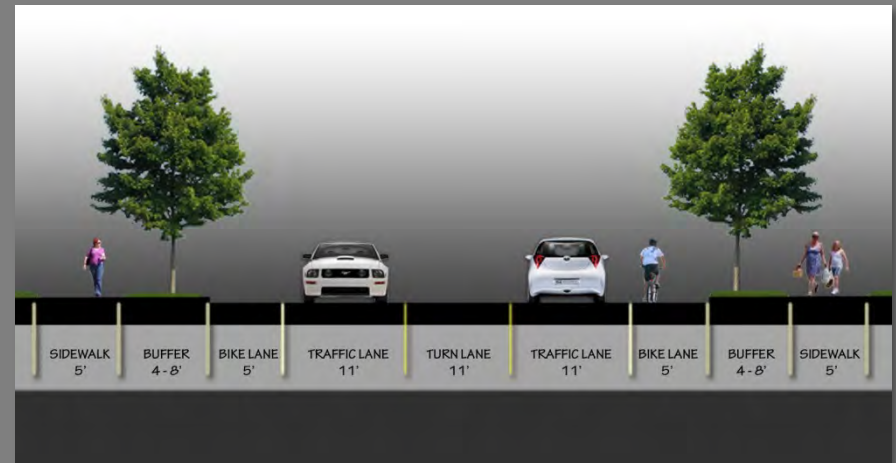
- NC 55 (within Town Limits)
- NC 210 (within Town Limits)
- West McIver Street from South Broad Street to NC 55
- North Willow Street from Julia Street to Junny Road
- Junny Road from intersection of North Broad/Julia Street to Glen Meadow Drive

**NC 55 / Raleigh Street**

The top priority project is to construct sidewalks along NC 55 through the Town limits from the southern edge of town to Johnson's Landing. The residents responding to the survey overwhelmingly indicated that this roadway was either their top priority or in their top three. The proposed improvements, which are adopted as policy in the Town's Unified Development Ordinance, include sidewalks on both sides of the road for the entire length. Due to high traffic volumes on NC 55, the Town should also consider adopting an amended policy to accompany the adopted street section requiring high visibility ladder style crosswalks at all signalized intersections, along with pedestrian signals and signage compliant with the most recent Manual on Uniform Traffic Control Devices (MUTCD). In addition, the current adopted street cross-section does not provide for a complete street concept that encourages bicycle transportation as well. It is recommended that the town consider amending their adopted cross-section to include bicycle lanes. Since the town has adopted the policy, several developments have constructed facilities that are in compliance with the adopted cross-section. It is important for the town to reconsider the adopted section now if it desires to include bicycle facilities along NC 55 in the future since build-out based on the current cross-section will not allow sufficient width to mark bike lanes once it is complete.



**Current Adopted Street Cross Section for NC 55**



**Complete Street Concept with Bike Lanes**

**Figure 3-5: NC 55 Street Cross Sections**



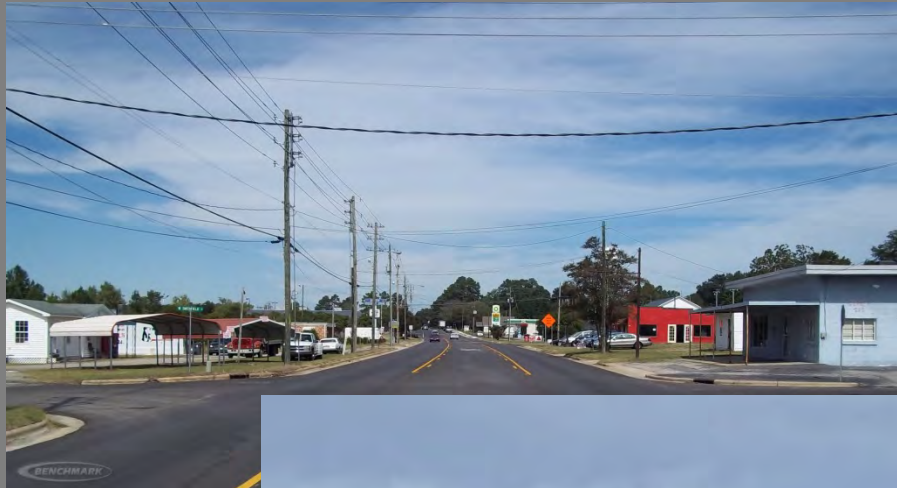


Figure 3-6

Photo Illustration of Complete Street Concept along NC 55 / Raleigh Street



### NC 210 / Depot Street

It is recommended that a street cross-section similar to NC 55 also be adopted for NC 210, with the exception of a center turn lane. Traffic volumes along NC 210 on both sides of NC 55 are less than the heaviest traveled section of NC 55. Also, it will be difficult to incorporate a complete street concept with bicycle lanes and sidewalks if the center turn lane was introduced to NC 210 given the physical constraints of the existing right-of-way and potential right-of-way issues if it is expanded to include three lanes along with pedestrian and bicycle facilities. It will also be important to identify a location along the western portion of NC 210 for a safe pedestrian crossing. A crosswalk across NC 210 was recently installed on the eastern side of NC 210 at Poplar Street.

### West McIver Street

Currently, a sidewalk extends from Angier Elementary School west along McIver Street to Broad Street where it ends (see Figure 3-8). It is recommended that this sidewalk be extended to NC 55 from this location. The sidewalk extension will create the opportunity to connect with neighborhoods on the western side of NC 55 and provide potential opportunity for students in those areas to safely walk to school. Careful consideration will need to be given to how to provide for a safe crossing at NC 55 given that a signalized intersection does not currently exist. Due to the unknown status of the completion of improvements along NC 55, an official

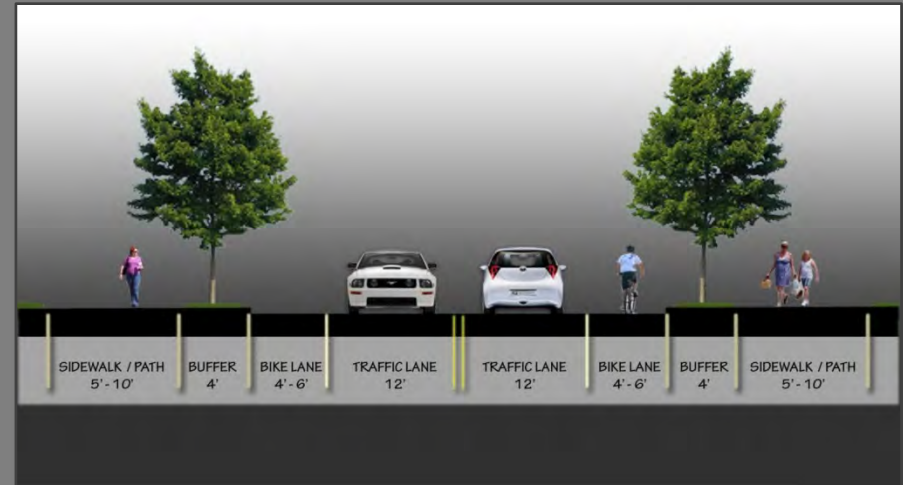


Figure 3-7: NC 210 Street Cross Sections



Figure 3-8: McIver Street at Broad Street

recommendation for a pedestrian crossing at this location was not developed. The design guidelines in Section 6 of the plan should be used as a starting point in the identification of an appropriate crossing alternative for the intersection of McIver Street and NC 55.

#### **North Willow Street from Julia Street to Junny Road**

Sidewalk improvements are currently in the design phase for North Willow Street from Wimberly Street to Julia Street. The sidewalk project that is in design phase will be the next phase for extending the pedestrian network to the north. This recommendation to extend the sidewalk from Julia Street to Junny Road will be the final phase for completing the connectivity to the intersection of Junny Road. This project will tie in with the Junny Road sidewalk project to complete the connection for residents on the north end of town to connect by foot to the park, downtown, post office and other important destinations in town.

#### **Junny Road North Broad/Julia Street to Glen Meadow Drive**

The recommended Junny Road sidewalk improvements will provide a connection from Broad Street and North Willow Street to residential areas terminating at Glen Meadow Drive. This sidewalk segment will provide safe pedestrian connectivity to the post office, Centennial Trail, downtown and other key destinations in town. Section 6, Design Guidelines, provides guidance on how pedestrian crossings should be considered at intersections.



The black dashed line displays sidewalk projects that currently in the design phase. The North Willow Street and Junny Road Projects that are recommended in purple will complete the pedestrian network to the north end of town.

**Figure 3-9: North end Improvements**





**Figure 3-10**

**Example Pedestrian Improvements on  
North Willow Street.**





**Figure 3-11**  
**Example Pedestrian Improvements on**  
**Junny Road.**



## Priority Intersection Improvements

A total of five intersection projects are considered to be high priorities for helping to complete the pedestrian network and improve safety. As indicated through survey responses, field work and review by the Steering Committee, NCDOT, and Town Staff, the following six projects were recognized as priorities over the next five to ten years:

- NC 210 at Broad Street
- NC55 at NC 210 / Depot Street
- North Willow Street at East Wimberly Street
- Junny Road at North Broad Street
- NC 55 (floating location not yet determined)
- Broad Street Mid-Block Warning Signage

### NC 210 at Broad Street

Although NC 210 is a signalized intersection with Broad Street, the duration of wait between the current signal timings for a pedestrian to cross north and south across NC 210 are too long. Pedestrians are often observed not waiting for the signal light to change, then, darting across the intersection to cross in an unsafe manner. It is recommended that the Town work closely with NCDOT to improve the signal timings at this intersection, and, as budgets may allow in the future, to consider installing pedestrian activated signals.

### NC 55 at NC 210/Depot Street

Two main impediments exist at this intersection for pedestrians: short signal timings and lack of safe pedestrian access at the southwestern corner of the intersection. During field observations, pedestrians were observed hurrying to cross the intersection before the changing of the light after hesitantly entering the intersection, unsure of when the light may change. A brisk walk started at the earliest possible moment is needed to safely cross the intersection. Anyone that has difficulty walking will often find themselves in the middle of the last lane when the light turns green to cross, particularly when crossing east or west across NC 55. It is recommended that pedestrian signals with a countdown be installed at this intersection to allow pedestrians more time to cross and to provide them greater predictability for when the light will change with the aid of the countdown feature. Finally, the southwestern corner of the intersection is landscaped and does not provide adequate and safe access for all pedestrians. This corner of the intersection needs the installation of proper curb ramps and pedestrian facilities to move pedestrians safely away from the intersection after crossing, while also, providing a safe entrance into the intersection when entering the crosswalk.





Figure 3-12

Example curb ramp and pedestrian access improvements at the southwestern corner of the intersection of NC 55 and 210. Consider extending the sidewalk behind signal box at this location due to the existing site constraints.



**North Willow Street at East Wimberly Street**

It will be important to install pedestrian crosswalks at this intersection to allow safe crossing from the new sidewalk facilities on North Willow Street to existing sidewalks on Willow Street that lead to the park. It is recommended that a high visibility ladder style crosswalk be installed with appropriate pedestrian warning signage along East Wimberly Street in both directions approaching the crosswalk.

**Junny Road at North Broad Street**

It is recommended that a high visibility ladder style crosswalk and corresponding pedestrian warning signage be installed at the intersection of Junny Road with North Broad Street. Pedestrians will need to cross from Junny Road to the Centennial Trail across Broad Street safely. The high visibility crossing will help alert drivers of pedestrian activity in the area.

**NC 55 (floating – location not yet determined)**

NC 55 presents one of the greatest barriers for connecting pedestrians from the west side of NC 55 to the eastern side of NC 55 where important destinations for pedestrians exist. NC 55 accounts for the most pedestrian crashes in Angier as well. Although a safe pedestrian crossing is in place and is planned to be enhanced at NC 210 and NC 55, the northern end of NC 55 is in need of a safe pedestrian crossing as well. While it is recommended to install a safe pedestrian crossing along the northern segment of NC 55, the final location of a future signalized intersection will determine the safest place to install a pedestrian crossing facility. When installed, pedestrian activated signals and high visibility Ladder style crosswalk markings should be utilized when the final location is determined.

**Broad Street Mid-Block Warning Signage**

The mid-block crosswalk in downtown crossing Broad Street to Charles Nordan Square and Centennial Trail helps to alert drivers of pedestrian activity at the unsignalized mid-block crossing location. The addition of a pedestrian warning sign in the middle of the street at the crosswalk will provide additional warning and visibility to motorists to increase the safety of pedestrians crossing at this location.





Figure 3-13

Example Warning Signage to increase safety downtown.





## Section 4. Programs and Policies

### A. Introduction

In addition to planning for the installation or enhancement of physical infrastructure to improve the town's pedestrian system, it is also important to identify those programs that can be implemented and policies that can be adopted or modified that will support the physical planning efforts and enhance the effectiveness of the improved system. Without these supporting programs in place to raise community awareness of pedestrian opportunities and safety issues, encourage participation from residents as active users of the system and ensure that safety laws are being followed and enforced, or policies to direct the efforts of the town and its various departments as they implement the plan, the town and its funding partners in pedestrian facility construction will see a much lower return on their infrastructure investment. If implemented fully, these programs and policy recommendations will help the town more fully achieve the goals and objectives of the plan and derive a greater benefit from the expenditures that it makes on new or improved infrastructure.

### B. Program Recommendations and Resources

In North Carolina and across the country, communities are investing their resources to create safer environments for pedestrians and increase the usage and usability of their pedestrian networks through projects and programs that are categorized as follows: 1) education; 2) encouragement; and 3) enforcement. All three activities need to take place concurrently as they all depend on each other to create a safer pedestrian environment.

The Town and its department heads have established lines of communication during the study process while serving on the Steering Committee, creating the opportunity to build partnerships with the local schools and other organizations in the community. It is recommended that members of this committee, along with some additional leaders from the community, form an official advisory group for pedestrian improvements in Angier. Through this advisory group, members can encourage residents to walk more, while helping to educate the broader community regarding pedestrian safety. The advisory committee, with help from key town staff, can work together to further walking activities and raise awareness, especially during the first few years following the adoption of the plan.

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## Public Education

One of the first steps for consideration by the advisory committee is public education with respect to the issues of pedestrian safety and the benefits of walking. Educational materials and opportunities for educational events can be made available to Angier Elementary (and other area schools) by NCDOT's Division of Bicycle and Pedestrian Planning, health agencies and residents that focus on safe pedestrian behaviors, rules of safe walking, and the responsibilities of pedestrians and drivers. Many pedestrian advocacy groups have a web-based presence, offering up-to-date information on safe pedestrian travel, rules and regulations to be followed by pedestrians, and safe driving habits. Examples include the North Carolina Division of Bicycle and Pedestrian Transportation, the Pedestrian and Bicycle Information Center and America Walks. The advisory committee can make the information available through printed brochures, the Town's website, newspaper, newsletters, t-shirts, and other advertising and media outlets as determined by the group. The Town can also utilize its ability to market to residents and business through the inclusion of literature and notices in its monthly utility bills.

In order to stay current with the most up to date practices regarding their responsibilities, the Town Planning and Public Safety Staff on the advisory committee should continue to receive education and training regarding pedestrian safety and walking by attending conferences and workshops held by planning and transportation organizations and agencies. The NCDOT has numerous experts on its staff that can provide training on particular topics and participate in brainstorming sessions with the advisory group on implementation ideas. In addition, many training programs are available through the internet on pedestrian planning and safety topics. Town staff through these resources will have the opportunity to share new ideas with this committee at its regularly scheduled meetings.

Web based educational resources can be found at: America Walks (<http://americawalks.org>), the National Highway Traffic Safety Administration (<http://www.nhtsa.gov/Pedestrians>), the Federal Highway Administration (<http://www.fhwa.dot.gov>), the North Carolina Division of Bicycle and Pedestrian Transportation (<http://www.ncdot.gov/bikeped>), the Centers for Disease Control and Prevention (<http://www.cdc.gov>), Eat Smart-Move More (<http://www.eatsmartmovemorenc.com>), and many others. Each one of these resources has a variety of program recommendations for pedestrians of all ages and a wealth of materials that can be duplicated for public educational purposes at no cost. The Town can create a separate page on its website as an ideal place to provide links to these organization's websites, programs and materials.



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## Encouragement

One of the many ways to encourage people to walk more is to involve them in an organized walking event, providing a real-world experience to support the educational components of the pedestrian program. Programs that may help to encourage people to walk more frequently include walking clubs, walking events for social groups, walking “school buses” where groups of neighborhood children walk together to school with adult supervision, and walking events associated with annual festivals, holidays or community celebrations. The advisory group can work with the partner organizations that they represent to create opportunities that encourage active participation. It is important for the residents of Angier, young and old, to experience the benefits of walking first hand.

Another idea that surfaced during committee meetings was the discussion of establishing a regular walking event that coincides with an existing Town festival. With the influence of the Fort Bragg military population in the area, many residents in Angier are familiar with the community walks that take place in Germany called *Volksmarches*. *Volksmarches* are festive occasions in a family atmosphere where long walks are held through villages and the country side. During these *Volksmarches*, participants typically purchase a start card for a very small fee, and a little extra if they want to win a prize or “medallion” at the end. The *Volksmarches* are a form of non-competitive fitness walking that typically extend 10 kilometers or 6.2 miles. The events include food, entertainment and other activities and vendors. Points are established along the way called “*Kontrol*” points where the tickets or pass cards are stamped. At the end of the march, participants are usually given a meal, which can be accompanied by other festivities or community events. This type of event could take place in conjunction with Angier’s annual Crepe Myrtle Festival. The *Volksmarch* could start in the center town and venture out along a safe walking route to locations where participants could have their cards stamped. Locations could include local businesses, points of interest and community facilities. The walk, or “march”, is an opportunity for residents to experience walking in Angier and learn about various sites and businesses in Angier as well.

As residents related at the surveys, many people are interested in walking who typically walk alone, but who expressed interest in a walking club or group. Such a club would provide higher visibility for pedestrians who walk for fitness, increasing their safety simply through the act of walking as a group. While it was also revealed through the survey that there are a number of residents who get together to walk on an informal basis, more formal groups could provide an opportunity for larger numbers of residents to get involved since the groups would allow people who are not acquainted with each other to connect and form relationships with others who share similar

walking habits or routes. Such clubs or groups can be organized by either government organizations, community service groups, churches or similar organizations, but all should receive support from the town's advisory group in order to encourage their missions and provide a higher level of coordination between groups to prevent duplication of activities.

Special events that occur on a national basis that can be incorporated locally are Earth Day (<http://www.earthday.org>), National Trails Day (<http://www.americanhiking.org/national-trails-day/www.americanhiking.org/NTD.aspx>), National Walk Our Children to School Day (<http://www.walktoschool.org>). These events present excellent opportunities for organized walking activities. In addition, as mentioned earlier, many local events already exist for piggybacking as well as other national holidays and events, including the Fourth of July. Other events include can include races and triathlons. These events can help generate revenues for programs throughout the community.

One of the more effective programs that has been established in North Carolina for the development and sustainment of pedestrian activity is the Safe Routes to School program (<http://www.saferoutesinfo.org>), which seeks to support the creation and enhancement of safe pedestrian connections for children to walk and cycle to school. The Town and the local schools should partner to join the program in order to leverage the resources that are available for participating communities, including infrastructure grants, educational programming for children and training for parents, school officials and town employees on how to enhance pedestrian safety and connectivity. Additional information on this program can be found by contacting:

Ed Johnson, ASLA, RLA  
 SRTS Coordinator  
 NCDOT, Division of Transportation Mobility and Safety Traffic Management Unit  
 1552 Mail Service Center  
 Raleigh, NC 27699-1552  
 Email: [erjohnson2@ncdot.gov](mailto:erjohnson2@ncdot.gov)  
 Phone: 919.707.2604

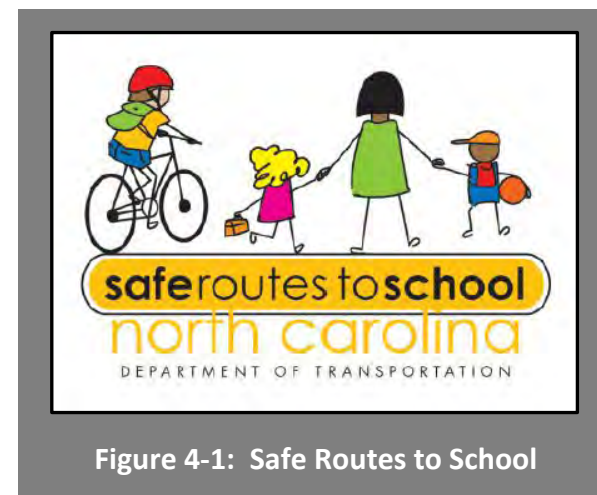
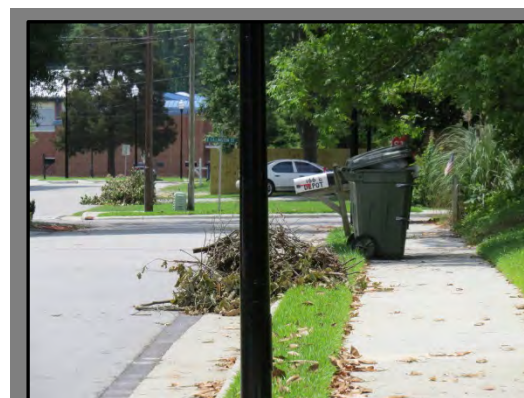


Figure 4-1: Safe Routes to School

## Enforcement

As pedestrian activity is encouraged, facilities are enhanced and new connections are made, it will be crucial for the town to establish effective enforcement activities to ensure the safety of pedestrians. If adequate enforcement mechanisms are not in place pedestrians and motorists may be discouraged due to actual or perceived “bad behaviors” that are observed or experienced with respect to traffic laws and their respective rights and responsibilities. Of particular note, aggressive driving was cited frequently as a response to question #11 in the community survey, which inquired about conditions that discourage Angier’s residents from walking. Since both pedestrians and motorists have the responsibility to observe safety laws, there should be activities instituted by local law enforcement agencies to target violations by both groups in order to help educate the public and correct behaviors that may lead to accidents. Local law enforcement agencies should also take it upon themselves to provide additional education to their officers in order to ensure that they are familiar with all of the respective laws and regulations, enabling them to be more effective in their enforcement of the law and education of the public. Resources for inclusion in law enforcement training programs include the general NCDOT law resources found online at <http://www.ncdot.gov/bikeped/lawspolicies/laws> and, specifically, the pedestrian section of the NCDOT Laws Guidebook found at [http://www.ncdot.gov/bikeped/download/bikeped\\_laws\\_Guidebook-Part-2.pdf](http://www.ncdot.gov/bikeped/download/bikeped_laws_Guidebook-Part-2.pdf).

Local law enforcement agencies can utilize the pedestrian crash data and observed behaviors outlined in the plan to target enforcement activities in areas with high levels of pedestrian activity or high risk factors to pedestrian safety. Officers can organize awareness campaigns where activities such as motorists speeding, not yielding to pedestrians in crosswalks, parking on sidewalks, and similar violations are observed to help educate the motoring public regarding pedestrian safety and access issues. Pedestrians should also be targeted when crossing roadways in a dangerous manner, or as they walk facing the wrong direction. Property owners often obstruct sidewalks with garbage cans and piles of yard debris, forcing pedestrians into the street and thereby creating safety hazards. Often, many of these seem like minor issues; however, consistent enforcement and awareness will create a safer pedestrian environment and in the long run it will help to save lives and reduce the risk of injury from pedestrian crashes.



**Figure 4-1: Garbage containers can create obstacles to pedestrians on sidewalks.**

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## C. Policy Recommendations

In addition to the programs that are recommended for the town to pursue in furtherance of achieving the goals and objectives of the plan, there are a number of policies that are recommended for the town to adopt and follow that will help to ensure a consistent framework within which the plan will be implemented. These policies include some minor modifications to the town's land use and development regulations as well as the formalization of policies, many of which are already in place in an informal capacity, to ensure that pedestrian facilities are budgeted for, constructed and maintained to the same standards as comparable vehicular transportation facilities.

Given the recent adoption of the Town's Unified Development Ordinance in September of 2010 and the extensive provisions for the construction of pedestrian facilities, very few changes are recommended. The primary recommendation that coincides with the priority pedestrian projects is to consider the updating of the NC 55 street-cross sections and adopting a bicycle and pedestrian friendly cross-section for NC 210. It is important to include both pedestrian and bicycle facilities in these adopted cross sections to ensure future development incorporates standards that will help implement a complete streets vision in Angier. The Town should also ensure that new development and significant renovations of existing development provide for safe pedestrian access and connections to existing and planned pedestrian networks.

In order to ensure that steady progress is made toward achieving the infrastructure goals outlined in the plan, it is recommended that the town establish and make regular appropriations to a separate capital account that is dedicated to pedestrian infrastructure funding. In addition to other potential sources for appropriations, it is recommended that a portion of the funding of this account come from the Town's annual Powell Bill distribution. While no specific annual funding level is recommended, it is suggested that the amount of funding be set to a level that is sufficient to make steady progress toward completing the highest priority pedestrian infrastructure and safety improvements outlined in the plan. It is also recommended that a dedicated annual funding stream for sidewalk maintenance be established that is separate from general street maintenance funding in order to ensure that there are annual appropriations and expenditures to support the maintenance of existing pedestrian infrastructure. The Town should also review its current sidewalk maintenance policies to ensure that a regular program of evaluation, prioritization and maintenance is carried out on an annual basis.

To address the need of providing pedestrian access to all public facilities, the Town should adopt a policy that requires all new town parks, civic buildings and other public facilities to be connected to the Town's pedestrian network. If a Town funded public facility is sited away from the pedestrian network due to unavoidable circumstances, the Town's policy should be to prioritize the funding and construction of a pedestrian linkage to that facility as soon as practical.





## Section 5. Implementation

### A. Introduction

The Town of Angier completed the development of this Comprehensive Pedestrian Plan to identify pedestrian improvements and the steps that need to be taken to implement the recommended improvements. Strategies or action steps were developed as a guide for carrying out the plan over the next 15 years. Many of the actions can be completed during the first year after the plan's adoption, while other improvements will require a longer time period to make them a reality.

Following the adoption of the plan, the implementation process will officially begin. Town Staff will need to work closely with its Planning Board, NCDOT, the community and an advisory committee to continue to build support for the plan as it moves forward.

### B. Action Steps

#### Plan Adoption

Although it may seem obvious, the Comprehensive Pedestrian Plan will need to be adopted by the Town once it has been reviewed and approved by NCDOT. The Comprehensive Pedestrian Plan is a result of a partnership between the Town, its Citizens and NCDOT in planning for future pedestrian improvements. The plan will serve as a guide for constructing the priority projects and implementing the programs and policies that have been recommended. The Plan will play a key role in obtaining funding for pedestrian network enhancements from NCDOT and communicating the pedestrian needs of the Town to NCDOT Officials as roadway improvements are being planned, ensuring that opportunities to construct identified segments of the pedestrian system are not overlooked.

#### Priority Pedestrian Projects

A total of 11 projects that included pedestrian network and connectivity projects (sidewalks), and 6 key intersection improvements were identified through this process. While each individual project is of importance to achieving the Town's vision, it was determined through

background research, public comments, Town staff and NCDOT review that some projects should have a higher priority for implementation. Although these projects were identified as the top priorities, as funding and resources become available, other projects within the overall list may be programmed for construction. For example, the Town may receive funding to install pedestrian warning signage in specific areas that were not part of the priority projects, moving that component of the recommended improvements ahead of some of the other priorities.

The highest priority projects from Section 3 of the plan will help complete major segments of the overall pedestrian network, improving connectivity for all residents in Angier. NC 55 and NC 210 are the most challenging barriers to creating a safe and connected pedestrian network. Progress on working with NCDOT and new development projects along these corridors should remain a high priority to ensure the desired complete streets concept with pedestrian and bicycle facilities becomes a reality. The completion of major pedestrian facilities along these routes will help the town achieve all four of its primary pedestrian goals to improve the community as a whole, create safe and connected pedestrian facilities and ultimately establish an environment where residents will chose walking as alternative to vehicular transportation.

In addition to NC 55 and 210, East McIver Street will complete a sidewalk segment from NC 55 to South Broad Street, which connects to Angier Elementary School. This connection will allow students and others to walk along that stretch of the street safely. A safe pedestrian crossing will need to be constructed south of the major NC 55/210 intersection as plans for NC 55 are established. Finally the improvements on North Willow Street and Junny Road will complete the network for pedestrians in the northern portion of the town.

Along with these network improvements, key intersection improvements will need to be completed concurrently with many of the identified network projects. However, two of the most important intersection improvement projects include the recommended improvements for NC 55 at NC 210 and NC 210 at Broad Street. The signal timing improvements detailed in Section 3 will help improve safety at both locations by allowing pedestrians more predictable and regular intervals with which to cross the road. The addition of pedestrian activated signals at these locations will increase safety as budgets may allow in the future. At the southwestern corner of NC 55 and NC 210, curb ramps and safe pedestrian access facilities need to be installed as the current approach and exit points are covered with landscaping.

Other key intersection improvements are recommended at North Willow Street at Wimberly Street, Junny Road at Broad Street, NC 55 (location TBD), and the mid-block crossing of North Broad Street in downtown. A high visibility ladder style crosswalk and pedestrian warning signage are needed for the safe crossing of Wimberly Street as sidewalk improvements are currently in the design phase for North Willow. A similar high visibility crossing as detailed in Section 3 will also be needed at Junny Road and Broad Street to allow for safe pedestrian crossing at that location. As discussed earlier, NC 55 will need a safe pedestrian crossing along the northern segment once a final location for a signalized intersection is determined in the near future. Finally, a pedestrian warning sign is needed for the mid-block crosswalk on North Broad Street to enhance the existing ladder style crosswalk and alert drivers of the pedestrian crossing.

While the remaining projects are important, the aforementioned projects carry a much more significant urgency for implementation since their completion will have the greatest influence on the overall pedestrian network. The remaining projects are the installation of sidewalks along Junny Road from the intersection of North Broad Street / Julia Street to Glen Meadow Drive, Cutts Street from North Willow Street to NC 55, North Willow Street from Julia Street to Junny Road, North Hickory Street from Wimberly Street to NC 210, Wimberly Street from Broad Street to North Hickory Street, McIver Street from Agnier Elementary to Wilma Street, South Dunn Street from Church Street to East McIver Street, and two small segments along East Lillington Street (see map). Some of these lower priority projects are perhaps more achievable than the higher priority projects, and so, as funding becomes available, these should be considered for completion, though they should not supplant the higher priority improvements without further consideration of the impact of delaying the completion of any of those projects.

Although this plan did not address the opportunity for a regional trail system, the Town of Angier, Town of Coats, Town of Dunn and the Town of Erwin have discussed the possibilities of developing the abandoned rail corridor into a regional trail that would connect the towns to each other and to the Cape Fear River. Angier and the towns of Erwin and Dunn already have portions of this trail established. Linking all of the towns together creates an opportunity for a longer trail that would help encourage tourism. The Town of Angier should continue to work with these communities to help develop this regional economic development opportunity.

## C. Establishing the Advisory Committee and Staffing Priorities

Following the adoption of the plan, the Town should continue with the good work and precedent for cooperation that has been established through the planning process by transitioning the steering committee into an advisory and oversight committee to help ensure the implementation of the plan. The advisory committee does not have to include the entire steering committee, but should include the core group of stakeholders and responsible departments to ensure that the key actors are involved going forward. The committee would most likely need to meet only quarterly or perhaps biannually to review the status of projects, make recommendations and monitor progress toward the implementation of the plan. One of the key roles of the advisory committee should be to make recommendations on funding sidewalk projects and the allocation of resources for the regular maintenance of existing sidewalks. This could be done as a formal recommendation to the Town Manager prior to the preparation of the annual budget recommendation to the Board of Commissioners. As part of its responsibilities, the committee should also publish an annual report outlining the Town's progress toward implementation of the plan and present it to the Board of Commissioners each spring prior to the consideration of the annual budget. The Town should also designate a staff member as the manager of the implementation of the plan and give that person the responsibility for coordinating department level communication regarding plan implementation and the duty of serving as staff to the oversight committee.

## D. Program and Policy Priorities

Of the programs that are recommended in Section 4, the most important are applying for participation in the Safe Routes to School program, the establishment of a pedestrian education program in the public schools and the implementation of a pedestrian safety enforcement program by the Angier Police Department. The Safe Routes to School program will allow the Town to access additional NCDOT resources and brings the potential for funding priority projects to enhance connectivity and access to schools as well as the improvement of pedestrian safety in the immediate vicinity of schools. Enhancing knowledge regarding safe pedestrian activity for school children will help to ensure that these young people, who are perhaps the most vulnerable to pedestrian crashes and are likely the least informed due to the paucity of opportunities for walking at the present time, grow up with the knowledge to be safe pedestrians. As is often demonstrated through other school based programs, children can have the ability to influence their parents and other family members by transmitting important information to them regarding safe pedestrian activity, and thereby having a positive multiplier effect throughout the community. And finally, in order to demonstrate the Town's commitment to pedestrian safety, the Police Department's

targeted enforcement of pedestrian laws in high risk areas and enhanced officer training and awareness will ensure that the planned increase in pedestrian activity advocated by this plan occurs in an environment that is as safe as practically achievable. Following the successful implementation of these programs, the advisory committee should begin working with the appropriate Town Departments and outside stakeholders to follow through with the implementation of the remaining program recommendations.

The top priorities for policy implementation include the establishment of a dedicated funding mechanism for capital investments in pedestrian facilities and the appropriation of adequate annual funding for sidewalk maintenance. By establishing these as part of the regular budgeting process the Town will ensure its commitment to the vision of the plan. While the issue of financial support for this program will entail making difficult choices with respect to other funding priorities, the importance of the provision of financial support for the implementation of the plan cannot be understated. Without the financial backing to achieve the connectivity and safety enhancement goals of the plan, the overall vision of a healthy pedestrian network cannot be achieved. This is not meant to diminish the importance of the remaining policy recommendations, which should all be implemented, but rather to emphasize how crucial the establishment of a standing policy to commit funds to achieve the plan's goals is.

## **E. Performance Measures**

As part of the preparation of its annual report to the Board of Commissioners, the advisory committee needs a set of performance measures by which it can review progress towards plan implementation. It is recommended that the committee measure performance and progress toward plan implementation by several means since there are no uniform ways by which all of the plan recommendations can be measured. Simple measures of performance toward implementation include reviewing the number of linear feet of sidewalk constructed, the number of safety improvements completed, and the level of funding dedicated to pedestrian capital projects and maintenance in relation to other transportation funding. This will provide the committee with raw data that it can review annually and compare year to year as the plan is in its implementation stage, providing it with a clear measure of how much progress is being made toward completing and maintaining the Town's pedestrian network. During the initial years of implementation, the committee should utilize this data from past years which can be provided by the Town's Finance and Public Works departments. With regard to the performance of the programming recommendations, the committee should set targets for participation and measure those targets versus

the actual results of the programs in terms of how many people are reached through the program efforts or participate in the activities. For example, annual goals for providing pedestrian safety education in public schools can be made, and the resulting number of children reached by those programs would be reported each year and measured against the outreach goal. To measure safety, the committee should review annual statistics for pedestrian involved accidents involving vehicles, set targets for reducing the instances of those accidents and measure the annual report versus the target. Goals for the enforcement of pedestrian safety laws can also be established, within reason to ensure that officers are not given ticket quotas, perhaps relying on reports from the Police Department on the number of tickets or incidents occurring in high risk areas for pedestrians or the number of hours that officers conduct targeted enforcement activities in high risk pedestrian areas, such as around schools, each month. Taken together, these simple performance measures will provide the committee with a large amount of measurable data that can be utilized to prepare their annual reports and monitor progress toward the full implementation of the plan.

## **F. Implementation Matrices**

The Comprehensive Pedestrian Plan reviews existing conditions and considers community values and goals to determine how the pedestrian systems, programs and policies move forward. The goals and strategies are an integral part of guiding the future development of these policies, programs and projects, but the Town must take steps to achieve those goals if the Plan is to be successful. Without implementation, the goals will never be more than written statements and could result in the plan sitting on the proverbial “dusty shelf.” The implementation strategies establish a path towards achievement of the vision statement and the plan recommendations. The recommended strategies can and should be reviewed annually as part of the budgeting process.

The goals and implementation strategies were compiled into a separate implementation matrix for policy, programs and projects to be used as a quick and easy reference for town officials, residents, business owners, and others. The matrix goes a step further by assigning priorities, resources, timeframes, and responsible parties to each implementation strategy, to help the Town determine the most effective approach to implementing the strategies.

The following are descriptions of each of the categories:



**Implementation Action** – The implementation actions in the matrix are the specific recommendations for each major area of policy, programs and projects. They are meant to provide action steps to achieve the vision and goals of the plan.

**Summary** – The summary provides general guidance on issues related to the implementation action, not a full detailed listing of the strategies. Some actions may have several specific notes, all of which will contribute to reaching the established goals.

**Responsible Parties** – This category identifies parties associated with the Town of Angier that should be responsible for the completion of each strategy. As the Town has limited staff, the inclusion of a consultant or other outside party may be necessary to help implement and achieve certain objectives.

**Timeframe** – This category represents the timeframe in which the implementation strategy should be addressed. Generally, shorter timeframes infer a higher priority. Timeframes are indicated in the matrix as either short term, intermediate, or long term. Recommendations described as short-term should be achieved in less than two years. Recommendations described as intermediate should be achieved in two to five years and with recommendations described as long-term being achieved more than five years. As the Town begins to implement the actions in the following tables, when the tables are updated by Town staff and the Advisory Committee, some of the strategies may receive a new designation of “ongoing” due to need for constant efforts toward achieving the goal.

**Resources** – Resources are primarily related to monetary cost to complete the implementation strategies. The tables display an “\$” symbol to represent monetary ranges. The ranges are as follows:

- \$ - Less than \$1,000
- \$\$ - \$1,000-\$10,000
- \$\$\$ - More than \$10,000.
- Policy – Dollar values are generally not applicable to policy issues

Resources could cost more or less depending on the assistance or consultant selected. For the Projects Implementation Actions, the actual cost estimate for the project is utilized in place of the general values displayed above.

Figure 5-1: Policy Implementation Actions

POLICY Implementation Actions	Summary	Responsible Parties	Timeframe	Resources
Plan Adoption	Board of Commissioners to hold a public hearing and consider the plan. NCDOT to issue official letter of approval.	Board of Commissioners with assistance from Staff, NCDOT and Consultant	Short-term	Policy
Establish Advisory Committee	Interested Pedestrian Plan Steering Committee to form an initial core group to oversee implementation activities of this plan. Board of Commissioners to formally designate.	Steering Committee, Planning Staff formal recommendation to Board of Commissioners	Short-term	Policy
Planning Staff Priorities	Designate a Town staff member to serve as the manager of the implementation and staff to oversight committee.	Town Staff	Short-term	Policy
Unified Development Ordinance Updates	Consider adoption of new and revised street cross-sections for NC 55 and NC 210 in the Unified Development Ordinance. Strengthen ordinance language requiring new development to provide pedestrian connectivity to existing and planned pedestrian networks.	Town Staff, Planning Board	Short-term	Policy
Dedicated Pedestrian Infrastructure Funding	Establish a dedicated fund for pedestrian improvements.	Town Staff, Board of Commissioners	Short-term	\$\$\$
Update Pedestrian Maintenance Policies	Develop a regular program of evaluation, prioritization and maintenance that is carried out on an annual basis.	Public Works Staff	Short-term	Policy
Regional Trail Development	Continue to work with towns in the region to help facilitate the development of a regional trail.	Town Staff	Mid-term	Policy
Public Facility Policy	Place priority on the need of providing pedestrian access to all public facilities, the Town should adopt a policy that requires all new town parks, civic buildings and other public facilities to be connected to the Town's pedestrian network.	Board of Commissioners, Town Staff	Long-term	Policy

Figure 5-2: Program Implementation Actions

PROGRAM Implementation Actions	Summary	Responsible Parties	Timeframe	Resources
Develop and distribute public education materials	Audience: local schools, health agencies and residents that focus on safe pedestrian behaviors, rules of safe walking, and the responsibilities of pedestrians and drivers. Printed brochures, the Town's website, newspaper, newsletters, t-shirts, and other advertising and media outlets as determined.	Advisory Committee, Town Staff	Short-term	\$
Town Staff & Advisory Committee Continuing Education	Continue to receive education and training regarding pedestrian safety and walking by attending conferences and workshops. Experts invited to speak.	Advisory Committee, Town Staff	Mid-term	\$
Organize Walking Events to encourage walking	Advisory Committee with local organizations to provide opportunities to gather for walks. Ideas include, nature walks, volksmarches, walking school buses, walking clubs and many other encouragement activities.	Advisory Committee, Town Staff, Local Organizations	Short-term	\$
Apply for Safe Routes to School	NCDOT resources for funding priority projects to enhance connectivity and access to schools and pedestrian safety in the immediate vicinity.	Advisory Committee, Town Staff	Short-term	Policy
Pedestrian Safety Enforcement Program	Police Department to consider targeted enforcement of pedestrian laws in high risk areas along with enhanced officer training awareness.	Police Department Officers	Mid-term	Policy
Pedestrian Education Program in the Public Schools	Design and implement a series of programs to enhance the knowledge regarding safe pedestrian activity for school children.	Advisory Committee, Angier Town Schools, Town Staff	Mid-term	\$\$

Figure 5-3: Sidewalk Projects Implementation Actions

SIDEWALK PROJECTS Implementation Actions	Recommendation	Summary	Responsible Parties	Timeframe	Resources
<b>NC 55 / Raleigh Street</b>	Sidewalks both sides of roadway and crosswalks	Coordinate with NCDOT on plans for the complete street concept. A need exists for additional crossings at north and south ends of NC 55.	Town Staff, NCDOT, Board of Commissioners, Advisory Committee	On-going	N/A
<b>NC 210 / Depot Street</b>	Sidewalks both sides of roadway and crosswalks	Coordinate with NCDOT on plans for the complete street concept.	Town Staff, NCDOT, Board of Commissioners, Advisory Committee	On-going	N/A
<b>West McIver Street</b>	Sidewalk	Complete sidewalk network, long-term consideration of potential NC 55 crosswalk near this location.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$14,400
<b>North Willow Street</b>	Sidewalk	This will complete the pedestrian connection from Junny Road to the Park and Downtown.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$32,200
<b>Junny Road</b>	Sidewalk	This will complete pedestrian connection to northeastern residential areas.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$108,400
<b>Cutts Street</b>	Sidewalk	Sidewalk addition will make a connection to NC 55 midway along Centennial Trail.	Town Staff, NCDOT, Advisory Committee	Long-term	\$46,600
<b>North Hickory Street</b>	Sidewalk	Connects residents to the eastern entrance of Jack Marley Park.	Town Staff, NCDOT, Advisory Committee	Long-term	\$105,800
<b>Wimberly Street</b>	Sidewalk	Connection for neighborhoods along Wimberly.	Town Staff, NCDOT, Advisory Committee	Long-term	\$77,800
<b>McIver Street</b>	Sidewalk	Completes pedestrian network to school.	Town Staff, NCDOT, Advisory Committee	Long-term	\$45,000
<b>South Dunn Street</b>	Sidewalk	Completes a segment for residents to downtown, school and park.	Town Staff, NCDOT, Advisory Committee	Long-term	\$21,600
<b>East Lillington Street</b>	Sidewalk	Fills in the gap for the existing sidewalk along East Lillington Street.	Town Staff, NCDOT, Advisory Committee	Long-term	\$21,400

Figure 5-4: Intersection Projects Implementation Actions

INTERSECTION PROJECTS Implementation Actions	Recommendation	Summary	Responsible Parties	Timeframe	Resources
<b>NC 55 &amp; 210</b>	Pedestrian Signals and construction of appropriate curb ramp and sidewalk at southwestern corner.	Intersection is difficult to cross in a timely manner. If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT. Southwestern corner of the intersection is landscaped and needs to be improved to comply with ADA and provide safe pedestrian access to crosswalk.	Town Staff, NCDOT, Board of Commissioners, Advisory Committee	On-going	Coordination \$17,400 (Ped Signals) \$2,400 (Curb Improvements)
<b>NC 210 &amp; Broad Street</b>	Pedestrian Signals	If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT.	Town Staff, NCDOT, Board of Commissioners, Advisory Committee	On-going	Coordination \$15,000 (Ped Signals)
<b>N. Willow St. &amp; E. Wimberly St.</b>	High visibility Ladder style crosswalk	This improvement will be needed to connect with the sidewalk that is currently under design on N. Willow St. from Wimberly to Julia St.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$2,000 (Crosswalk) \$500 (Signs)
<b>Junny Road</b>	High visibility Ladder style crosswalk	This improvement will be needed to connect the future Junny Road sidewalk with the Centennial Trail across Broad Street.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$2,000 (Crosswalk) \$500 (Signs)
<b>NC 55 (Floating/Future Crossing)</b>	Pedestrian Signals and high visibility Ladder style crosswalk when final location is determined.	The final location of a future signalized intersection will determine the safest place to install a pedestrian crossing facility along North Raleigh Street / NC 55.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$15,000 (Ped signals) \$2,000 (crosswalk) \$500 (Signs)
<b>Broad Street Mid-Block Warning Signage</b>	Install an in street Pedestrians in Crosswalk Sign	Crosswalk needs additional identification to alert drivers of potential pedestrian activity.	Town Staff, NCDOT, Advisory Committee	Mid-term	\$500 (Signs)





## Section 6. Design Guidelines

### A. Introduction

When constructing the recommended improvements, pedestrian facilities should adhere to national design standards for said facilities as determined and defined by the American Association of State Highway Transportation Officials (AASHTO), the Federal Highway Administration (FHWA) Pedestrian Facilities User Guide, the Americans with Disabilities Act (ADA), the Manual on Uniform Traffic Control Devices (MUTCD), and the North Carolina Department of Transportation (NCDOT). The Pedestrian and Bicycle Information Center (<http://www.pedbikeinfo.org>) is an additional source of information that can be reviewed on the internet. As with any standards that are referenced, the most current standards should always be utilized as changes may be made to national and state standards in the future. The Town should consult with a licensed design professional, such as an engineer, on any future projects to ensure that the standards are up-to-date.

The guidelines presented in this section are intended to be a guide and represent the best practices for pedestrian facilities and design; however, they do not substitute for the review of a licensed design professional during the design and construction of recommended facilities. The NCDOT may have specific standards and guidelines as well, depending on the context and parameters of any given project. The design guidelines apply to seven broad areas that include:

- Linear Pedestrian Facility Design
- Pedestrian Crosswalk Facility Design
- Signal Design
- Pedestrian Signage
- Pedestrian Environment
- Traffic Calming
- Additional Considerations

## B. Linear Pedestrian Facility Design

### Sidewalks

The development of sidewalks in the United States was a high priority in the original development of most cities. Prior to the automobile boom and the expansion of the Federal Highway System, sidewalks were common in almost all neighborhoods and commercial areas across the nation. Sidewalks led to local businesses, a neighbor's house, places of worship, work and the everyday activities associated with life. Children would often play along sidewalks and adults enjoyed socializing along these useful public spaces. Sidewalk facilities are constructed in a variety of ways, some with a grass barrier separating the roadway from the pedestrian, while some may have trees in a planting strip separating vehicles and pedestrians. In other areas, sidewalks are constructed immediately adjacent to the curb, with the



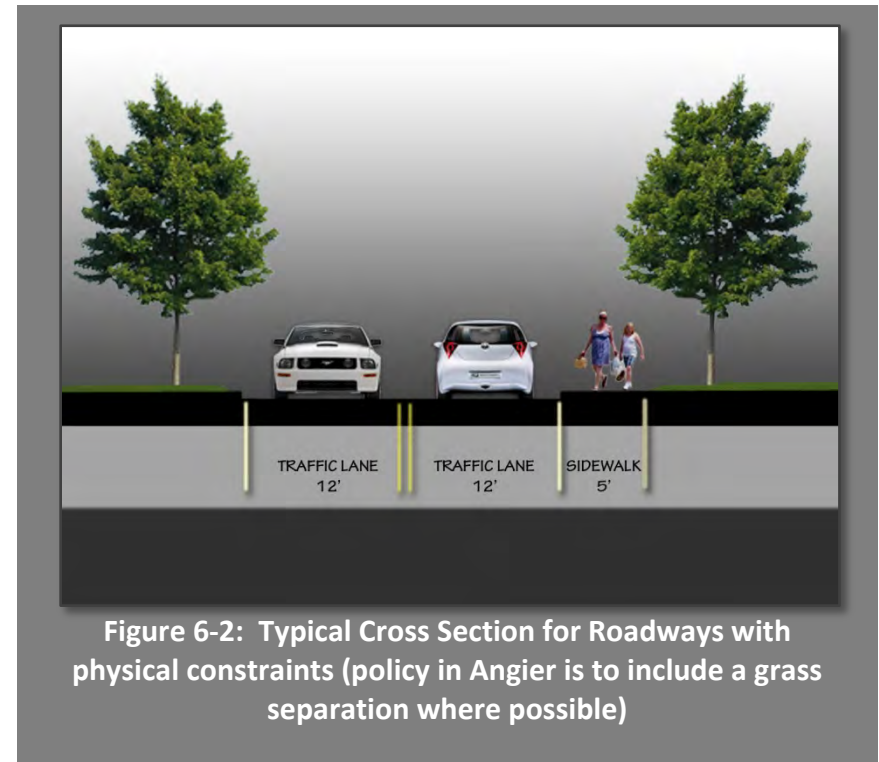
Figure 6-1: Existing Sidewalk Designs in Angier

curb serving as the frame when the concrete is poured. All of these methods of sidewalk placement and construction have a varying degree of success depending on the location and context in which it is located. Almost all pedestrians, when surveyed, prefer to have some separation between their walking area and the roadway. In the Town of Angier, the Town's policy is to have a grass strip of approximately 18 to 36 inches separating the sidewalk from the edge of the roadway or curb. This type of sidewalk pattern provides some safety for pedestrians and a mild sense of enclosure and a separate space for the pedestrian from the roadway. The Centennial Trail has a

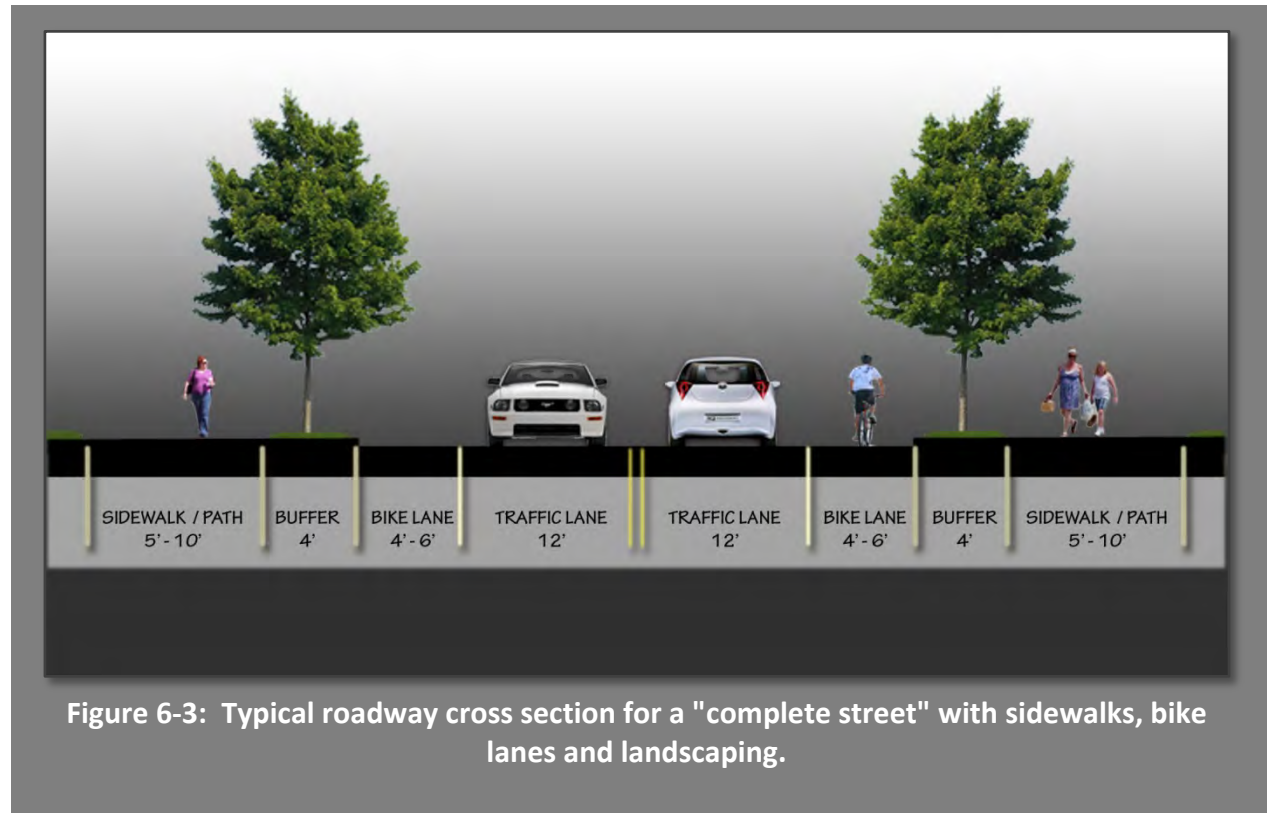
significant grass buffer with some sidewalks in town that adjoin directly to the curb. This type of sidewalk is most common in the downtown area where the sidewalks are much wider and other streetscape elements such as benches, trash receptacles, parked cars and light posts serve as a buffer, providing some enclosure for the pedestrian walking in these areas.

#### **Typical Guidelines and Considerations for Standard Sidewalk Facilities**

- The most commonly preferred surface treatment is concrete, which is known for its durability and low maintenance costs. Existing sidewalks in Angier are standard concrete. New materials for sidewalks and walkways are being pioneered including permeable sidewalks and sidewalks made of rubberized, recycled materials.
- It is important to maintain a flat running grade of five percent or less with a two percent maximum cross-slope, to provide a safe, level walking surface for pedestrians of all ages and abilities.
- If physical constraints of the roadway and adjacent right-of-way allow, a natural buffer zone of two to four feet is ideal for minor collector streets in most neighborhood settings, while five to six feet is more appropriate in areas where major arterials serve higher traffic volumes at higher speeds. In settings such as downtown, sufficient area needs to be allowed to accommodate hardscape elements such as street signs, light poles, pedestrian furniture and landscaping features. Although not recommended, as seen in Figure 6-2, the sidewalk must often adjoin the curb.
- Sidewalks made of concrete materials should be at least four inches in depth with increased depths of six inches for driveways and greater thicknesses for more high intensity uses as determined by an engineer.



- It is recommended that sidewalks should be at least five feet wide to allow at least two adults to pass comfortably.
- Driveway and curb cuts can be barriers to safe pedestrian crossing. The width and number of these ingress and egress points should not exceed thirty-feet.
- These points are meant to be guidelines, recognizing that not all future sidewalks will conform to these suggestions due to the physical constraints, such as topography, existing structures and rights-of-way.



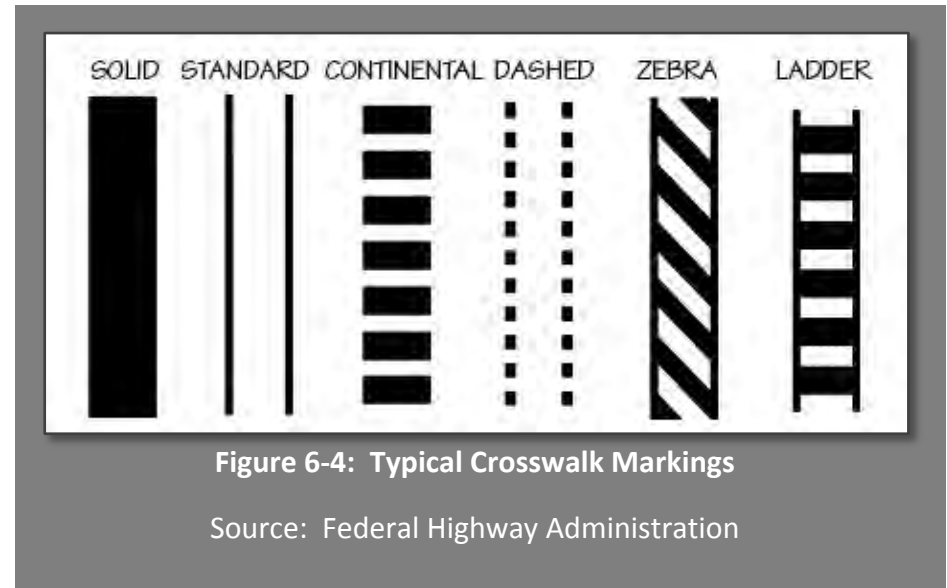
### C. Pedestrian Crossing Facility Design

In addition to the actual sidewalk facility standards and construction, additional facilities are needed to ensure safe crossings and a safe environment for pedestrians. These facilities include crosswalks, mid-block crossings, signage and design details throughout the pedestrian system. The sections that follow cover these facilities.



## Crosswalk Facilities

An important ingredient in creating a walkable community is the installation and maintenance of crosswalks that are well placed and designed, helping to reduce pedestrian crashes. Marked crosswalks designate a pedestrian right-of-way at the point of street crossing. Crosswalks can be designed multiple ways, and may be made of various materials. The basic crosswalk patterns are displayed to the right. This plan has recommended the installation of ladder style crosswalks at several locations, providing greater visibility than the standard parallel line pavement markings. Marked pedestrian crosswalks are primarily utilized at locations with traffic signals or stop signs, at non-signalized street crossing locations in designated school zones, and at non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable. The primary style of pavement marking is the standard parallel crosswalk stripping.



Other crosswalk possibilities include crosswalks made of decorative paving materials as seen in some downtowns. These types of crosswalks require additional maintenance and can be expensive to install; however, they are effective in providing key visual cues to pedestrians and the motoring public. Crosswalks can be slightly raised in elevation as part of a speed hump or speed table and texture or decorative paint can be added as well. Recent trends include thermoplastic inlays that provide texture, color and custom designs. The most important factor to consider with pavements materials is the installation of non-skid, smooth and visible materials. More recent advances in crosswalk include in pavement safety lighting; however, these types of facilities are not recommended for Angier at this time as the conflicts between pedestrians and motorists are not as high at night in Angier. Most crosswalks are at least six feet in width, and in downtown Angier they may need to be slightly wider based on engineering study and analysis.

### **Typical Guidelines and Considerations for Crosswalk Improvements**

- Crosswalks are not encouraged in uncontrolled/signalized environments where speeds exceed 40 mph.
- In addition to crosswalks, it may be necessary to include other pedestrian safety crossing measures, especially on streets with annual average daily traffic (AADT) above 10,000.
- Crosswalks need to be at least six feet in width, or larger, based on the width of adjacent sidewalks, pedestrian crossing volumes and intersection design.
- Sidewalk curb ramps and any sloped areas should be included within the crosswalk markings.
- The pavement markings for crosswalks should extend the entire length of the intersection that it crosses.
- MUTCD guidelines should be followed for the crosswalk pavement markings.
- NCDOT requires pedestrian facilities on both sides of the roadway when painted crosswalks are installed.

### **Stop Bar Markings**

Other measures to improve pedestrian safety, while improving crosswalk markings, is to restripe the vehicle stop bars 15–30 feet back from the new pedestrian crosswalks at signalized crossings and mid-block crossings. Moving the stop bar back will increase vehicle and pedestrian visibility. Advance stop bars should be 1 to 2 feet wide and extend across all approach lanes at intersections. Moving the stop bar back allows motorists and pedestrians alike adequate time to determine safe movements. Also, numerous studies have shown that increased distance reduces pedestrian crashes, and when combined with signage, such as “Stop Here for Pedestrians”, vehicular incidents with pedestrians are further reduced.

### **Curb Ramps**

Curb ramps provide access for persons with permanent and temporary disabilities, as well as persons with decreased mobility due to advanced age or other non-disabling factors. The sloped transition provides access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcars, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. Curb ramps must be installed at all intersections and mid-block crossing locations where pedestrian crossings exist as required by the 1973 Federal Rehabilitation Act and the 1990 Federal ADA requirements. Curb ramps should abide by the maximum slope guidelines, striving for less steep slopes as conditions allow. All new construction or altered pedestrian crossing areas along roadways must now include curb ramps.

As the conditions and physical environment allow, two separate curb ramps should be provided at each intersection in place of a single, large curb ramp that provides access to two crosswalks. The single curb ramp, while it may be less expensive to construct, can misdirect pedestrians as they enter into the crosswalk and roadway, potentially directing them into the path of a vehicle. Single ramps should be carefully studied prior to installing versus the dual ramp method.

Detailed information concerning curb ramps can be reviewed in the Accessible Rights-of-Way: A Design Guide, by the U.S. Access Board and the Federal Highway Administration, and Designing Sidewalks and Trails for Access, by the Federal Highway Administration.

#### **Typical Curb Ramp Guidelines**

- Carefully review the installation of single curb ramps for safety issues, evaluating traffic volumes and misdirection potential.
- Consider the installation of two separate curb ramps as the typical method, one for each crosswalk, at each corner of the intersection.
- Curb ramp slopes should be no greater than 8 percent with side flares not exceeding 10 percent.

#### **Mid-Block Crossings**

Mid-block pedestrian crossings can be installed in locations where there is a great enough distance between intersections and sufficient pedestrian traffic to create a potential safety concern. Typically, such crossings should be at least 300 feet from a signalized crossing or intersection. The installation of warning signs in these situations is required to ensure that the facility is highly visible to motorists. Further information regarding mid-block crossings can be found at [http://www.ncdot.org/doh/PRECONSTRUCT/traffic/teppl/Topics/C-36/C-36\\_pr.pdf](http://www.ncdot.org/doh/PRECONSTRUCT/traffic/teppl/Topics/C-36/C-36_pr.pdf).



**Figure 6-5: Curb Ramp and Decorative Crosswalk**

## Medians

Medians provide a barrier in the center of streets and roads to separate lanes of vehicular traffic. Medians provide the opportunity to create pedestrian refuge areas. Medians can protect pedestrians if they are unable to make it all the way across the intersection, or if they need to pause and wait for oncoming traffic. Medians can also be landscaped to provide a sense of enclosure for vehicles as landscaping can help to calm traffic.

A median may be appropriate for higher traffic-volumes, higher-speeds, providing much needed cues for motorist and pedestrians to easily identify the boundary between the crossing island and the street.

### Median Guidelines

- Utilize medians to create pedestrian refuge islands for crossing busy or wide roadways at either mid-block locations or intersections, especially along high speed and high volume roadways.
- If the space allows, medians should include trees and landscape plantings to enhance the visual character of the street, while having a traffic calming effect as well. Landscaping should not impede visibility of the motoring public or pedestrians.
- In designing medians, crossings should incorporate ramps or cut-through pathways increased accessibility and ease of use.
- All median crossings should be at least 6 feet in width to accommodate more than one pedestrian; although a more generous 8 foot width will provide enough space for wheelchairs, larger groups of pedestrians and bicycles.
- Primarily for wheelchair users, median crossings should include a level landing that is at least four feet square, providing a balanced resting point.
- Where streets are in excess of 60 feet, push-buttons for signalized crossings should be installed to operate the signals.
- Crossings in excess of 60 feet in width should be provided with medians or crossing islands and curb extensions.



**Figure 6-6: Landscaped Median, Crosswalk and Curb Ramp**

## Curb Extensions

Curb extensions provide increased viewing distance for pedestrians and drivers, while narrowing the distance a pedestrian has to cross. For example, on a 40 foot wide roadway with two traffic lanes and on street parking, through using extensions, also known as bulb-outs, a pedestrian can reduce their travel distance across the roadway by 10 to 14 feet with curb extensions. These pedestrian facilities work best at intersections or mid-block crossings where on street parking is present, and should not impede traffic flow by extending into the travel way.

### Typical Curb Extension Guidelines

- Curb extension or bulb-outs are most effective to use where parking may limit drivers' view of crossing pedestrians.
- Utilize curb extensions with mid-block crossings as feasible.
- In areas where large truck traffic makes right hand turns, curb extensions should be studied carefully to avoid the frequent destruction of the curb extension facilities.



Figure 6-4: Curb Extension or Bulb-outs

## D. Signal Design

### Traffic Signals

It is important that traffic signals in highly traveled pedestrian areas are designed to allow for safe crossing times. In areas where older persons and young children will be walking, signal timings may need be adjusted to increase the length of time allowed for crossing. For example, the Manual on Uniform Traffic Control Devices (MUTCD) suggests 4 feet per second timing in traffic signals for safe pedestrian crossings. The Town of Angier should work closely with NCDOT to determine if traffic signals at NC 55 / NC 210 should have longer signal



times to allow for older and younger persons to cross safely. A possible solution for these age groups would be to lower the timing speed to 3.5 feet per second.

## Pedestrian Signals

Many different tools exist to communicate with pedestrians when it is safe to cross roadways. Some of the methods identified by the Pedestrian and Bicycle Information Center include the international symbols for Walk or Don't Walk, large traffic signals, traffic signals positioned so that those waiting at a red-light cannot see the opposing traffic signal and anticipate their own green-light, installing countdown signals to provide pedestrians information on how long they have remaining in the crossing interval, automatic pedestrian sensors, and selecting the proper signal timing intervals.

According to the MUTCD, international pedestrian signal indication should be used at traffic signals whenever warranted. Instead of earlier signalization that featured “WALK” and “DON’T WALK”, international pedestrian symbols should be used on all new traffic signal installations as illustrated at right. In order to ensure this transition, existing “WALK” and “DON’T WALK” signals should be replaced with international symbols when they reach the end of their useful life or construction projects take place that affect the intersection.

A new type of pedestrian signal called a HAWK, or High Intensity Active Crosswalk, has been developed to provide an additional level of control at unsignalized intersections to assist pedestrian crossings that would otherwise be dangerous given the level of traffic or design of the roadway. These signals integrate a pedestrian activated traffic signal and pedestrian crossing signal to stop traffic from entering the intersection. Additional information on HAWK signals can be found at <http://mutcd.fhwa.dot.gov/htm/2009/part4/part4f.htm>.



Figure 6-8: International "Hand" Symbol for "Don't Walk" and a "Walker" for "Walk"

Audible signals may be used to supplement the lighted pedestrian signals in areas with higher traffic volumes. These signals are important for providing a secondary means of warning to pedestrians who may be distracted as they cross an intersection, or who may have a sight impairment handicap. Countdown timers should be added, in accordance with NCDOT policy, to provide even greater safety to an intersection by giving additional visual clues to pedestrians about the amount of time remaining before the walk signal is changing. Given the greater expense of adding these features, they should be employed only in areas that have a level of pedestrian traffic that justifies the increased expenditure or in areas that have identified safety issues that could be mitigated with the additional level of signalization.

Going hand in hand with the timing of traffic signals is the timing of pedestrian signals. Signals should be timed and coordinated with the traffic signals in a manner that ensures the greatest amount of safety is provided to both motorists and pedestrians. In establishing timing and signalization patterns at intersection it is important to consider the volume of turning traffic that may conflict with pedestrians, and ensure that pedestrians are given adequate time to cross intersections while limiting the chance of conflict with turning traffic. Various signal timing methods can be employed depending on each particular intersection's needs and traffic volume/pattern, including having signals that allow only pedestrian traffic while holding vehicular traffic, or even giving pedestrians a lead time ahead of parallel vehicular traffic in order to make them more visible in the intersection. The wait time between clear signals for pedestrians also has to be considered since long intervals between signals can lead to an increased chance for illegal crossing against the signal, which actually reduces the safety of an intersection. In high volume locations it is recommended that pedestrians be given a clear signal during each light cycle without needing to activate a signal manually. At lower volume intersections pedestrian activated push-button type signals are a good alternative, while eliminating delays associated with pedestrian signals during times when they aren't needed due to low volumes.

### Typical Pedestrian Signal Guidelines

- Pedestrian signals should be sized appropriately for the context that they are placed in.
- Where traffic volumes warrant, clear pedestrian signals should be provided during each light cycle.
- Pedestrian signals should be designed to ensure maximum visibility for both pedestrians and motorists.
- Where pedestrian signals must be manually activated, the push buttons should be adequately signed.
- Countdown timers should be included with all pedestrian signals and should be supplemented with audible signals where needed.

## E. Pedestrian Signage

### Warning and Regulatory Signs

Signs are utilized along sidewalks and roadways to inform pedestrians and motorists of the location of pedestrian crossings, restrictions on crossing or certain turning movements for vehicles as well as general regulations about yielding to pedestrians. The primary purpose of these signs are to ensure that motorists are aware of the potential presence of pedestrians in certain locations in the hope that they will drive more carefully and be more alert to the presence of pedestrians. These signs are also used to direct pedestrians to locations where it is legal for them to cross the street, or where pedestrian dangers, such as hidden driveways or changes in plane along the sidewalk, are located. The MUTCD is the primary document that regulates the placement, color, height and design of both pedestrian and vehicular signage, and should be followed strictly in an effort to ensure that all such signage is designed and located in the most appropriate and nationally acceptable manner. One of the

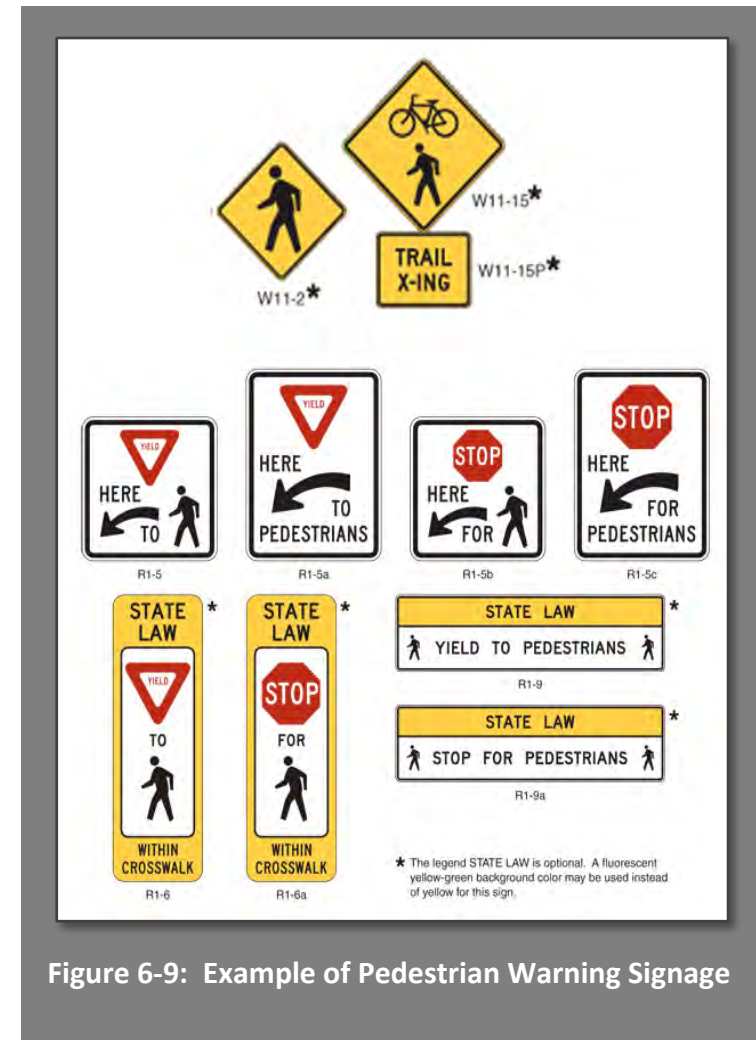


Figure 6-9: Example of Pedestrian Warning Signage

primary concerns about signage is over-signing, or the installation of too many signs in a particular location. This type of situation can lead to confusion or may “hide” important regulatory or warning signs due to visual clutter. This is an issue that can be caused by both public and commercial signage, particularly when commercial signs are illegally placed in the right-of-way, or public signs are lost amongst the clutter of a heavily signed roadway. In addition to warning signage, flashing warning signals may operate in conjunction as with the crossing across Beaman Street at the hospital. New LED technology has led to the creation of a new generation of flashing warning signals called rectangular rapid flash beacons (RRFB). The RRFBs require state and federal approval for use, and are currently not recommended for use in Angier’s signal system. Rectangular Rapid Flash Beacons (RRFB) can enhance safety by reducing crashes between vehicles and pedestrians at unsignalized intersections and mid-block pedestrian crossings by increasing driver awareness of potential pedestrian conflicts. RRFBs are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. RRFBs use an irregular flash pattern that is similar to emergency flashers on police vehicles. The RRFBs require state and federal approval for use, and are currently not recommended for use in Angier’s signal system.

#### **Warning and Regulatory Signage Guidelines**

- Warning and regulatory signs should be placed in all locations that have high volume or dedicated pedestrian crossings.
- While adequate signing should be provided, the overuse of signs should be avoided.
- All regulatory and warning signs should be installed in conformance with the MUTCD.



## F. Pedestrian Environment

### Street Furnishings

Street furnishings help to “complete” the pedestrian environment by identifying and setting aside areas for rest and relaxation, convenience, and the utility of the pedestrian environment. Examples of street furnishings include benches, trash cans, water fountains, bike racks and similar features. Many of these types of features currently exist in downtown Angier, but are not generally found in other areas of the Town that are served by pedestrian infrastructure. When siting and designing street furnishings the most important consideration is the maintenance of clear paths for pedestrians along the sidewalks and trails that the furnishings serve. Other safety considerations should also play a role in placing street furniture, such as maintaining sight distances at intersections and ensuring that parking spaces are not obstructed.

#### Street Furnishing Guidelines

- Avoid blocking pedestrian paths with street furniture by maintaining at least 3 feet of clear distance between objects.
- Provide rest areas with benches at convenient intervals, approximately ¼ mile, along primary pedestrian routes.
- Ensure that street furniture does not obstruct sight triangles or encroach into areas where it could obstruct parking.

### Landscaping

Landscaping is an important component of pedestrian facility design. The installation of trees and shrubberies help to both soften the otherwise “hard” environment that generally exists along the roadside and provide a visual and physical separation between pedestrians and vehicular traffic when installed in



Figure 6-11: Example of Landscaping Installation  
Identifying a Crosswalk Location



planting strips between the curb and the sidewalk. Landscaping installations can also help to delineate the location of pedestrian crossings by providing focal points on the edges or boundaries of the crossings. When designing landscaping installations, attention should be given to the presence of overhead power lines, which are typically installed in close proximity to sidewalks in the right-of-way, to ensure that proposed trees will not present maintenance issues as they mature. Tree selection and location should also be considered with regard for the potential for tree roots to interfere with sidewalks. While there are devices such as guards that can be used to divert roots away from sidewalks, large trees will always have the potential for creating maintenance issues as they grow and mature. Plantings should be designed and placed in locations that do not obstruct the view of either pedestrians or motorists or create safety hazards with branches growing into the pedestrian path.

#### Landscaping Guidelines

- Landscaping installations should be located so that they do not interfere with clear sight distances for pedestrians or motorists.
- Landscaping installations should be used to provide visual and physical separation between the street and sidewalk.
- Plantings should be designed to ensure that they are appropriately sized for the context in which they are installed.
- Native species and plants that are adapted to the situations in which they are installed should be utilized to the maximum extent that it is practical.

### **Lighting Improvements**

The provision of adequate lighting along pedestrian facilities is crucial to ensuring the safety and security of those who travel along the Town's sidewalks and trails. Along sidewalks, it is important to place lighting fixtures in sufficient quantity that pedestrians are able to safely navigate in low light conditions, with sufficient illumination to observe potential trip hazards or obstructions. While general street lighting does often provide illumination for pedestrians, it may need to be supplemented to ensure that areas where sidewalks encounter unique situations, such as sudden changes in direction or steps, are identifiable from a sufficient distance. Supplemental lighting is also recommended for pedestrian crossing areas in order to ensure that pedestrians within the crosswalk are easily identified in low light conditions. Along trails, where no street lighting is present, consideration should be given to the provision of lighting to facilitate travel in low light conditions. While this certainly encourages the use of trails at night, when some cities desire for them to be closed due to safety



concerns, the provision of lighting will ensure that the trails are usable year round, which can be troublesome for people who depend on walking on trails to get to or from work in winter when no lighting is provided, yet darkness comes early. Lighting trails in the evening/early morning also allows authorities to more easily observe traffic on the trails at times when their use could indicate suspicious behavior. In addition to pole mounted lighting, low level lighting may also be provided as a supplement in areas where specific low level hazards need to be identified, or where pole mounted lighting would not be congruent with the surrounding area due to light pollution concerns.

#### Lighting Guidelines

- Pole mounted pedestrian lighting should be installed at heights of 10-15 feet.
- Supplemental pedestrian lighting should be installed at all designated pedestrian crossings.
- All potential trip hazards or locations that have unique configurations should be illuminated.
- Pedestrian lighting should be designed with a spacing pattern that provides a uniform level of lighting along the routes.

## **G. Traffic Calming**

Traffic calming is the purposeful use of design strategies to slow down automobiles and increase the visibility of pedestrians and bicyclists to the motoring public. Many tools are available that have been proven to reduce traffic speeds and, consequently, reduce the number of pedestrian deaths. Particularly, methods of calming traffic complement areas that already have well-designed pedestrian facilities. In the absence of a complete pedestrian network, pedestrians can be forced into the street, causing potential problems for pedestrians, especially people with any disabilities. For example, speed tables and speed humps can force pedestrians to negotiate an elevation change if safe sidewalk connections are not in place. Also, methods such as neighborhood traffic circles and roundabouts in areas without good sidewalks can create an unprotected and uncomfortable environment for pedestrians trying to navigate across. Any installation of traffic calming measures should always include pedestrian facilities that allow for safe crossings and connections.

The primary goals of traffic calming according to the Federal Highway Administration are to:

- Apply physical, engineered measures to compel drivers to slow down and to decrease traffic volumes;

- Implement self-enforcing rather than regulatory measures;
- Reduce cut-through traffic;
- Increase the safety of children, pedestrians, bicyclists, and motorists;
- Maximize street life and pedestrian activity;
- Prevent crime; and
- Enhance urban redevelopment

## Roundabouts

Roundabouts have been utilized at intersections for many years, especially in European countries. The use of roundabouts in the United States has become more wide spread over the last twenty years and they now receive heavy consideration when new roadway intersections are built or redesigned. Roundabouts are safer than typical junctions having 40 percent fewer vehicle collisions, 80 percent fewer injuries and 90 percent fewer serious injuries and fatalities. Specifically, roundabouts reduce the points of conflict between motor vehicles and pedestrians, creating a safer walking environment.

## Speed Humps / Speed Tables

When properly designed, speed humps and tables can provide reduced traffic speeds and allow for a safer environment for pedestrians when crossing the street. Speed humps are usually formed from asphalt, concrete or rubber and have longer slopes to avoid the creation of a speed bump. One common criticism of the speed hump is potential for reducing response time for emergency vehicles. Speed humps should be installed in critical areas only to avoid creating barriers for emergency services vehicles. Speed tables or raised intersections have a wider flat surface on top



**Figure 6-12: Example roundabout facility with that incorporates pedestrian facilities and public art.**

and can serve as an elevated or raised platform for pedestrians to cross safely. At this time, speed humps and tables are not recommended at any particular location within Angier.

### Chicanes and Chokers

Chicanes help reduce traffic speed by creating a horizontal deflection through the use of staggered buildouts, much like curb extensions to form a bend or curve in what normally would be a straight roadway. This bend in the road causes drivers to slow the speed of their vehicles. Pedestrian crossing can be incorporated if designed properly. Chokers work similarly to Chicanes; however, instead of creating a bend, the chokers narrow the roadway to one lane causing vehicles to allow approaching vehicles to pass through first. Chicanes and chokers are currently not recommended for any location in Angier at this time. Although these methods may be important in the future if any specific concerns arise that may warrant the use of a chicane or choker design.

### Road Diets

The implementation of “road diets,” or reductions in the width and number of vehicular travel lanes on a multi-lane facility, can be an effective tool to calm traffic as well as provide additional accommodation for non-motorized transportation, such as sidewalks and dedicated bicycle lanes. The implementation of a road diet will typically reduce a four or five lane facility to a three lane facility; with one travel lane in each direction and either a center turn lane or a median, depending on the development pattern along the corridor and safety considerations. Of particular benefit to pedestrians is the reduction in the number of lanes of traffic that must be navigated in order to cross an intersection. The narrower roadway also provides opportunities for the installation of pedestrian refuges at intersections and mid-block crossing locations. The reduction in the number of travel lanes also provides an opportunity to add more separation between pedestrian facilities and vehicular travel lanes since on-street parking, landscaping strips, bike lanes and similar features can be incorporated in the new roadway design by utilizing the surplus right-of-way that was gained as a result in the lane reductions.

### Curb Radii

When streets intersect at an obtuse angle or have a large curb radius, motorists can make turns at relatively high speeds. By contrast, 90-degree intersections and corners with tight curb radii tend to slow motorists down. The problem with obtuse angles is particularly bad when a vehicle on an arterial street turns onto a residential street. Pedestrians crossing the residential street adjacent to the arterial may

not expect high-speed turning traffic, or they may have their backs facing the turning cars, creating a potentially dangerous situation. To counteract this potentially hazardous situation, it is recommended that intersections in areas where pedestrian activity is likely, and in all cases where pedestrian facilities are present, be designed with 90-degree radii to slow the rate of speed of turning vehicular traffic.

## **H. Additional Considerations**

**Reserved**



## Appendix A. Public Input Summary

### A. Public Input Summary

#### Introduction

Throughout the planning process, the steering committee made a number of successful efforts to gather public input, employing a variety of tactics to garner as much input as possible. Among the methods that were utilized, the most fruitful were the establishment of an online presence through the use of an interactive project website and the public surveys. As part of the outreach efforts, a conscious decision was made to engage as broad a cross section of the community as possible, and to that end, special efforts were made to mail surveys to utility customers as well. Throughout the process, the consulting team was pleasantly surprised at the level of input that was given through the survey, and in summary, the level of citizen input received through the survey was more than sufficient to validate the direction and priorities established by the steering committee and Town Staff.

#### Pedestrian Plan Project Website

An important communication tool utilized throughout the process was the project website. This website was specifically dedicated to the planning process and receiving feedback from the Town's residents. The website included information regarding the project background, purpose, upcoming events, presentations and important contact information. The website received approximately 350 page views from 218 unique visitors during the

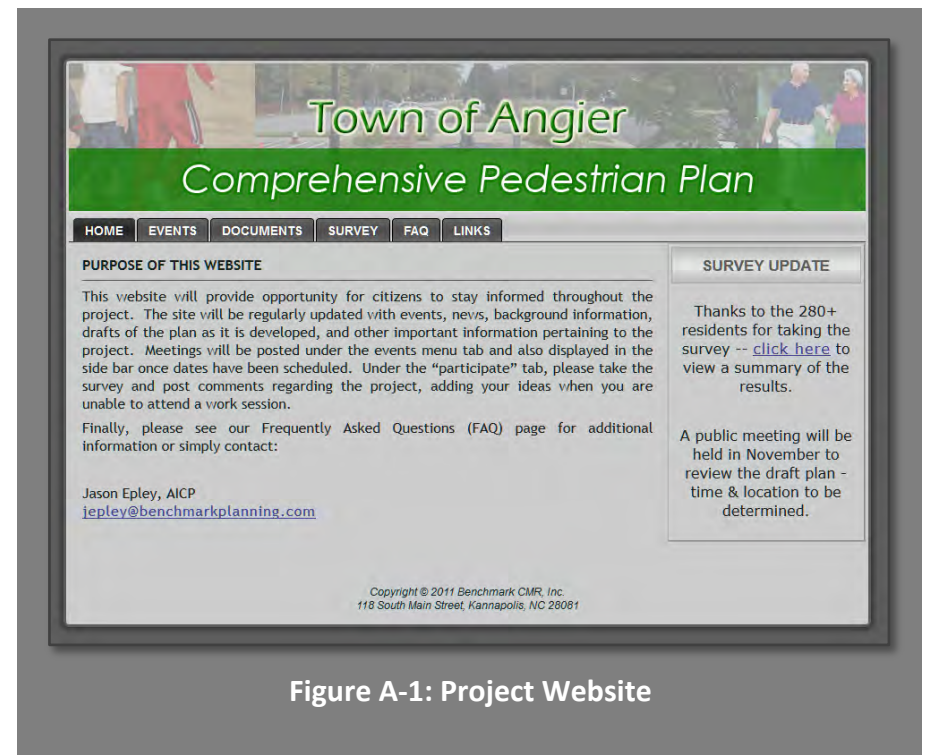


Figure A-1: Project Website



process. The committee and public presentations, and survey results were all made available to the public for review on the website along the way.

### Pedestrian Plan Survey

Residents of all ages were invited to complete the pedestrian planning survey to provide input into helping make Angier a more connected town and safer to place to walk. And participate they did! Over 350 people started the survey, with just over 325 completing the entire survey. The survey was designed and intended for all residents - people who walked often or not at all. The survey covered the following major topics:

- Walking habits
- Barriers to walking in Angier
- Desired walking opportunities
- Priorities for walking improvements
- General thoughts and ideas

The survey responses were utilized throughout the development of the existing conditions and the plan recommendations. The detailed responses to each question are listed below.

1. How do you move around the Town of Angier? (Check all that apply)		
Answer Options	Response Percent	Response Count
I walk	43.5%	123
I ride a bike	14.5%	41
I drive a car (truck, van, motorcycle, etc.)	91.9%	260
Ride in a car or other vehicle with a friend	19.1%	54
Taxi / other private transportation	0.4%	1
Public Transportation	0.0%	0
<i>answered question</i>		283
<i>skipped question</i>		4

2. How important is walking as a part of your daily routine?		
Answer Options	Response Percent	Response Count
Very Important	37.7%	107
Somewhat Important	46.1%	131
Not Important - I don't walk anywhere	16.2%	46
	<i>answered question</i>	284
	<i>skipped question</i>	3

3. How often do you walk now?		
Answer Options	Response Percent	Response Count
Every day	19.8%	55
Several days a week	37.8%	105
Several days a month	25.2%	70
Not at all	17.3%	48
	<i>answered question</i>	278
	<i>skipped question</i>	9

4. How would you rate the conditions for walking in Angier?		
Answer Options	Response Percent	Response Count
Good - Little improvement needed (I feel safe)	29.8%	82
Fair - Some improvements needed	52.0%	143
Poor - Many improvements needed (I feel Unsafe)	18.2%	50
	<i>answered question</i>	275
	<i>skipped question</i>	12

**5. If there were safe pedestrian crossings, sidewalks, trails and adequate lighting near where you live, would you walk more frequently?**

Answer Options	Response Percent	Response Count
Yes	81.0%	221
No	19.0%	52
	<i>answered question</i>	273
	<i>skipped question</i>	14

**6. Should walking as a form of transportation be a priority in Angier?**

Answer Options	Response Percent	Response Count
Yes	54.1%	145
No	25.0%	67
Not concerned about it	20.9%	56
	<i>answered question</i>	268
	<i>skipped question</i>	19

**7. Should the Town utilize public funds (local, state and federal) to improve walking conditions in Angier?**

Answer Options	Response Percent	Response Count
Yes	64.2%	172
No	11.9%	32
Not sure	23.9%	64
	<i>answered question</i>	268
	<i>skipped question</i>	19

8. What type of funding should be used to improve facilities? (Check all that apply)		
Answer Options	Response Percent	Response Count
State and Federal Grants	80.2%	203
Existing Local Taxes	45.5%	115
New Local Taxes	4.3%	11
Local Bonds	15.8%	40
I don't want improvements	8.3%	21
Other (please specify)		11
<i>answered question</i>		253
<i>skipped question</i>		34

9. Why do you walk now or why would you choose to walk in the future? (Check all that apply)		
Answer Options	Response Percent	Response Count
Transportation for daily activities (work, shopping, etc)	22.2%	57
Recreation / Fitness	86.8%	223
Interaction with neighbors / Social	39.7%	102
Short trips	25.7%	66
Other (please specify)		11
<i>answered question</i>		257
<i>skipped question</i>		30

10. Do you walk to these destinations now or would you like to walk to these destinations in the future? (Check all that apply)		
Answer Options	Response Percent	Response Count
Downtown	67.0%	156
Parks	79.0%	184
Place of work	6.9%	16
School	5.2%	12
Restaurants	51.9%	121
Shopping (downtown)	41.6%	97
Shopping (highway locations)	18.5%	43
Entertainment	17.6%	41
Trails and greenways	45.5%	106
Library	42.9%	100
Recreation Centers	15.9%	37
Friends/Family's Homes	43.3%	101
Other (please specify)		20
	<i>answered question</i>	233
	<i>skipped question</i>	54

11. What discourages you from walking? (Check all that apply)		
Answer Options	Response Percent	Response Count
Lack of crosswalks at traffic signals	20.4%	46
Lack of pedestrian signals at intersections	23.1%	52
Lack of sidewalks and trails in general	56.9%	128
Lack of connectivity - sidewalks missing in places	47.6%	107
Not interested in walking	6.7%	15
I don't have time to walk every day	16.0%	36
Aggressive people driving	26.2%	59
Too much vehicular traffic	23.1%	52
Sidewalks need repairs	10.7%	24
No where to walk to	12.9%	29
Potential of crime	30.7%	69
Poor street lighting	24.4%	55
I don't feel safe walking on sidewalks right beside the road	13.8%	31
Other (please specify)		41
	<i>answered question</i>	225
	<i>skipped question</i>	62



**12. What are the top three roadways needing sidewalks? (Write in your top three)**

Response	Response Count
<b>NC 55 / Raleigh Road</b>	79
<b>NC 210 / Depot Street</b>	57
<b>Mclver Street</b>	14
<b>Wimberly Street</b>	11
<b>Junny Road</b>	10
<b>Broad Street</b>	10
<b>North Willow Street</b>	8
<b>North Hickory Street</b>	6
<b>Campbell</b>	5
<b>Wilma Street</b>	4
<b>Williams</b>	3

The following streets were mentioned one to two times:

- Church Street
- Smithfield Street
- Honeycutt Drive
- South Park Street
- Dunn Street
- Pleasant Street
- Johnsons Landing

**13. What are the top three intersections needing improvements? (Write in your top three)**

Response	Response Count
<b>NC 55 at 210</b>	32
<b>NC 210 at Broad Street</b>	11
<b>Willow Street/Poplar at NC 210</b>	10
<b>NC 55 at Dora</b>	6
<b>NC 55 at Williams Street</b>	6
<b>NC 55 at Broad Street</b>	6
<b>NC 55 at McIver</b>	6
<b>Wimberly Street at Broad Street</b>	4
<b>NC 55 at Lillington Street</b>	3
<b>North Willow Street at Wimberly Street</b>	3
<b>Junny Road at Broad Street</b>	3

\*14 other intersections were mentioned at least once.

**14. What is your gender?**

Answer Options	Response Percent	Response Count
Female	71.5%	181
Male	28.5%	72
	<i>answered question</i>	253
	<i>skipped question</i>	34

15. What is your age?		
Answer Options	Response Percent	Response Count
0 - 15	0.0%	0
16 - 25	1.5%	4
26 - 40	19.1%	50
41 - 55	25.6%	67
56 - 70	33.6%	88
71 and older	20.2%	53
<i>answered question</i>		262
<i>skipped question</i>		25

16. Where do you live?		
Answer Options	Response Percent	Response Count
Town of Angier	90.1%	219
Harnett County	9.9%	24
Other (please specify)		8
<i>answered question</i>		243
<i>skipped question</i>		44

## Public Workshops

A public workshop and community focus groups were held during the process to allow citizens one-on-one time with the consultant team and Town staff in discussing the plan and recommendations. The first workshop was held on April 23 at 6:30 pm at the Public Library / Municipal Building. At the first workshop those in attendance were asked to provide input on existing conditions, barriers to walking, places where they walk now and general feedback and discussion. The opportunity was given for residents to provide input on the overall

vision for the plan development as well. Focus group meetings were held on June 18 with various community groups, citizens and business leaders. Each meeting provided citizens the opportunity to draw lines on the map and discuss ideas with fellow residents, town staff and the consulting team.



## Appendix B. Prioritization and Cost Estimates

### A. Introduction

As the pedestrian plan was developed, the public input regarding desired improvements was very important as the steering committee evaluated projects and their prioritization level. The steering committee evaluated the background research, consultant recommendations and the public input to develop a unique ranking system for future pedestrian projects from the list of recommended network and intersection improvements. Specific criteria were developed along with corresponding weights for the recommended network and intersection improvements respectively. Cost estimates were prepared for the top five pedestrian network improvements and the top five intersection improvements.

### B. Pedestrian Network Priorities

#### Pedestrian Network Improvement Project Criteria

- A. US/NC Highway (20 points)
- B. Connects existing pedestrian network routes (15 points)
- C. Connects to parks/recreational facilities (10 points)
- D. Directly completes or extends an existing pedestrian route (10 points)
- E. Provides direct access to a school (10 points)
- F. Connects planned pedestrian network routes (5 points)
- G. Citizen Priority from Surveys (50 points – first; 25 points – second; 10 points - third)



Figure B-1. Pedestrian Network Improvement Prioritization Table

No.	Pedestrian Corridor	Location	A	B	C	D	E	F	G	Total
1	NC 55 / Raleigh Street	Town Limit to Town Limit	20	0	0	0	0	5	50	75
2	NC 210 / Depot Street	Town Limit to Town Limit	20	0	0	0	0	5	50	75
3	West McIver Street	Broad St. to NC 55	0	10	0	10	10	5	25	60
4	North Willow Street	Julia Street to Junny Road	0	10	0	10	0	5	25	50
5	Junny Road	Intersection of North Broad/Julia Street to Glen Meadow Drive	0	0	0	10	0	5	25	40
6	Cutts Street	N. Willow St. to NC 55	0	10	10	0	0	5	10	35
7	North Hickory Street	Wimberly St. to NC 210	0	0	10	0	0	5	10	25
8	Wimberly Street	Broad St. to N. Hickory St.	0	0	0	0	0	5	10	15
9	McIver Street	Agnier Elementary to Wilma St.	0	10	0	10	10	5	10	35
10	South Dunn Street	Just north of Church St. to East McIver St.	0	10	0	10	0	5	10	35
11	East Lillington Street	2 Small Segments (see map)	0	10	0	10	0	5	10	35

### Pedestrian Intersection Improvements Criteria

- A. On US or NC Route – (20 points)
- B. Proximity to pedestrian crashes – (15 points)
- C. On Existing Pedestrian Route – (15 points)
- D. Commercial Intersection – (10 points)
- E. Proximity to Park/Rec Facility – (10 points)
- F. Current Signalized Intersection – (10 points)
- G. On Planned Pedestrian Route- (5 points)
- H. Citizen Input – (50 points)

Figure B-2. Intersection Improvement Prioritization Table

No.	Intersection Location	A	B	C	D	E	F	G	H	Total
1	NC 55 & 210	20	15	15	10	0	10	5	50	125
2	NC 210 & Broad Street	20	0	15	10	0	10	5	50	110
3	N. Willow St. & E. Wimberly St.	0	0	0	0	10	0	5	50	65
4	Junny Road at North Broad Street	0	0	0	0	0	0	5	50	55
5	NC 55 (Floating/Future Crossing)	20	15	0	10	0	0	5	50	100
6	North Broad Street Mid-Block Warning Signage	0	0	15	10	0	0	5	50	80

### General Cost Estimates

It is important to note that cost estimates are somewhat difficult to pinpoint under the current economic conditions where prices for raw materials continue to fluctuate and contractor bidding remains more competitive, lowering actual construction costs significantly on almost any project. However, based as closely on recent trends as possible, the cost estimates above are to be considered guides and need to be supported by engineering drawings and more accurate cost figures. Cost estimates will also become dated the further out these projects are actually implemented.

Relevant to the recommendations in this plan, the following general cost estimates were utilized:

- Sidewalk Construction \$40 / Linear Foot
- Standard Crosswalk \$1,000 per intersection
- Ladder Style Crosswalks \$2,000 per intersection
- Curb Extensions \$20 / Square Foot
- Crosswalks with Countdown Signals \$5,000 to \$15,000 per intersection
- Pedestrian Traffic Signals & HAWK Signals \$40,000 to \$75,000 (if needed as temporary solution along NC 55)
- Warning Signage \$250 for standard sign, \$500 for in street pedestrian crosswalk sign system

Figure B-3. Pedestrian Network Improvement Cost Estimates

SIDEWALK PROJECTS		Recommendation	Summary	Project Components	Estimated Cost
<b>1</b>	NC 55 / Raleigh Street	Sidewalks both sides of roadway and crosswalks	Coordinate with NCDOT on plans for the complete street concept. A need exists for additional crossings at north and south ends of NC 55.	Project involves public and private investment for the completion of this long-term project	N/A
<b>2</b>	NC 210 / Depot Street	Sidewalks both sides of roadway and crosswalks	Coordinate with NCDOT on plans for the complete street concept.	Project involves public and private investment for the completion of this long-term project	N/A
<b>3</b>	West McIver Street	Sidewalk	Complete sidewalk network, long-term consideration of potential NC 55 crosswalk near this location.	360' (south side)	\$14,400
<b>4</b>	North Willow Street	Sidewalk	This will complete the pedestrian connection from Junny Road to the Park and Downtown.	805' (east side)	\$32,200
<b>5</b>	Junny Road	Sidewalk	This will complete pedestrian connection to northeastern residential areas.	2,710'	\$108,400
<b>6</b>	Cutts Street	Sidewalk	Sidewalk addition will make a connection to NC 55 midway along Centennial Trail.	1,165'	\$46,600
<b>7</b>	North Hickory Street	Sidewalk	Connects residents to the eastern entrance of Jack Marley Park.	2,645'	\$105,800
<b>8</b>	Wimberly Street	Sidewalk	Connection for neighborhoods along Wimberly.	1,945'	\$77,800
<b>9</b>	McIver Street	Sidewalk	Completes pedestrian network to school.	1,125'	\$45,000
<b>10</b>	South Dunn Street	Sidewalk	Completes a segment for residents to downtown, school and park.	540'	\$21,600
<b>11</b>	East Lillington Street	Sidewalk	Fills in the gap for the existing sidewalk along East Lillington Street.	535'	\$21,400

Figure B-4. Intersection Improvement Cost Estimates

SIDEWALK PROJECTS		Recommendation	Summary	Project Components	Estimated Cost
<b>1</b>	NC 55 & 210	Pedestrian Signals and construction of appropriate curb ramp and sidewalk at southwestern corner.	Intersection is difficult to cross in a timely manner. If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT. Southwestern corner of the intersection is landscaped and needs to be improved to comply with ADA and provide safe pedestrian access to crosswalk.	Signal timing	Coordination
				Pedestrian Signals	\$15,000
				Curb/Sidewalk Improvements (120 sq. ft.)	\$2,400
<b>2</b>	NC 210 & Broad Street	Pedestrian Signals	If pedestrian signals cannot be installed due to budget, discuss signal timing options with NCDOT.	Signal timing	Coordination
				Pedestrian Signals	\$15,000
<b>3</b>	N. Willow St. & E. Wimberly St.	High visibility Ladder style crosswalk	This improvement will be needed to connect with the sidewalk that is currently under design on N. Willow St. from Wimberly to Julia St.	1 crosswalk	\$2,000
				2 Warning Signs	\$500
<b>4</b>	Junny Road	High visibility Ladder style crosswalk	This improvement will be needed to connect the future Junny Road sidewalk with the Centennial Trail across Broad Street.	1 crosswalk	\$2,000
				2 Warning Signs	\$500
<b>5</b>	NC 55 (Floating/Future Crossing)	Pedestrian Signals and high visibility Ladder style crosswalk when final location is determined.	The final location of a future signalized intersection will determine the safest place to install a pedestrian crossing facility along North Raleigh Street / NC 55.	Pedestrian Signals	\$15,000
				1 crosswalk	\$2,000
				2 Warning Signs	\$500
<b>6</b>	Broad Street Mid-Block Warning Signage	Install an in street Pedestrians in Crosswalk Sign	Crosswalk needs additional identification to alert drivers of potential pedestrian activity.	1 in street Pedestrian Crosswalk Sign	\$500



## Appendix C. NCDOT Funding Source Research

### A. NCDOT Funding Research

Over the history of the Pedestrian Planning Program, NCDOT has put together an extensive collection of funding resources in the collection of Pedestrian Plans that have been produced by consultants under the direction of NCDOT's Division of Bicycle and Pedestrian Planning Branch. Below, as gathered directly from NCDOT's pedestrian plan resources and examples, is a list of those resources for possible funding for Angier's projects. The Advisory Committee along with assistance from Town staff will need to evaluate these resources to see if any of the Town's projects can be funded, whether in full or partially, by these grants.

### B. State and Federal Resources

In North Carolina, most Federal funding is typically directed through State agencies to local governments either in the form of grants or direct appropriations. These projects do not qualify for the recently passed federal stimulus funding (2009 American Recovery and Reinvestment Act) since they are not "shovel ready." Also, State budget shortfalls may make it extremely difficult to accurately forecast available funding for future project development. The following is a list of possible Federal and State funding sources that could be used to support construction of the many pedestrian projects. Federal funding requires a 20% local match, however the recent stimulus money does not require a match. Since these funding categories are difficult to forecast, it is recommended that the Town continue to work with the Triangle-Area RPO on getting pedestrian projects listed in the TIP (Transportation Improvement Program), as discussed below.

#### Department of Energy (DOE)

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) grants may be used to reduce energy use and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure such as bike lanes and pathways and pedestrian walkways.



Although, this grant period has passed, more opportunities may arise. More information can be found at <http://www.eecbg.energy.gov/>

### **NC Department of Transportation and SAFETEA-LU**

The most likely source of funding for the pedestrian projects would come from the North Carolina Department of Transportation and the federal funding program SAFETEA-LU. Some of the sub-programs within SAFETEA-LU and within NCDOT are listed below:

- **State Transportation Improvement Program (STIP):** NCDOT annually sets aside \$6 million for the construction of bicycle and pedestrian improvements that are independent of scheduled highway projects in communities throughout the state. Types of projects include shared-use paths, wide-paved shoulders, bike lanes, and sidewalks. These independent projects are funded through the Strategic Prioritization/State Transportation Improvement Program (STIP) process. The strategic prioritization process serves as the primary input source for the STIP. Metropolitan Planning Organizations, (MPOs), Rural Planning Organizations (RPOs), NCDOT Divisions, and the Division of Bicycle and Pedestrian Transportation (DBPT) as well as other units at NCDOT may submit projects through the prioritization process. For bike and pedestrian projects, the DBPT utilizes a project prioritization methodology with defined criteria to rank all bike/pedestrian projects. This process occurs every two years. Priority projects are included in the developmental STIP (years 6 to 10) and the 10-year Program & Resource Plan.
- **NCDOT Discretionary Funds:** The Statewide Discretionary Fund consists of \$10 million and is administered by the Secretary of the Department of Transportation. This fund can be used on any project at any location within the State. Primary, urban, secondary, industrial access, and spot safety projects are eligible for this funding. The Town would have to make a direct appeal to the Secretary of NCDOT to access these funds.
- **NCDOT Contingency Fund:** The Statewide Contingency Fund is a \$10 million fund administered by the Secretary of Transportation. Again, the Town would have to appeal directly to the Secretary.

- **NCDOT Enhancement Funding:** Federal Transportation Enhancement funding is administered by NCDOT and serves to strengthen the cultural, aesthetic, and environmental aspects of the State’s intermodal transportation system. Transportation Enhancement (TE) funding is awarded through NCDOT. The State typically will make a Call for Projects, and each project must benefit the traveling public and help communities increase transportation choices and access, enhance the built or natural environment and create a sense of place.
- **NCDOT Bicycle and Pedestrian Project:** Funds for bicycle and pedestrian projects come from several different sources. Allocation of funds depends on the type of project/program and other criteria. Projects can include independent and incidental projects. Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently funded as incidental features of highway projects. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds or with a local fund match.
- **NCDOT’s Sidewalk Program** – Each year, a total of \$1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state receives \$100,000 annually for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding.

### **NC Department Of Environment – Recreational Trails and Adopt-A-Trail Grants**

The State Trails Program is a section of the N.C. Division of Parks and Recreation. The program originated in 1973 with the North Carolina Trails System Act and is dedicated to helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking and horseback riding to river trails and off-highway vehicle trails. The Recreation Trails Program awards grants up to \$75,000 per project. The Adopt-A-Trail Program awards grants up to \$5,000 per project.

### **Powell Bill Funds**

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only 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.

### **Land and Water Conservation Trust Fund**

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources.

### **N.C. Parks and Recreation Trust Fund (PARTF)**

The Parks and Recreation Trust Fund (PARTF) provide dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities and public authorities, as defined by G.S. 159-7, are eligible applicants.

A local government can request a maximum of \$500,000 with each application. An applicant must match the grant dollar-for-dollar, 50% of the total cost of the project, and may contribute more than 50%. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match.

[http://www.ncparks.gov/About/grants/partf\\_main.php](http://www.ncparks.gov/About/grants/partf_main.php)

### **Safe Routes to School Program**

*(MANAGED BY NCDOT, DBPT)*

The NCDOT Safe Routes to School Program is a federally funded program that was initiated by the passing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which establishes a national SRTS program to

distribute funding and institutional support to implement SRTS programs in states and communities across the country. SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. The Division of Bicycle and Pedestrian Transportation at NCDOT is charged with disseminating SRTS funding.

The state of North Carolina was allocated \$15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. In 2009, more than \$3.6 million went to 22 municipalities and local agencies for infrastructure and non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit [www.ncdot.org/programs/safeRoutes/](http://www.ncdot.org/programs/safeRoutes/) or contact DBPT/NCDOT, (919) 807-0774.

## **C. Local Government Resources**

Local funding sources that would support sidewalk and pedestrian project construction will most likely be limited but should be explored.

### **Capital Area Metropolitan Planning Organization**

The Capital Area Metropolitan Planning Organization (CAMPO) manages the transportation planning process required by Federal law. The CAMPO plans for the area's surface transportation needs, including highways, transit, bicycle, and pedestrian facilities. There are two primary subcommittees of the CAMPO: the Technical Advisory Committee and the Technical Coordinating Committee. An important part of the transportation planning process is to identify transportation needs and to explore feasible alternatives to meet those needs. Plans and programs are often conducted in partnership with the NC Department of Transportation to identify needs and projects to enhance Angier's transportation infrastructure.

It is suggested that the Town work closely with the CAMPO on getting these projects listed on the TIP since this may be the primary source of funding for the project. Typically, projects on this list require a 20% local match.

### **Town of Angier Capital Improvement Programming and Reserve Funds**

The Town of Angier may have funding available to support some elements of construction or repair. It will be important to meet with Board of Commissioners representatives and the Town Manager to judge the availability of this funding.

### **Other Local Funding Options**

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Tax increment financing
- Partnerships

### **D. Private Sector Resources**

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

#### **Land for Tomorrow Campaign**

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

### **The Robert Wood Johnson Foundation**

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

For more specific information about what types of projects are funded and how to apply, visit <http://www.rwjf.org/applications/>.

### **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. The foundation also manages various scholarship programs statewide. Web site: <http://nccommunityfoundation.org/>

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

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

### **Bank of America Charitable Foundation, Inc.**

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development. Visit the web site for more information: [www.bankofamerica.com/foundation](http://www.bankofamerica.com/foundation).

### **Duke Energy Foundation**

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- An internal Duke Energy business “sponsor”
- A clear business reason for making the contribution

The grant program has three focus areas: Environment and Energy Efficiency, Economic Development, and Community Vitality. Related to this project, the Foundation would support programs that support conservation, training and research around environmental and energy efficiency initiatives. Web site: <http://www.duke-energy.com/community/foundation.asp>.

### **American Greenways Eastman Kodak Awards**

The Conservation Fund’s American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants (\$250 to \$2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities. For more information visit The Conservation Fund’s website at: [www.conservationfund.org](http://www.conservationfund.org).



### **National Trails Fund**

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

Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

Web site: [www.americanhiking.org/alliance/fund.html](http://www.americanhiking.org/alliance/fund.html).

### **The Conservation Alliance**

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. One hundred percent of its member companies' dues go directly to diverse, local community groups across the nation - groups like Southern Utah Wilderness Alliance, Alliance for the Wild Rockies, The Greater Yellowstone Coalition, the South Yuba River Citizens' League, RESTORE: The North Woods and the Sinkyone Wilderness Council (a Native American-owned/operated wilderness park). For these groups, who seek to protect the last great wild lands and waterways from resource extraction and commercial development, the Alliance's grants are substantial in size (about \$35,000 each), and have often made the difference between success and defeat. Since its inception in 1989, The Conservation Alliance has contributed \$4,775,059 to

grassroots environmental groups across the nation, and its member companies are proud of the results: To date the groups funded have saved over 34 million acres of wild lands and 14 dams have been either prevented or removed-all through grassroots community efforts.

The Conservation Alliance is a unique funding source for grassroots environmental groups. It is the only environmental grant maker whose funds come from a potent yet largely untapped constituency for protection of ecosystems - the non-motorized outdoor recreation industry and its customers. This industry has great incentive to protect the places in which people use the clothing, hiking boots, tents and backpacks it sells. The industry is also uniquely positioned to educate outdoor enthusiasts about threats to wild places, and engage them to take action. Finally, when it comes to decision-makers - especially those in the Forest Service, National Park Service, and Bureau of Land Management, this industry has clout - an important tool that small advocacy groups can wield.

The Conservation Alliance Funding Criteria: The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation. We're not looking for mainstream education or scientific research projects, but rather for active campaigns. All projects should be quantifiable, with specific goals, objectives and action plans and should include a measure for evaluating success. The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years). Funding emphasis may not be on general operating expenses or staff payroll.

Web site: [www.conservationalliance.com/index.m](http://www.conservationalliance.com/index.m). E-mail: [john@conservationalliance.com](mailto:john@conservationalliance.com).

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

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

- Create urban parks, gardens, greenways, and riverways
- Build livable communities by setting aside open space in the path of growth

- Conserve land for watershed protection, scenic beauty, and close-to home recreation safeguard the character of communities by preserving historic landmarks and landscapes.

The following are TPL's Conservation Services:

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

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

### **Blue Cross Blue Shield of North Carolina Foundation (BCBS)**

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome approach to improve the health and well-being of residents. The Health of Vulnerable Populations grants program focuses on improving health outcomes for at-risk populations. The Healthy Active Communities grant concentrates on increased physical activity and healthy eating habits. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms and, depending on the size of the nonprofit, provide an audit.

BlueCross BlueShield of NC Foundation  
P.O Box 2291  
Durham, NC 27702  
919-765-7347  
<http://www.bcbsncfoundation.org/>

### **Local Trail Sponsors**

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

### **Volunteer Work**

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

## **E. Additional State and Federal Resources**

Below is a list describing where additional State and Federal Resources are located.

- NCDOT Pedestrian Policy Guidelines <http://www.ncdot.gov/bikeped/lawspolicies/policies/>
- NCDOT Greenway Policy  
[http://www.ncdot.gov/templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped\\_laws\\_Greenway\\_Admin\\_Action.pdf](http://www.ncdot.gov/templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf)

- NCDOT Board of Transportation Resolution for Bicycling and Walking - <http://www.ncdot.gov/bikeped/lawspolicies/policies/>
- United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (March 2010) - [http://www.fhwa.dot.gov/environment/bikeped/policy\\_accom.htm](http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm)
- FHWA Policy for Mainstreaming Nonmotorized Transportation (FHWA Guidance – Bicycling and Pedestrian Provision of Federal Transportation Legislation) - <http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm>
- TND Guidelines - <http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>
- NCDOT Complete Streets Policy (<http://www.completestreetsnc.org/>)