Acknowledgements

The comprehensive Pedestrian Plan for the Town of North Wilkesboro has been prepared by Wilbur Smith Associates (WSA), in coordination with the Town staff, North Carolina Department of Transportation (NCDOT), and the citizens of the town. This plan is a visionary, yet practical approach towards making North Wilkesboro a better place to live and walk in the coming years.

WSA would like to thank the following individuals and their agencies that participated and assisted in the development of this plan.

NCDOT
Doug Tetzlaff
Helen Chaney

Town of North Wilkesboro
Joshua Harrold
Frieda F Matthews
Leo Baugham
Kelly Pipes

Steering Committee Members
Bergie Speaks
Josh Swift
Carol Hermann
Bill Clifton
Craig Hughes
Melissa Smithey

Consultants – Wilbur Smith Associates
Will Letchworth, P.E.
Kevin St. Jacques, P.E., P.T.O.E.
Rajit Ramkumar, E.I.
Kala Krishnan

Executive Summary

Throughout the United States, more and more communities are implementing strategies to improve the walking environments and serve the needs of pedestrians. The North Carolina Department of Transportation (NCDOT) supports communities by providing funding assistance to communities who decide to pursue and actively support bicycle and pedestrian activity within their communities. The purpose of the North Wilkesboro Pedestrian Plan is to develop a dynamic and comprehensive pedestrian planning tool for the Town of North Wilkesboro. This Plan will provide the Town with a tool which will assist in the expansion, promotion and funding of safe and efficient pedestrian facilities, programs and initiatives throughout the Town.

The Town of North Wilkesboro is located in the northwestern corner of North Carolina. It is located in the heart of Wilkes County, which is bordered by eight different counties including Alexander, Alleghany, Ashe, Caldwell, Iredell, Surry, Watauga and Yadkin. The Town is comprised of approximately 7.5 square miles of contiguous land, along with approximately 300 acres of non-contiguous lands. The Town, like many North Carolina towns takes advantage of its nearby natural streams and waterways. North Wilkesboro is fortunate to be bordered by the Yadkin River to the south as well as the Reddies River to the west which ties into the Yadkin River.

Public involvement was a major component of the development of this plan. These efforts included the development of a pedestrian plan steering committee, two public meetings, and a public survey. Based on information obtained from the public the following vision was developed:

To promote a sense of community and personal and environmental health through the provision of a safe and interconnected pedestrian transportation system for residents of and visitors to the Town of North Wilkesboro.

Additionally, the following goals were set forth, which guided all work done as part of this plan.

Goals and Objectives

Goal #1: Increase and enhance the safety of pedestrians.

Goal #2: Enhance public awareness and education of pedestrians in the Town of North Wilkesboro

Goal #3: Adopt policies that promote Connectivity, Coordination and Continuity throughout the Town of North Wilkesboro

Goal #4: Enhance personal and environmental heath in North Wilkesboro.

Goal #5: Develop a Maintenance and Implementation Plan

The recommendations set forth in the Plan are divided into Programs, Policies, and Facilities. Within Programs, the recommendations are divided up into promotion of pedestrian activities and facilities, issues of safety with regard to pedestrian facilities and use, and maintenance of existing and proposed facilities. Development policies and regulations help provide guidelines for development decisions, location of pedestrian facilities, pedestrian safety, encouraging pedestrian activity, and creating pedestrian friendly environments. Programs developed in the Pedestrian Plan include those that promote and help in coordinating efforts with other groups and agencies, help in education and promotion of pedestrian facilities, and help in the town's planning efforts. A number of facility recommendations have been detailed in the Pedestrian Plan. These include expansions and upgrades to greenways along the Yadkin River, the provision of sidewalks in several areas of town to ensure that safe routes are made available from residential areas to schools, public facilities, work areas, parks, and medical facilities, as well as ensuring that gaps in existing sidewalks are connected to make continuous pedestrian paths. Safe crossing of roadways is made possible through recommendations for crosswalks and pedestrian crossings at busy intersections and active areas of the town. Safety concerns are taken care of through lighting and signage recommendations, and finally, additional pedestrian connections are also recommended for areas that are not accessible or for which safety is a concern.

To aid in the construction of the facility recommendations made in the Plan, a set of pedestrian standards and guidelines were also developed. The Plan provides general design standards for sidewalks and walkways, trails and greenways, curb ramps, crosswalks, curb radius reductions, safety and lighting, and signals and signs.

As resources and time are not available to develop all projects at the same time, prioritization of the projects is necessary. The projects are divided into timeframes for completion, with the highest priority projects recommended to be completed in the short term (0-5 years), the next level of priority being projects expected to be completed in the medium term (5-10 years), and then long term projects that would be completed in more than 10 years. Although safety is the number one concern, top priority projects to be completed in the short term may include a combination of safety, accessibility and connections, as well as recreation projects.

Finally, the Plan includes a number of funding sources available to assist the Town in carrying out its recommendations. Funding comes from a variety of sources, including funding through the NCDOT's divisions, funding from other state agencies such as through the MPO's, State run grants programs, conservation funds and trusts. Federal funding sources are also provided as well as a number of local funding initiatives such as bonds, loans, different types of fees and taxes.

Table of Contents

List of Tables

List of Figures

Chapter 1 – Vision and Direction

1.1 INTRODUCTION

Throughout the United States, more and more communities are implementing strategies to improve the walking environments and serve the needs of pedestrians. The benefits of walking are numerous and many fold. The obvious benefit is improved health and well being for the individual. Walking is a means of not only achieving a physical fitness but also provides a means of releasing stress. Walking also provides alternative transportation options, lower levels of traffic congestion, environmental benefits, economic benefits, and an increased sense of community and belonging among residents.

North Carolina is fortunate to have a very strong culture of walking and biking activity that is driven by the desire for recreation, working toward better health, and driven by transportation needs and desires. The North Carolina Department of Transportation (NCDOT) supports communities by providing funding assistance to communities who decide to pursue and actively support bicycle and pedestrian activity within their communities. From 2004 to 2007, the NCDOT awarded 64 communities with grants to support bicycle and pedestrian activity, and the interest in promoting alternate modes of transportation has only increased given global environmental issues, increasing fuel prices, and the need to promote more active lifestyle choices. Personal benefits of increased health, decreased stress, and overall well being are just a few of the reasons why the North Wilkesboro Pedestrian Plan is a step in the right direction toward bettering the overall quality of life of the community.

The funding for this Plan was made possible through a grant obtained by the NCDOT along with matching funds from the Town of North Wilkesboro. Generous input was provided by Town staff and a Steering Committee consisting of Town, county, and NCDOT officials, as well as members of the Greenway Commission, and others concerned with pedestrian trails and connections in the Town. In order to solicit input from the community on the need for pedestrian facilities in the community, a public survey was administered to determine the needs and desires of the community with respect to pedestrian facilities.

The purpose of the North Wilkesboro Pedestrian Plan is to develop a dynamic and comprehensive pedestrian planning tool for the Town of North Wilkesboro. This Plan will provide the Town with a tool which will assist in the expansion, promotion and funding of safe and efficient pedestrian facilities, programs and initiatives throughout the locality.

1.2 STUDY AREA

The Town of North Wilkesboro is located in the northwestern corner of North Carolina. It is located in the heart of Wilkes County, a county that is bordered by eight different counties including Alexander, Alleghany, Ashe, Caldwell, Iredell, Surry, Watauga and Yadkin. The Town is comprised of approximately 7.5 square miles of contiguous land, along with approximately 300 acres of non-contiguous lands. The Town, like many North Carolina towns takes advantage of its nearby natural streams and waterways. North

Wilkesboro is fortunate to be bordered by the Yadkin River to the south as well as the Reddies River to the west which ties into the Yadkin River.

The study area is shown in Figure 1.1.

The Town itself has many areas that are attractive for pedestrians. The Yadkin River Greenway, a collaborative project between local landowners, citizens, and the governments of Wilkes County, opened in 2002 and is a world-class facility.

To the north-east of the greenway is the Central Business District (CBD), which is mostly bounded by the CBD loop. This area includes many shops, restaurants, and municipal buildings.

West of the CBD is the Wilkes Regional Medical center, surrounding by various other medical offices and pharmacies

South and east of the CBD are several Town parks including Memorial Park and Highland Park, bordered by industrial areas.

North of the CBD are older residential areas, including the Finley Park neighborhood. These neighborhoods are within walking distance of the CBD, but significant grades can limit the distance individuals are willing to walk to the downtown area.

Further north and east of this area, the character of the Town transitions to industrial and highway business uses. The Town is growing to the north along NC 18 and to the east along NC 268. The Wilkes Senior Center, the Woodlawn Community Center and the North Wilkesboro Elementary School are in this area of town.

These pedestrian trip generators are shown on Figure 1.2

1.3 PUBLIC INVOLVEMENT

An important part of developing a successful and implementable Pedestrian Plan is to integrate ample citizen input into the planning process and project prioritization. To gather input from the public, the project team utilized three strategies:

1. Developed a Steering Committee
2. Held two public meetings
3. Distributed a public survey

Steering Committee

The Town of North Wilkesboro staff formed the North Wilkesboro Pedestrian Plan Steering Committee (PPSC) to assist and provide guidance in the development of the Pedestrian Plan

The Steering Committee met three times over the course of the Plan's development and provided ideas and guidance and identified the public needs for pedestrian

FIGURE 1.1 - STUDY AREA

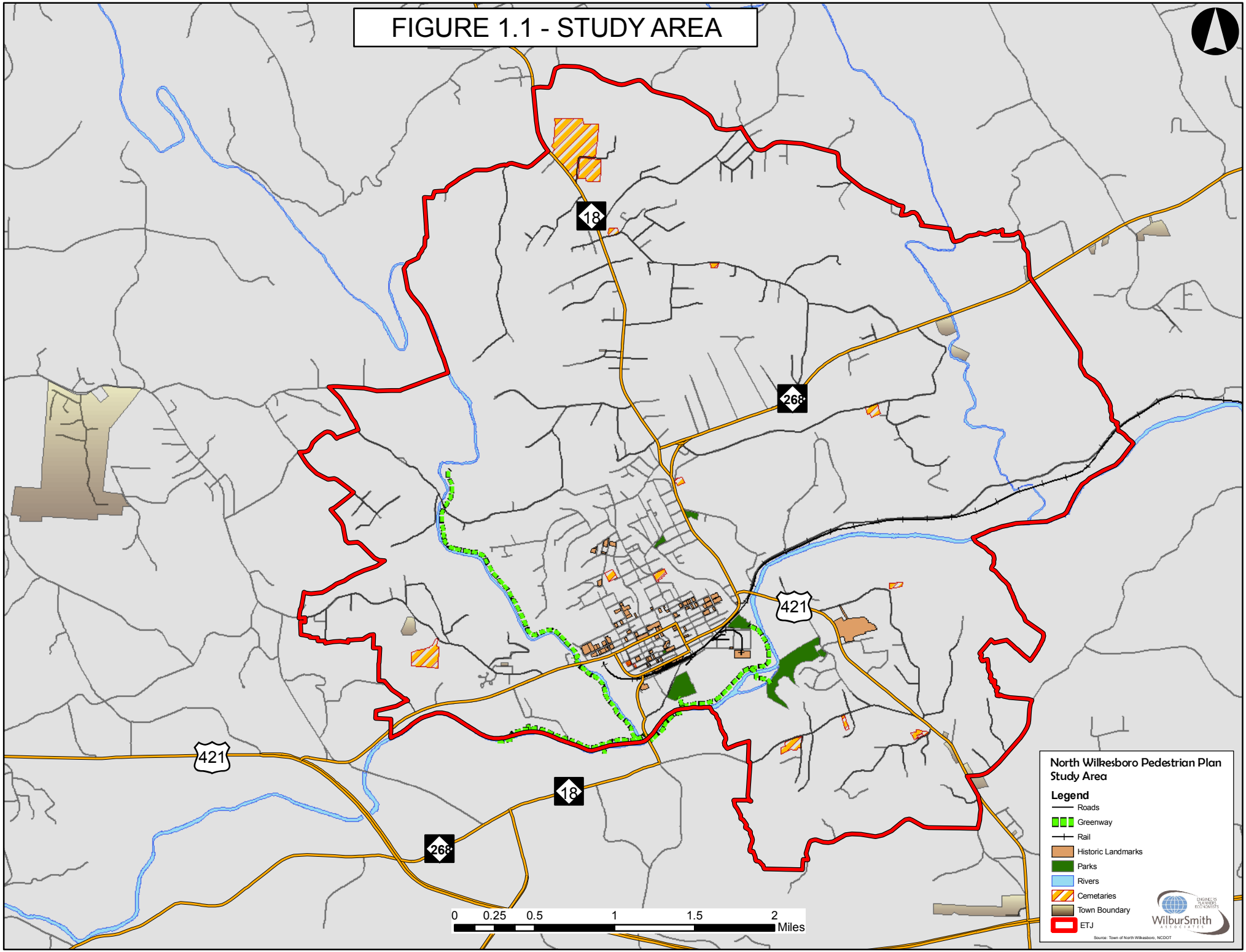
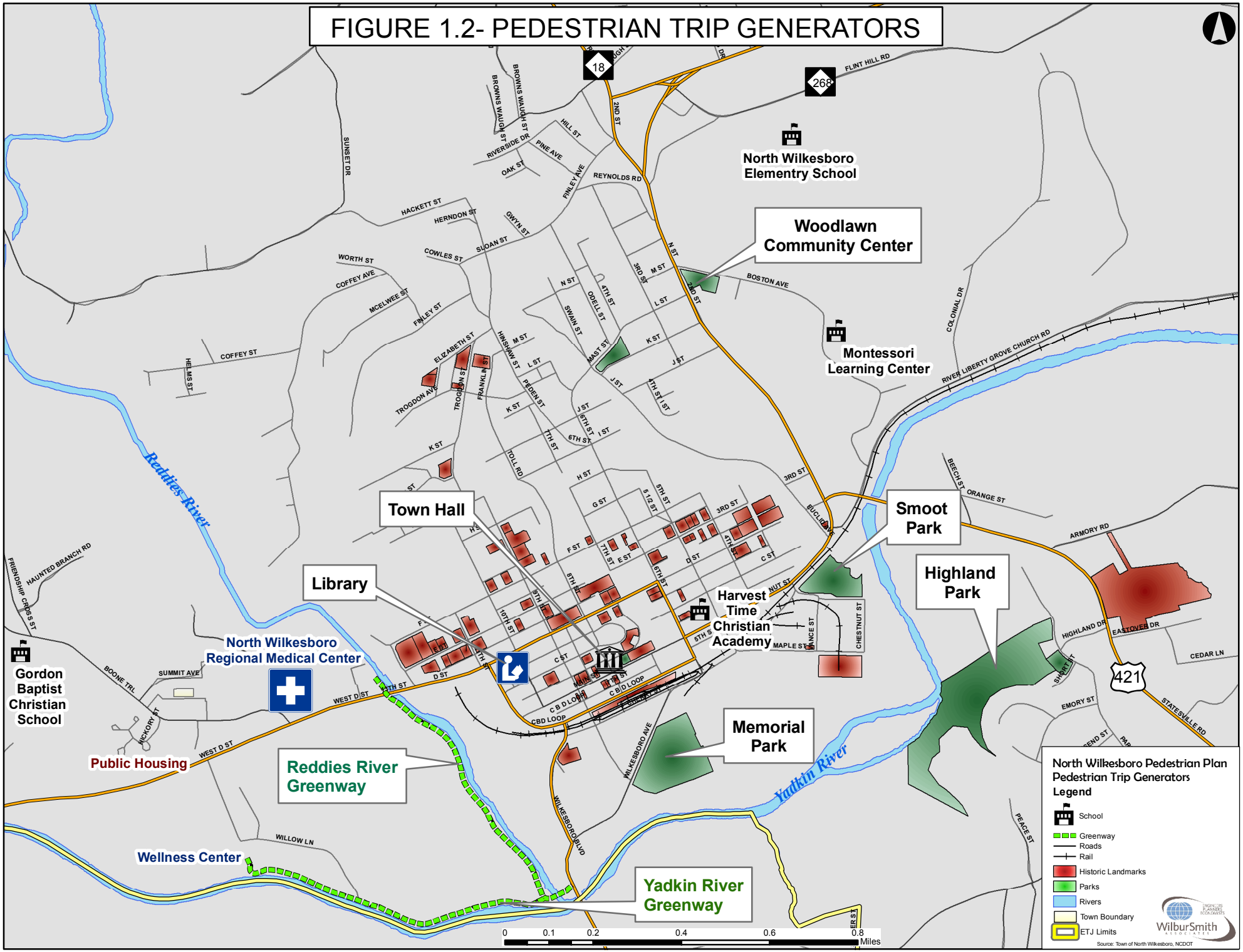


FIGURE 1.2- PEDESTRIAN TRIP GENERATORS



improvements in N. Wilkesboro which were incorporated into this plan. Minutes and notes from each of these PPSC meetings are included in this plan in Appendix A.

The following individuals participated in the North Wilkesboro Pedestrian Plan Steering Committee:

Table 1.1
Steering Committee

Name	Agency
Joshua Harrold	Town of North Wilkesboro Planning Director
Bergie Speaks	WCS
Frieda F Matthews	Town of North Wilkesboro
Doug Tetzlaff	NCDOT District Engineer
Leo Baugham	Town of North Wilkesboro
Josh Swift	Wilkes County Health Department
Carol Hermann	Wilkes Regional Medical Center
Bill Clifton	Yadkin River Greenway Commission
Helen Chaney	NCDOT Bicycle and Pedestrian Division
Craig Hughes	High Country COG
Melissa Smithley	HDTNW
Kelly Pipes	Wilkes Economic Development Director

Public Meetings
Another important part of the Pedestrian Plan planning process was to allow the general public in North Wilkesboro an opportunity to review and provide input on the draft Plan and maps. Two public meetings were conducted over the one year planning process. The purpose of the first meeting, held on Tuesday September 25, 2007, was to introduce the public to the project, discuss how the planning process was conducted, review the responses to the public survey, identify and confirm existing conditions in N. Wilkesboro, present draft project recommendations, and seek comments and input from the community regarding the pedestrian plan project and program needs and expectations.

The second public meeting was held on November 5, 2008 and the Draft Pedestrian Plan was presented to the public to review. This meeting provided the public with the Draft Final recommendations, proposed projects and programs, policies and an implementation schedule.

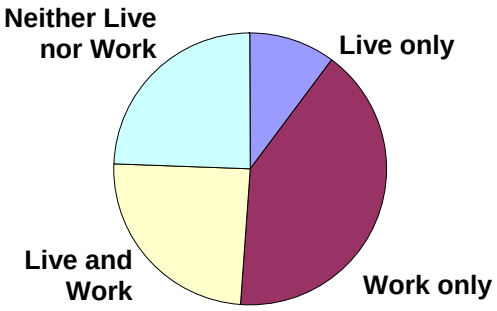
During both public meetings, the attendees were encouraged to provide comments on the draft plan. The public was also given an opportunity to review draft maps including existing conditions, priority projects, proposed pedestrian trails, recommended policies and facilities, in addition to several other informative maps. At the conclusion of both public meetings, the public participated in “question and answer” sessions.

1.4 SURVEY RESULTS

To obtain user information, a public survey was administered to determine the needs and desires of the community. A total of 179 surveys were returned. Respondents were mostly above 55 years of age (45 percent of respondents). Sixty-three respondents were in the 40-54 age group, and 33 in the 25-39 age group. There was only one respondent in the 16-24 age group. This age distribution, however, is not representative of N. Wilkesboro’s 2000 Census data (see Chapter 2 – Existing Conditions), which shows that

the Town mostly consists of residents in the 35-44 year age group, followed by those in the 25-34 age group and then those in the 45-54 year old age group. The survey results will be more representative of the needs of the senior population of N. Wilkesboro, however, it is still an important tool for planning for the community's future.

Information on where people who completed the survey worked or lived was rather inconclusive. Just over 40 percent of respondents said that they only worked in N. Wilkesboro, ten percent said they only lived in N. Wilkesboro, 25 percent said they worked and lived in N. Wilkesboro, and another 25 percent said they neither lived nor worked in N. Wilkesboro.



Walking or running for personal fitness and exercise was the most common answer given when asked why people chose to use pedestrian facilities, with leisure and recreation also being strong. Some also chose to walk as a means of transportation, not necessarily because there was no other choice, but simply as a personal choice. Walking and/or running is already a lifestyle choice of many of the respondents of the survey. Most respondents said that they walk or run at least several times in a week. Their choice of location for walking was mostly the greenways and sidewalks, however some respondents indicated that they do end up walking on streets both along or against traffic indicating a need for additional safe sidewalks and walking trails and education.

It was also expressed that if there was a better pedestrian system of sidewalks and trails and better connections, then people would walk more. As gas prices continue to rise, a safe and accessible alternative to the automobile is desired. Also, many respondents expressed that awareness needs to be made regarding the types of facilities that exist in the town, that people need to be educated on how to safely use the pedestrian network, and they also expressed that the existing traffic volumes and speeds on some of the Town's streets deter people from walking. The respondents are also very supportive of the Town's efforts to promote a more pedestrian friendly environment.

1.5 VISION, GOALS, and OBJECTIVES

At the North Wilkesboro Pedestrian Plan Steering Committee meeting held in October 2007 (see Pedestrian Plan Steering Committee (PPSC) meeting minutes in Appendix A), participants noted that the need exists for improved pedestrian facilities as well as better education and communication of the existing and proposed facilities. Pedestrian safety along with the need to create an inviting pedestrian experience were also mentioned.

Based on these thoughts, the PPSC committee developed the following vision for the North Wilkesboro Comprehensive Pedestrian Plan:

Vision: ***To promote a sense of community and personal and environmental health through the provision of a safe and interconnected pedestrian transportation system for residents of and visitors to the Town of North Wilkesboro.***

The following Goals and Objectives were established as a guideline for the development of the North Wilkesboro Comprehensive Pedestrian Plan. The purpose of these goals is to ensure that the development of the Plan complies with the needs and input of the residents in North Wilkesboro. These goals exemplify the foremost pedestrian principles for local stakeholders, elected officials and residents, based on input provided by the North Wilkesboro Pedestrian Plan Steering Committee members and Town Staff. These goals will be referred to as the basis for identification of the project prioritization criteria.

Project prioritization criteria are tied to these goals in order to ensure the most economic and efficient pedestrian improvement projects and programs are ranked according to the needs of the community. Any pedestrian improvement completed within the town that addresses these goals will help North Wilkesboro become a better community for pedestrians and residents.

Goals and Objectives
Goal #1: Increase and enhance the safety of pedestrians.

Objectives
- Change the perception that roads are for cars only, particularly on low volume, low speed facilities
- Implement measures to enhance pedestrian visibility during the day and night
- Develop facilities that provide separation from the travel lanes
- Promote the enforcement of current pedestrian laws, including the Town's leash law
- Provide well marked crosswalks with signal actuation where appropriate
- Promote appropriate vehicular speed through the design of pedestrian facilities

Goal #2: Enhance public awareness and education of pedestrians in the Town of North Wilkesboro

Objectives
- Promote walking through the various events held within the Town
- Create a pedestrian friendly environment so that people think about "walking first"

Goal #3: Adopt policies that promote Connectivity, Coordination and Continuity throughout the Town of North Wilkesboro

Objectives
- Identify a network of sidewalks and shared use paths that serve all user groups, including commuting, recreation, and utilitarian trips.
- Utilize innovative designs, where appropriate, to promote pedestrian activity and safety.
- Continue to pursue the expansion of the Yadkin River Greenway.
- Promote the provision of handicapped accessible pedestrian facilities throughout the Town
- Coordinate with adjoining communities and NCDOT to ensure future pedestrian plans are compatible.

- Develop standards for new developments that will help ensure that consistent pedestrian facilities are constructed as the Town of North Wilkesboro grows.
- Incorporate this Plan into the NCDOT Comprehensive Transportation Planning process.

Goal #4: Enhance personal and environmental health in North Wilkesboro.

Objectives

- Promote walking to children in the Town
- Encourage residents of the Town to "be active"
- Coordinate with the hospital and county health department's programs to promote walking.

Goal #5: Develop a Maintenance and Implementation Plan

Objectives

- Ensure that pedestrian facilities are routinely maintained for the safe operation of pedestrians
- Develop an evaluation matrix that evaluates existing facilities to ensure that facilities adequate for pedestrian use are being provided in North Wilkesboro and to identify appropriate routes for pedestrian travel.

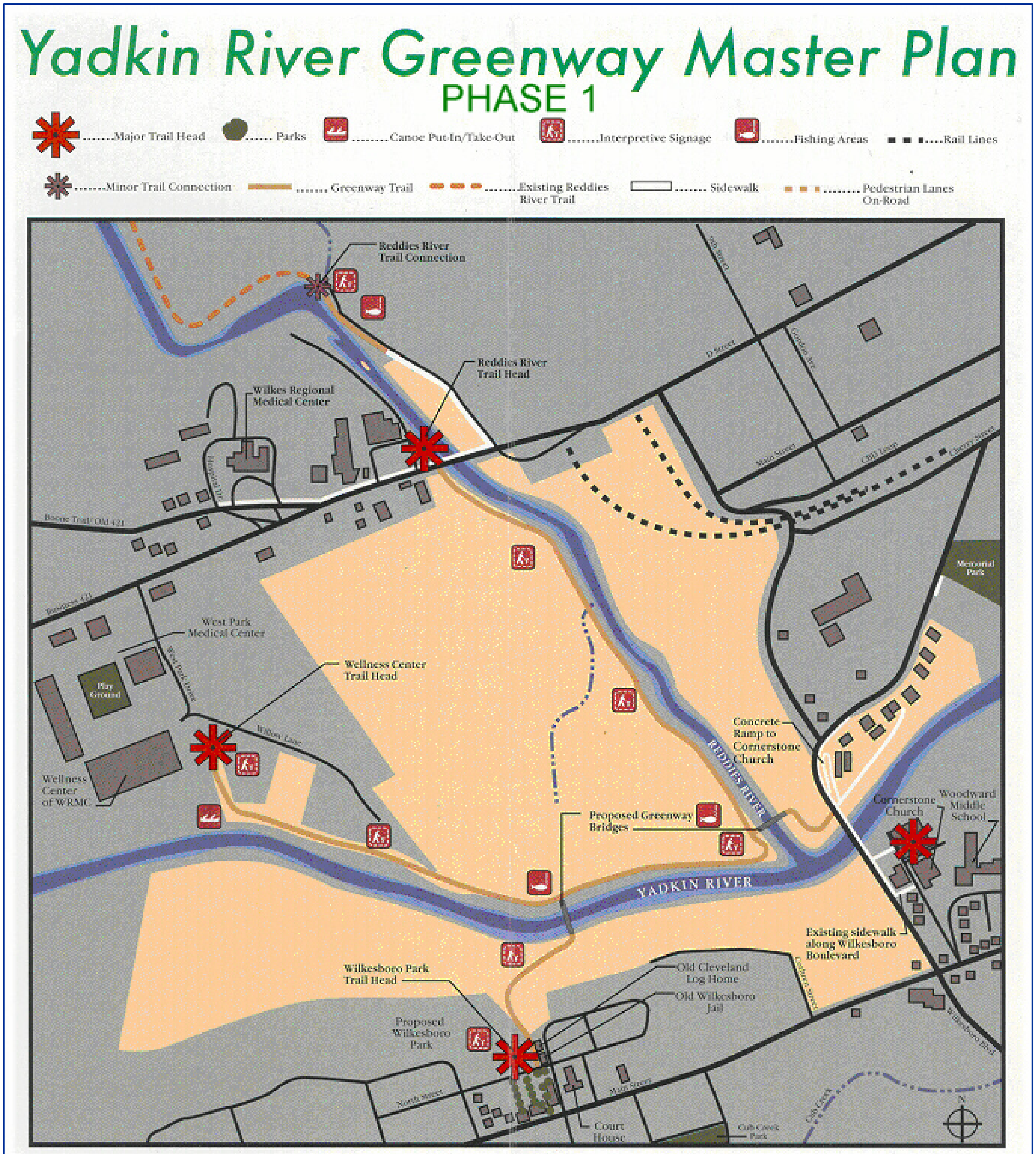
Chapter 2 - Existing Conditions

2.1 INTRODUCTION

North Wilkesboro is a town of just over 4000 people (according to the 2000 Census) located in Wilkes County in northwestern North Carolina. Due to the Town's proximity to the Blue Ridge Mountains and the many tourists that passed through the town, it had, for many years, been referred to as the "Key to the Blue Ridge." Today, North Wilkesboro has a strong industrial base and houses the Wilkes Industrial Park, the second largest certified industrial park in North Carolina.

The Town itself has many areas that are attractive for pedestrians. The Yadkin River Greenway, a collaborative project between local landowners, citizens, Wilkes County, Wilkesboro and North Wilkesboro, opened in 2002 and is a world-class facility. Planning for the greenway was started in 1994, with the initial group expanding to form the Yadkin River Greenway Council. Funding for the planning and construction of the 10 foot-wide paved trail and adjacent 4 foot-wide crushed stone trail was provided by various governmental agencies including the County, Wilkesboro, North Wilkesboro, and the North Carolina Department of Transportation (NCDOT) and by several fundraising activities developed by the Council. The greenway currently connects the North Wilkesboro Regional Medical Center Wellness Center, the commercial areas north of US 421 at the D Street bridge, Wilkesboro Park (and nearby Old Wilkes Jail and the Wilkes Heritage Museum), and the Cornerstone Church near Mid-Town Market east of Wilkesboro Boulevard.

The greenway master plan, available at http://www.yadkinrivergreenway.com, indicates further extension of the greenway to the east and west along the Yadkin River.


Yadkin River Greenway Master Plan
PHASE 1
Major Trail Head
Parks
Canoe Put-In/Take-Out
Interpretive Signage
Fishing Areas
Rail Lines
Minor Trail Connection
Greenway Trail
Existing Reddies River Trail
Sidewalk
Pedestrian Lanes On-Road
Reddies River Trail Connection
Reddies River Trail Head
Wilkes Regional Medical Center
West Park Medical Center
Play Ground
Wellness Center Trail Head
Wellness Center of WRMC
Memorial Park
Concrete Ramp to Cornerstone Church
REDDIES RIVER
Proposed Greenway Bridges
Cornerstone Church
Woodward Middle School
YADKIN RIVER
Existing sidewalk along Wilkesboro Boulevard
Old Cleveland Log Home
Old Wilkesboro Jail
Wilkesboro Park Trail Head
Proposed Wilkesboro Park
Court House

To the north-east of the greenway is the Central Business District (CBD), which is mostly bounded by the CBD loop. The CBD was recognized as Main Street Community by the National Trust for Historic Preservation in 2000, indicating that the downtown area meets 10 standards of performance. This area includes many shops, restaurants, and municipal buildings. Sidewalks are provided throughout the CBD, and appear to be in excellent condition in most areas of the CBD.

As part of a "Start with Your Heart" grant funded by the Centers of Disease Control and Prevention, several groups including the Town, NCDOT, Historic Downtown North Wilkesboro, the Wilkes County Heath Department, Wilkes Chamber of Commerce, and the Yadkin River Greenway Council developed a series of walking routes that vary from .29 miles to 1.5 miles through downtown and are delineated with engraved pavers in the downtown sidewalks. Figure 2.1 shows the eight routes that were identified in the Downtown North Wilkesboro Guidebook and Log.

South and east of the CBD are several Town parks including Memorial Park, Smoot Park, and Highland Park, bordered by industrial areas. Pedestrian access to Memorial Park is difficult due to the lack of delineated pedestrian crossings at the CBD Loop, Cherry Street, and Wilkesboro Avenue. Pedestrian accommodations are also needed along 6th street and Cherry Street to connect to Smoot Park. The planned extension of the Yadkin River Greenway could potentially provide access to the parks from the south. Municipal Park is largely inaccessible by pedestrians, and the potential for providing pedestrian accommodations along Statesville Road is unlikely due to the steep grades abutting the roadway. However, Municipal Park directly abuts Blairs Island, which could potentially connect the park with the Yadkin River Greenway via pedestrian bridges.

Figure 2.1
Start with Your Heart Downtown Routes

Chapter 2 – Existing Conditions

Also in this area south and east of the Town are several industrial areas and smaller residential areas, particularly along Armory Road. There are no pedestrian accommodations in this area.

West of the CBD, on West D Street, is the Wilkes Regional Medical Center. Surrounding this facility are various other medical offices and pharmacies. Pedestrian facilities exist in some locations on both sides of West D Street, but gaps exist in some areas and delineated pedestrian crossings are needed to allow pedestrians to cross from the hospital to uses on the south of West D Street. Two trailheads to the Yadkin River Greenway are located in this area north of West D Street at the Reddies River Trail Head and along Willow Lane at the Wellness Center Trail Head. Additionally a large public housing development is located on Boone Trail east of the hospital and should be served via pedestrian facilities.

North of the CBD are older residential areas, including the Finley Park neighborhood. These neighborhoods are within walking distance of the CBD, but significant grades can limit the distance individuals are willing to walk to the downtown area. Sidewalks are provided along 9th Street and 10th Street and in some locations along the major residential streets. Within the residential areas there are typically no sidewalks, but this is appropriate for low volume roadways. Several residents of the Finley Park have indicated a desire to have a pedestrian connection between the neighborhood and the future planned extension of the Yadkin River Greenway.

Further north and east of this area, the character of the Town transitions to industrial and highway business uses. The Town is growing to the north along NC 18 and to the east along NC 268. The Wilkes Senior Center, the Woodlawn Community Center and the North Wilkesboro Elementary School are in this area of town, which will require a special focus to provide pedestrian access and safety to children and the elderly. Sidewalks exist in some locations along 2nd Street and the grades along NC 18 north of NC 268 appear conducive to the installation of sidewalks on at least one side of the roadway. Sidewalks are also appropriate along NC 268 and Flint Hill Road to connect to North Wilkesboro Elementary School.

2.2 USER DEMOGRAPHICS

Understanding the demographic makeup of the community will provide an understanding of potential pedestrian needs for the community. For example, a community that has a predominant youth and young adult population will have different needs than a community that has a dominant senior population. The following tables provide an insight into the demographic needs of the community.

Age Distribution

As stated earlier, age distribution within a community provides an estimation of the types of activities and facilities that will be needed to serve its population. North Wilkesboro's 2000 population distribution is provided in the table below. Although the data may not be

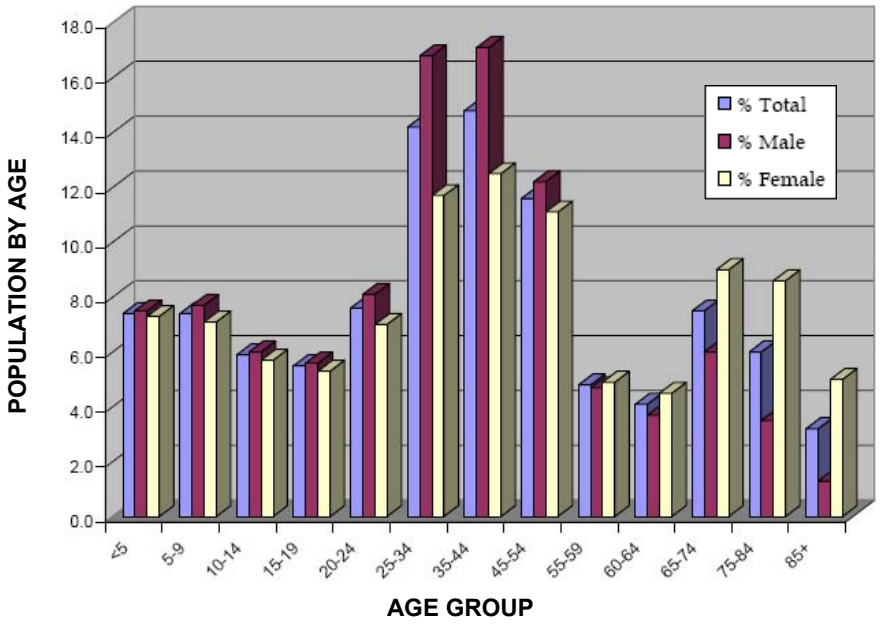
up to date, it does provide a good start in identifying what would be needed to enhance the community's quality of life.

The 2000 Census age distribution for North Wilkesboro depicts a fairly clear picture of the community. The age groups that have the highest number of people are the groups that represent young children (ten years and younger) and residents in the 20-44 years age groups. It therefore appears that the North Wilkesboro population mainly consists of young families. As such, the types of facilities planned for the Town should support active lifestyles. The senior population is least represented in North Wilkesboro, but still requires that facilities and amenities are designed for their needs.

Table 2.1
Age Distribution

POPULATION	NUMBER	PERCENT	BY 5YR. COHORT
Total	4,116	100	
Male	2,045	49.7	
Female	2,071	50.3	
under 5 years	306	7.4	7.4
5-9	305	7.4	7.4
10-14	241	5.9	5.9
15-19	225	5.5	5.5
20-24	311	7.6	7.6
25-34	585	14.2	7.1
35-44	609	14.8	7.4
45-54	479	11.6	5.8
55-59	198	4.8	4.8
60-64	167	4.1	4.1
65-74	310	7.5	3.7
75-84	249	6	3.0
85+	131	3.2	
Median age	36.3		

Figure 2.2
Age Distribution



Source: Town of North Wilkesboro 25-Year Comprehensive Plan, 2006

Population

Data contained in the North Wilkesboro Comprehensive Plan and in the US Census show that the Town has been experiencing a very slow growth rate since 2000. In 1990, the Town's population was 3,384 and increased by almost twenty two percent to 4,116 in the year 2000. However, since then, the population growth has been considerably slower. Census data shows the town's population to be 4,158 in 2008, an increase of 1 percent over the eight year period. This comes to an annual average growth of 0.125 percent per year, compared to 2.2 percent per year in the 1990 to 2000 timeframe. Also, North Wilkesboro has maintained a steady proportion of the county population over the past few years, maintaining approximately six percent of the Wilkes County population.

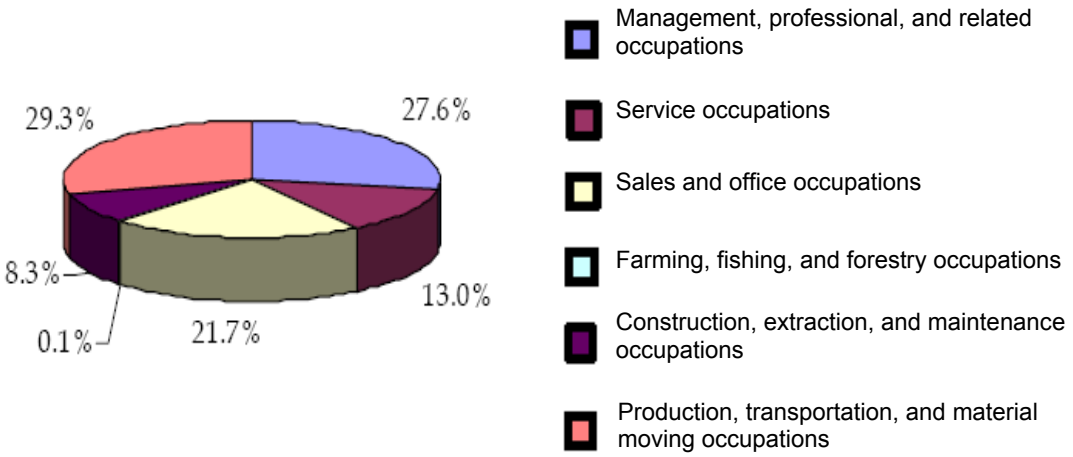
Income

The 2000 Census data for North Wilkesboro shows that of the total working population (population aged 16 and older), 52.2 percent were in the labor force, and 47.8 percent were not in the labor force. Almost half of the women that are considered as part of the working population were not in the labor force. The median family income for the town in 2000 was $29,844.

From the 2000 Census data, it is clear to see that a majority of residents are in the "production, transportation, and material moving occupations" (29.3%), and the "management, profession, and related occupations" (27.6%). A large percentage is also in the "sales and office occupations" (21.7%) professions. In addition, the 2000 Census provides some information on the income levels of North Wilkesboro residents. In 2000, 21.8 percent of families had incomes below the poverty line, which is considerably higher than the US average of 9.2 percent. Also, the number of owner occupied to renter occupied housing units in North Wilkesboro is almost the same, with 46 percent of

housing units being owner occupied and 54 percent being renter occupied. This is rather telling information. With an above average level of poverty and a majority of renter occupied homes, alternate, more economical modes of transportation may be desired. Creating a safe, friendly pedestrian environment with easy access to employment areas, schools, and other town amenities may provide some relief to families, particularly with the rise in fuel prices.

Figure 2.3
Employment by Occupation

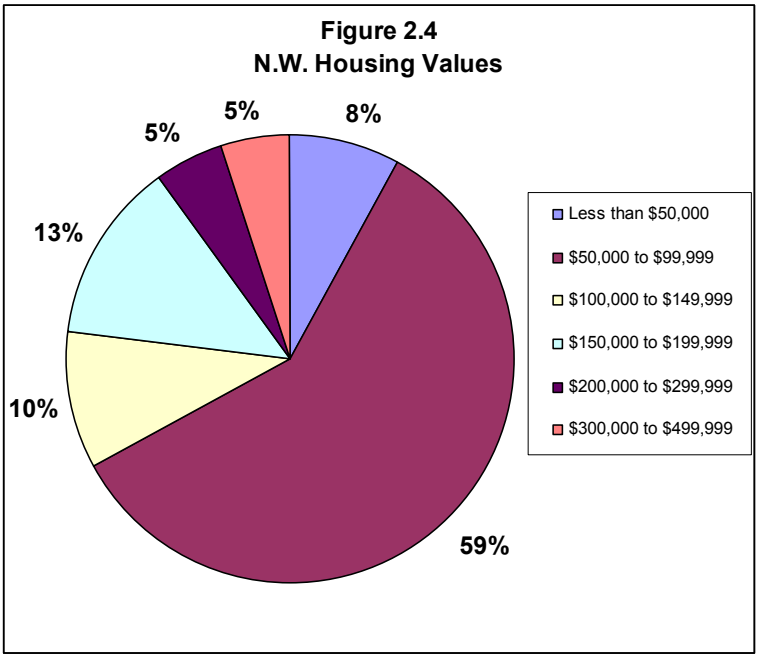


Source: Town of North Wilkesboro 25-Year Comprehensive Plan, 2006

Housing

According to the 2000 Census, 46 percent of total occupied housing units were owner occupied and 54 percent were renter occupied. This almost even split between owner and renter occupied housing offers some insight into the community. In most cases across the US, renters generally prefer alternate modes of transportation other than the vehicle. Public transit, walking or biking become alternate and accepted choices.

Figure 2.4
N.W. Housing Values



According to 2000 U.S. Census data, approximately 59% of the total residential units in North Wilkesboro were valued between $50,000 and $99,999 followed by 13% of residential units being valued between $150,000 and $199,999. The median value for housing units in North Wilkesboro was estimated at $84,400

Ethnicity

From a walking standpoint, ethnicity is also an important consideration. As with lower income groups, certain ethnic groups have a greater need for low-cost utilitarian trip options.

The population in North Wilkesboro is predominately white (78.5%), but is growing more diverse each year. In 2000, races other than white represent approximately 20% of the total ethnicity of North Wilkesboro. The largest non-white group in North Wilkesboro is black or African American (13.9%). Hispanic or Latino groups represent a significant 11.3%, and American Indian, Alaskan Native, Asian, Native Hawaiian and Pacific Islander, as well as other races make up approximately 6% of North Wilkesboro's total ethnicity.

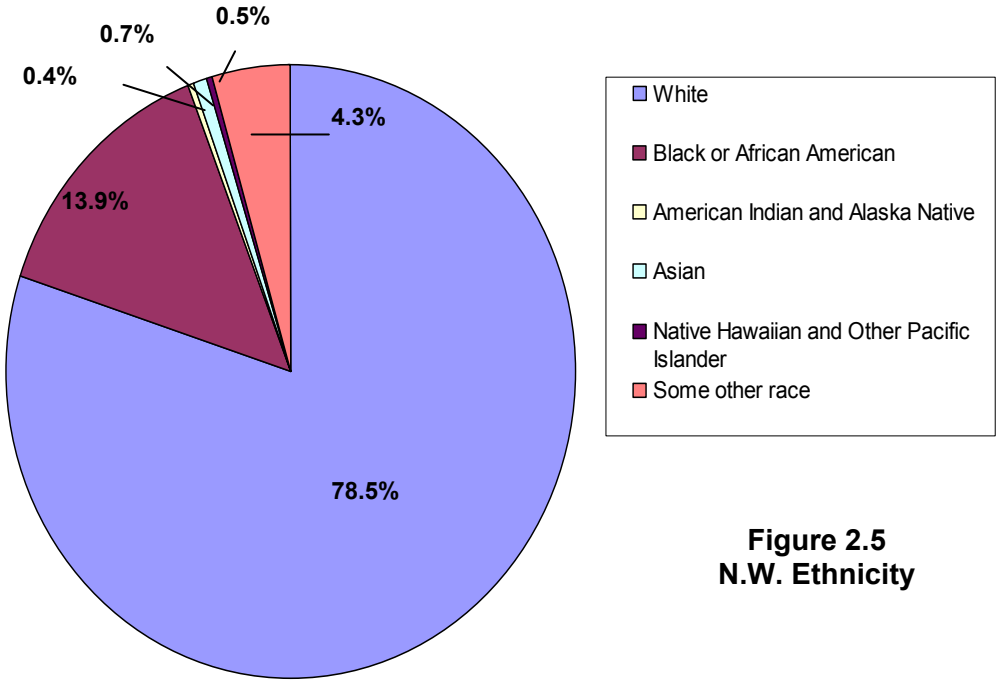


Figure 2.5
N.W. Ethnicity

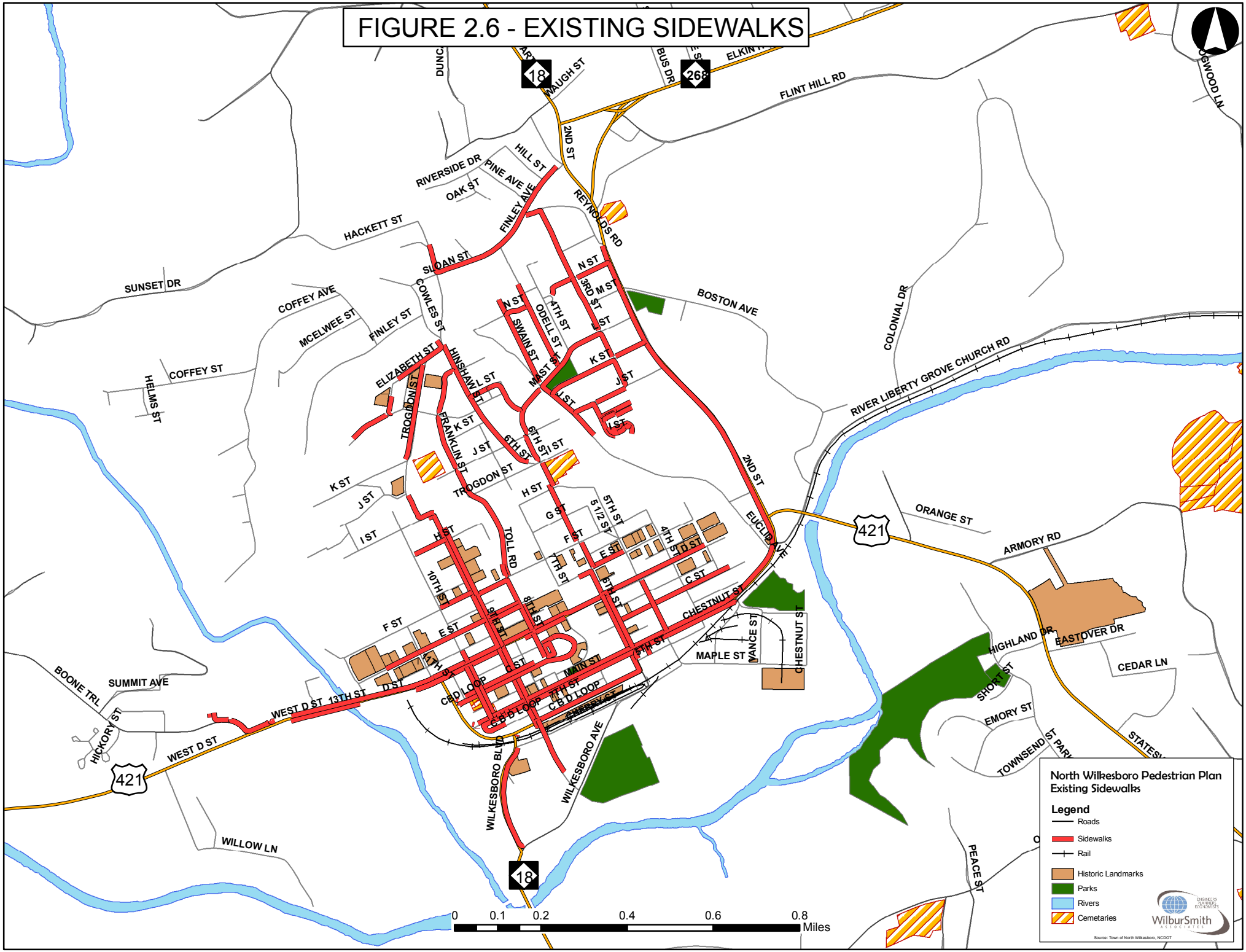
2.3 INVENTORY OF EXISTING CONDITIONS

The Town on North Wilkesboro is fortunate to have a number of existing features that can significantly add to the pedestrian experience. The following is a short list of features within North Wilkesboro:

1. Historic structures: According to the Town's Comprehensive Plan, in 1980, a historical inventory of the town was done by the North Carolina Department of Cultural Resources that identified 132 structures within North Wilkesboro to be historically significant. The inventory includes industrial, commercial, religious, governmental, and residential buildings, as well as engineering structures, and miscellaneous buildings, structures and sites. The majority of these sites are in North Wilkesboro's downtown area, which is an important asset when developing a pedestrian friendly environment.
2. Parks: North Wilkesboro has six designated park areas that include both active and passive recreation opportunities. These parks are fairly well distributed within the town and provide opportunities for connections from residential areas and schools to these park facilities. Parks are an essential element in trail network planning.
3. Yadkin and Reddies Rivers: These two rivers are the primary river systems in North Wilkesboro. These two rivers again provide opportunities for extensions of existing river trail system and greenways, connecting them to town amenities and places of interest.

The Town also has an established sidewalk network. This network is primarily located in the CBD area, but also extends north of the CBD to NC 268. This network is shown on Figure 2.6

FIGURE 2.6 - EXISTING SIDEWALKS



2.4 PEDESTRIAN CRASH DATA

Information on pedestrian accidents in the Town of North Wilkesboro are collected by the UNC Highway Safety Research Center between 1997 and 2005 and are available through their web based interactive pedestrian crash database.

Table 2.2 illustrates the number of pedestrian accidents between 1997 and 2005 based on age of the pedestrian for North Wilkesboro. The total number of pedestrian related accidents over this eight year period was sixteen. Although there might not be enough data available to produce significant conclusions, it can be seen that the largest number of accidents was reported among the 70 years and older age group, with four of the sixteen pedestrians affected in this age group. The next most affected age group was the 41-50 year old group, with three of the sixteen accidents. However, as was stated earlier, the data is a small sample and the number of accidents is quite low overall to be able to identify conclusive results. Five of the sixteen accidents happened in 1997, which may indicate that safety measures may have improved since then.

Table 2.2
Pedestrian Crash Data by Age
North Wilkesboro 1997-2005

Age Grouped	1997	1998	1999	2000	2001	2002	2003	2004	2005	Totals
0 - 5	0	0	0	1	0	0	0	0	0	1
06 - 10	0	0	0	0	0	0	0	0	0	0
11 - 15	0	0	0	1	1	0	0	0	0	2
16 - 20	0	0	0	0	0	0	0	0	0	0
21 - 25	0	0	0	0	0	0	0	1	1	2
26 - 30	1	0	0	0	0	0	0	0	0	1
31 - 40	0	0	0	0	0	0	0	0	0	0
41 - 50	1	1	0	1	0	0	0	0	0	3
51 - 60	0	0	0	0	1	0	0	0	0	1
61 - 70	1	0	0	1	0	0	0	0	0	2
>70	2	1	1	0	0	0	0	0	0	4
Unknown	0	0	0	0	0	0	0	0	0	0
Totals	**5**	**2**	**1**	**4**	**2**	**0**	**0**	**1**	**1**	**16**

The next table, Table 2.3, illustrates pedestrian crash data for North Wilkesboro between 1997 and 2005 by gender. It can be seen that again, there are no real significant results, as it is equally divided by men and women. Nothing conclusive can be drawn from this data to suggest that more accidents occur for men rather than women, or vice versa.

Table 2.3
Pedestrian Crash Data by Gender
North Wilkesboro 1997-2005

Gender	1997	1998	1999	2000	2001	2002	2003	2004	2005	Totals
Male	2	1	1	2	1	0	0	1	0	8
Female	3	1	0	2	1	0	0	0	1	8
Unknown	0	0	0	0	0	0	0	0	0	0
Totals	**5**	**2**	**1**	**4**	**2**	**0**	**0**	**1**	**1**	**16**

Table 2.4 illustrates the number of pedestrian accidents by ethnicity. It shows that the majority of accidents occurred to those who are "white". This information, however, is not conclusive as the majority of the population of North Wilkesboro is white and the accident data is only reflecting this. It does not show any correlation between ethnicity and number of pedestrian related accidents.

Table 2.4
Pedestrian Crash Data by Ethnicity
North Wilkesboro 1997-2005

Race	1997	1998	1999	2000	2001	2002	2003	2004	2005	Totals
White	5	2	1	4	1	0	0	0	1	14
Black	0	0	0	0	1	0	0	0	0	1
Native American	0	0	0	0	0	0	0	0	0	0
Hispanic	0	0	0	0	0	0	0	1	0	1
Asian	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0
Totals	**5**	**2**	**1**	**4**	**2**	**0**	**0**	**1**	**1**	**16**

The following table shows the level of injury by accident in North Wilkesboro. The majority of accidents appeared to be "evident" which means that there was obvious evidence of an accident, perhaps cuts, scratches, or something more severe yet non-disabling. The level of severity of the accident in this category cannot be determined as the definition of "evident" is broad. One victim was unfortunately killed in 1997, the result of which might have been more severe pedestrian safety enforcement as 1997 was also the year with the highest number of pedestrian related accidents.

Table 2.5
Level of Injury by Accident
North Wilkesboro 1997-2005

Injury	1997	1998	1999	2000	2001	2002	2003	2004	2005	Totals
K Killed	1	0	0	0	0	0	0	0	0	1
A Type Injury (disabling)	0	1	0	0	0	0	0	1	0	2
B Type Injury (evident)	4	1	1	2	1	0	0	0	1	10
C Type Injury (possible)	0	0	0	1	1	0	0	0	0	2
O No Injury	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	1	0	0	0	0	0	1
Totals	**5**	**2**	**1**	**4**	**2**	**0**	**0**	**1**	**1**	**16**

2.5 EXISTING PLANS, PROGRAMS AND POLICIES

North Wilkesboro has several regulatory frameworks set in place to help guide the development of sidewalks and pedestrian areas in the Town. The following provides some of the highlights of these policies and programs.

North Wilkesboro Subdivision Regulations

The Town's Subdivision Regulations provide the guidelines for the installation of sidewalks in new developments which allows for pedestrian access within new developments and providing connections to nearby community facilities and amenities. The developer is responsible for dedicating the right-of-way and for the construction of improvements (including sidewalk installation). The minimum standards are set forth by

the North Carolina Department of Transportation, and all major subdivisions require sidewalks be installed along both sides of all residential streets. Further details on their placement, use of materials, and dimensions are available in Chapter 16 of the Town's Subdivision Regulations.

North Wilkesboro Zoning Ordinance

The North Wilkesboro Zoning Ordinance provides the guidelines that ensure a safe and visually interesting pedestrian experience in the Town. Development standards ensure that pedestrian views and visibility are not impaired nor blocked nor does the placement of buildings and/or design of streetscape block views of pedestrians to on coming traffic. Lighting, buffering, and signage shall also be carefully designed ensuring that pedestrians and their pathways are well lit and that the use of buffering and signage does not in any way jeopardize the safety of the pedestrian. In addition, structures shall be arranged to provide for adequate on-site vehicular and pedestrian traffic, and minimize obstructions. The pedestrian experience should also be visually interesting, thus encouraging movement along different pathways, and experiencing varying pathways to Town destinations.

North Wilkesboro 25 Year Comprehensive Plan

The North Wilkesboro 25 Year Comprehensive Plan provides the guidelines for the Town's long range planning in terms of land uses, transportation, parks and open space planning. The Yadkin River plays an important role in the recreation and open space planning for the community, and the transportation system includes a greenway system that is maintained by the Town of North Wilkesboro, Wilkesboro and Wilkes County.

The Comprehensive Plan's goals and objectives have a strong focus on the creation of a safe pedestrian friendly environment within the downtown area, as well as through residential developments. Alternate modes of transportation are also encouraged as well as traffic calming and other safety measures that will help to promote walking and bicycling.

Wilkes County Growth Management Plan

The Wilkes County Growth Management Plan describes some of the current transportation infrastructure that exists in the County. Bicycle and pedestrian facilities are considered part of the transportation infrastructure. In particular, there is mention of the Yadkin River Greenway Council, Inc. a non-profit agency that establishes alternative transportation/recreation trails in Wilkes County. It describes the connections that it will make between towns and points of interest through the trails. Future plans for the Yadkin River Greenway, also discussed at the beginning of Chapter 2, include:

- Extension of the trail from the first phase location upstream to the Kerr Scott Reservoir Dam
- Connection to downtown Wilkesboro via a bicycle/pedestrian bridge across the Yadkin River
- Extension of the trail from the first phase location downstream to Blair Island

Chapter 3 - Recommendations

The recommendations developed as part of this Comprehensive Pedestrian Plan fall into three main categories; Programs, Policies, and Facilities. The Program recommendations deal primarily with education and enforcement of pedestrian laws and the promotion of walking within the Town. The Policy recommendations are aimed at helping the Town establish new policies and laws to handle development that is occurring in the area to ensure that the appropriate facilities and connections are being provided for pedestrians. Finally, the Facility recommendations are aimed at the establishment of a pedestrian network in the Town and provide connections between Town facilities and points of interest.

3.1 PROGRAMS

Developing an effective and safe pedestrian network requires a fully comprehensive strategy that includes extensive education, enrichment, enforcement, policies, and engineering. The following is an inventory of recommendations for programs that North Wilkesboro may use as a guideline for developing a more pedestrian-friendly community.

Promotion

The promotion of existing and future facilities and services, as well as the promotion of North Wilkesboro as a "pedestrian friendly community" will play an important role in achieving the vision set forth by the Pedestrian Plan Steering Committee. To achieve this vision, WSA recommends the following:

The Town's web site should include a page (or pages) dedicated to bicycle and pedestrian travel. The Web site could provide information such as route maps, points of interest along routes, route conditions, bicyclist and pedestrian traffic laws and safety tips, community events, links for local bicycle and pedestrian groups, and other related links.

We recommend that the Town adopt a multi-lingual pedestrian route map that indicates the location and types of future pedestrian facilities. These facilities should include sidewalks, area connections, proposed pedestrian routes, proposed greenway extensions, rest areas, scenic vistas, and historic trails. The Town should also work with Wilkes County to develop the pedestrian system map.

We recommend that the Town highlight and promote scenic areas and public recreational facilities with pedestrian facilities.

A way-finding system for bicyclists and pedestrians should be established by the Town, including kiosks that provide route maps, transit information, tourist information, directions to destinations and end-of-trip facilities.

The Town should participate in national activities, such as *Walk to School Day*, *Bike to Work Day*, and *Car Free Day;* events designed to promote the widespread use of alternative modes of transportation.

Education

The education of citizens, Town Leaders, and Town Staff is an important component of developing a viable, convenient, and particularly safe transportation system.

The Town should use one of its local festival days to help promote pedestrian safety and North Wilkesboro's pedestrian network. In addition to educating the public on the availability of the pedestrian network and its accessibility the public also needs to be provided some basic guidelines to follow that would ensure a safer, more enjoyable pedestrian experience.

The NCDOT website has a large section devoted to pedestrian and bicycle safety in North Carolina. The section contains information on NCDOT projects, programs, pedestrian laws, education, safety, resources and helpful links, North Carolina pedestrian crash data, and information on the pedestrian and bicycle information center.

In addition, http://www.walkinginfo.org is an excellent source to find information on pedestrian safety, laws and tools on how to build a pedestrian safe and friendly community.

The Town should coordinate with local walking groups to provide informational workshops to educate both motorists and pedestrians.

The Town should work with local churches, schools, youth groups, Cub Scout troops, etc. to promote the material provided by NCDOT. The NCDOT Division of Bicycle and Pedestrian Transportation has developed several resources to improve pedestrian and bicycle safety and to educate pedestrian bicycle riders. The following key resources are available online at the NCDOT Division of Bicycle and Pedestrian Transportation Resources and Links webpage:

- Pamphlets and Handouts
- Tests
- Curriculum for Teachers
- Manuals/Guidebooks/Information Sheets
- Posters
- Video Library

The Town should continue to educate its staff (such as planning, engineering, and law enforcement) regarding bicycle and pedestrian rules, regulations, and safety. *A Guide to North Carolina Bicycle and Pedestrian Laws* is just one of the NCDOT publications that can help local police officers and Town Staff interpret the law correctly. This publication can be easily stored in police officer's vehicles as well as in police bike bags.

Safety

One of the main portions of the Steering Committee's vision for North Wilkesboro was safety-related. While comprehensive education recommendations are important in increasing pedestrian safety, other initiatives are needed.

The Town should support *Safe Routes to School (SRTS)* efforts that include educational and incentive programs to encourage more students to bicycle or walk to school. The NCDOT SRTS program includes a grant reimbursement program to fund infrastructure and non-infrastructure projects, a program to award consultant services to develop Action Plans, spot improvement project funds administered by the NCDOT Highway Divisions, and facilitator support for presenting community-based SRTS workshops. This could be a potential funding source for spot improvements around North Wilkesboro's schools, and is 100% funded by NCDOT.

Maintenance

The Town should develop a maintenance request program that is available via a hotline and online to allow the Town to respond to requests for small-scale and low-cost maintenance activities, such as sweeping, repairing surface problems, and replacing unsafe gaps. Pedestrians who continue to use unsafe facilities may risk personal injury and equipment damage. Others will choose not to use the facility at all.

When an existing sidewalk, pedestrian path or bicycle facility is closed for construction or maintenance reasons, an adequate detour route should be established. Consider closing on-street parking or a lane of traffic as a temporary pedestrian or bicycle route or establish a temporary crosswalk to a walkway or bike lane on the other side of the street.

Coordination with other Groups and Agencies

Given the close proximity of the Town and the Town of Wilkesboro, the Town should work closely with the Town of Wilkesboro particularly when considering projects on the southern part of Town. The Town should also work closely with other governmental agencies such as the High Country Council of Governments, Wilkes County, North Carolina Department of Transportation, etc. to promote walking and the development of pedestrian facilities within the Town

The Town of North Wilkesboro and the Town of Wilkesboro should work closely to coordinate development along Statesville Road to ensure that the appropriate pedestrian facilities are provided and to develop a pedestrian link between the two Towns.

Work with other groups operating within the Town to promote walking through various programs and events.

Work with the Yadkin River Greenway Council to promote and facilitate expansion of the Yadkin River Greenway.

Work with the North Wilkesboro Police Department to promote strict enforcement of speeding in the CBD and surrounding pedestrian corridors.

Town Planning Efforts

Develop and implement a plan to remove sidewalk obstructions and improve sidewalk maintenance. Potential issues include horizontal and vertical offsets in sidewalk sections, damaged sidewalk sections, overgrown trees and landscaping, utility poles, and other obstructions that may provide unsafe conditions or that do not meet the guidelines of the Americans with Disabilities Act (ADA).

Develop and implement a plan to provide sidewalk facilities in established residential areas. The primary focus in these areas should be connecting the major trunk roads in residential areas with the pedestrian focused corridors

Develop and implement a plan to install missing sidewalk segments to provide continuous pedestrian routes. The Town should first focus these efforts in areas surrounding schools (the Safe Routes to School Program is a potential source) and between major residential areas and major activity centers.

Develop and implement a plan to provide end-of-trip facilities, such as seating, drinking fountains, and restrooms, at major destinations, such as shopping centers, employment centers, and recreational facilities. For new developments, these facilities can be required to be provided by developers. For existing developments, the Town could partner with local retailers and organizations to provide these facilities (such as an "Adopt a Bench" program).

3.2 PROPOSED POLICIES

Policies serve as a daily guide and reference for planning officials and Town staff and should be utilized when making decisions regarding future development within the Town and its extraterritorial jurisdiction. In particular, policies should be utilized in implementing goals, objectives and actions, and in reviewing zoning classification changes or plats for proposed developments. The following policies are guidelines for the development, location and maintenance of existing and planned pedestrian facilities. These polices have been divided into three main categories: Development Policies and Regulations, Coordination with other Groups and Agencies, and Town Planning Efforts. The existing Town policies are discussed in the previous chapter, Section 2.5, page 2-14.

Developmental Policies and Regulations

Guidelines for development decision:

- Ensure that the Town's development review process for commercial and office developments include careful consideration of pedestrians to ensure that safe, direct, and obvious paths of travel are provided from parking lots to main building entrances.

- Require all development proposals to incorporate sidewalks along the pedestrian focus corridors, and require developers to dedicate right-of-way, as needed, to accommodate these sidewalks.

- Require all sidewalks to be at least five feet wide, with wider sidewalks required along streets that have a high volume of pedestrian traffic.

Location of pedestrian facilities:

- Require developers to construct sidewalk connections between adjacent commercial/office developments.

- Require developers to construct sidewalk and/or greenway connections between trip origins and nearby destinations, such as between residential neighborhoods,

shopping centers, schools, parks, employment centers, significant historical sites, transit stops, civic buildings, and other major destinations.

- Require developers to provide off-street pedestrian connectors, such as sidewalks or greenways, between cul-de-sac termini and nearby developments. This will provide shorter walking distances to nearby destinations, which will help encourage residents to walk to these destinations instead of driving.

- When deemed desirable for pedestrian connectivity by the Planning Board, require developers to construct a sidewalk or greenway for the purpose of accommodating a completed public sidewalk and/or greenway system. Require developers to also dedicate the necessary land to accommodate these facilities for public right-of-way, or require that an ingress/egress easement for the facilities be provided.

Pedestrian safety

- Require marked crosswalks, indicated with pavement markings, and pedestrian signals at key signalized intersections where sidewalks and wheelchair ramps are provided. Marked crosswalks should also be provided at unsignalized intersections that have high volumes of pedestrian traffic or where increased pedestrian crossing awareness is desired.

- Require curb radii at intersections to be the shortest length possible that will accommodate turning movements of the anticipated vehicular traffic. This recommendation will reduce the crossing distances for pedestrians thereby reducing the amount of time pedestrians are in the roadway.

- Require two curb ramps per corner, one at each radius return, for pedestrian crossings at intersections. Unlike diagonally placed ramps (which result in one ramp per corner), this placement will provide the shortest crossing distances and will not require pedestrians to realign themselves while in the roadway in order to remain in the crosswalk. This is particularly important for sight-impaired pedestrians and pedestrians in wheelchairs.

- Ensure bushes and trees are appropriately trimmed at intersections by municipal staff to ensure pedestrian visibility.

Creating pedestrian friendly environments

- Adopt sidewalk regulations (widths, allowable uses, etc.) for urban and pedestrian-oriented areas that accommodate sidewalk cafés and pedestrian and bicyclist appurtenances, such as landscaping, benches, pedestrian-scaled lighting, and bicycle parking (bike racks and bike lockers).

- As areas near the CBD redevelop, the Town should promote mixed-use and pedestrian oriented development for these areas, with a focus on providing pedestrian connections to the CBD and surrounding areas. Such developments can be encouraged by having flexibility in zoning and design regulations and by assisting developers in financing projects that may otherwise be unfeasible.

3.3 PROPOSED FACILITIES

The following are recommendations for specific facilities and facility improvements for North Wilkesboro. These recommendations are illustrated graphically in Figures 3.1 and 3.2.

See Appendix C for a detailed description of the costs for each project.

Greenways

- O - Continue to pursue the expansion of the Yadkin River Greenway from its current terminus eastward to Smoot Park. A trailhead should also be planned to Memorial Park. *Approximate cost $39,900 and distance 300'.*

- V - Continue to pursue the extension of the Yadkin River Greenway from its terminus northward along the Reddies River following the existing log flume trail. *Approximate cost $133.00 per foot.*

- U - Investigate the possibility of providing pedestrian access from Highland Park to Blair Island and to the Yadkin River Greenway on the north side of the Yadkin River. This would make Blair Island accessible for recreational use as well as provide an important pedestrian connection to Highland Park, as it may be difficult to provide pedestrian access to the park via sidewalks along Statesville Road, due to the grade in the vicinity of the access to the park. *Approximate cost $583,000 and distance 1120'.*

- Provide signage from the hospital to the Yadkin River Greenway terminus at the CVS.

Sidewalks

- Q - Provide sidewalks along Fairplains School Road to connect the sidewalks along NC 18 to the Wilkes Senior Center. *Approximate cost $32,500 and distance 650'.*

- R - Provide sidewalks along Flint Hill Road to provide access to North Wilkesboro Elementary School. This sidewalk should connect with sidewalks along NC 268 and be supplemented with an appropriately designed crosswalk at NC 268 and Flint Hill Road. *Approximate cost $137,100 and distance 1750'.*

- S - Provide sidewalks along Armory Road from Statesville Road to the American Drew factory to provide a clearly marked and safe pedestrian path for factory workers and residents of the Hidden River Mobile Home Park. *Approximate cost $165,000 and distance 2200'.*

- D - Provide sidewalks along Boone Trail from Hickory Street to West D Street to provide access from the public housing to Wilkes Regional Medical Center. *Approximate cost $90,000 and distance 1200'.*

- T - Provide sidewalks along West Park Drive from West D Street to the Yadkin River Greenway trail head. *Approximate cost $97,500 and distance 1300'.*

FIGURE 3.1- PEDESTRIAN FOCUS CORRIDORS

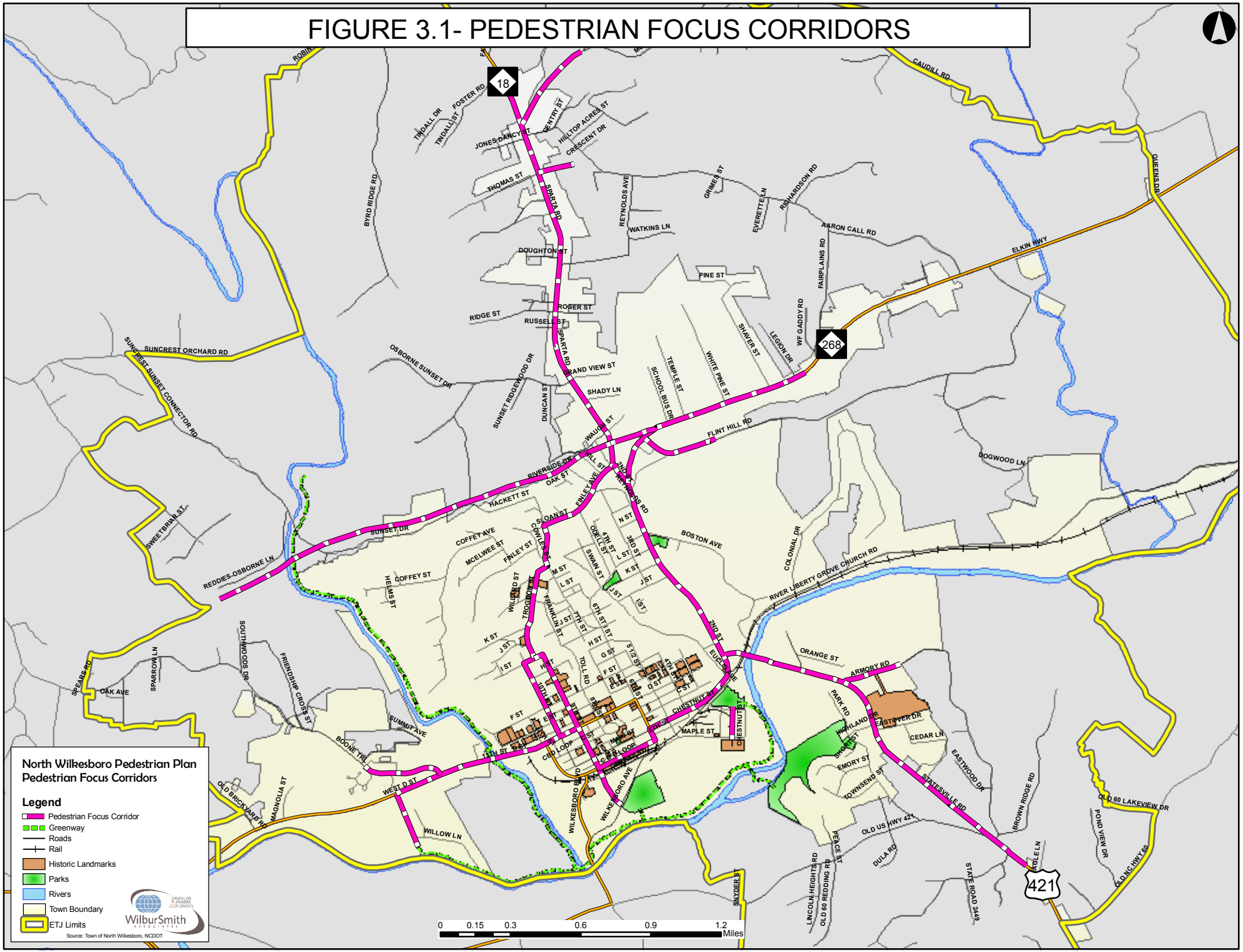
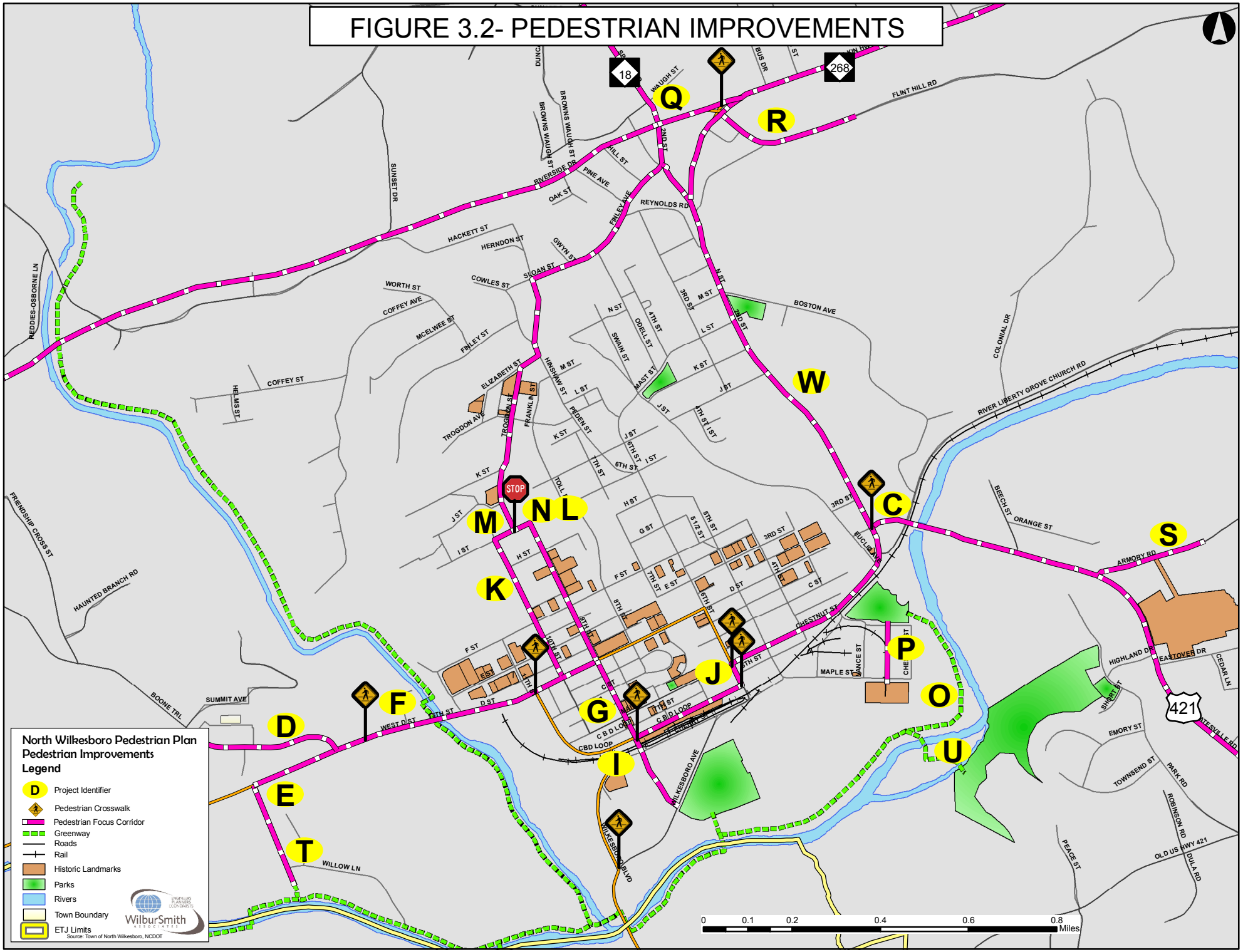


FIGURE 3.2- PEDESTRIAN IMPROVEMENTS



- F - Connect missing sidewalk links along West D Street in the immediate vicinity of Wilkes Regional Medical Center. *Approximate cost $15,000 and distance 200'.*

- K - Provide sidewalks along 10th Street from I Street to D Street to promote additional connectivity between the northern portions of North Wilkesboro into the CBD. *Approximate cost $82,500 and distance 1100'.*

- M - Connect existing gap in sidewalk on the north side of 9th Street just south of I Street. *Approximate cost $18,800 and distance 250'.*

- N - Connect existing gap in sidewalk on the north side of Franklin Street at Hinshaw Street. *Approximate cost $10,000 and distance 200'.*

Crosswalks and Pedestrian Crossings

- C - Provide delineated crosswalks and signal accommodations for pedestrians at the intersection of 2nd Street and Statesville Road. *Approximate cost $6,200 and distance 500'.*

- F - Provide pedestrian crossing facilities in the vicinity of Wilkes Regional Medical Center to increase safety and accessibility from the hospital area to the greenway, local drug stores, and medical offices along West Park Drive. *Approximate cost $17,400 and distance 1000'.*

- H - Provide a pedestrian crossing at the intersection of A Street and D Street to allow pedestrians walking along the south side of D Street to access the sidewalk on the north side of D Street. *Approximate cost $1,200 and distance 500'.*

- I - Provide a pedestrian crossing at the intersection of 9th Street and Cherry Street and 9th Street and Wilkesboro Avenue to provide access from the CBD to Memorial Park. *Approximate cost $500 and distance 175'.*

- J - Provide a pedestrian crossing at the intersection of 6th Street and Chestnut Street and 6th Street and Cherry Street to provide access from the CBD to Memorial Park. With a future connection to the Yadkin River Greenway from Memorial Park, these routes would provide a direct link from the CBD to the greenway in the southern portion of the CBD. *Approximate cost $500 and distance 200'.*

- Provide a pedestrian crossing at the intersection of Wilkesboro Boulevard and Wilkesboro Avenue in the vicinity of the existing Shell Station to provide better access to the Yadkin River Greenway. *Approximate cost $500.*

Safety

- G - Provide a well-lighted pedestrian pathway from the existing Town-owned parking deck to Main Street. *Approximate cost $11,000.*

- L - To improve vehicular and pedestrian safety and to slow traffic, consider converting the intersection of I Street and Franklin Street to All Way Stop Control (AWSC). Additionally, trim the bushes back around the intersection and ensure that the eastbound Stop Sign is visible by moving it away from the intersection. *Approximate cost $600.*

Connections and additional amenities

- A - Focus on providing pedestrian facilities along the major corridors within the Town limits, specifically NC 18, NC 268, West D Street, and NC 115 (Statesville Road). A specific focus should be placed on NC 18 and NC 268 as there is emerging growth along these corridors.

- P - Provide a connection from the historical train depot to Smoot Park using the existing abandoned rail bed. *Approximate cost $172,900 and distance 1300'.*

- W - Coordinate with NCDOT to ensure that pedestrian and bicycle amenities are provided along TIP project R-0616, the NC 18 bypass to US 421.

- B - Coordinate with NCDOT to ensure that pedestrian and bicycle amenities are provided along the portion of TIP project R-3405, the widening of Mountain View Road to three lanes, within the Town's ETJ

Chapter 4 - Pedestrian Standards and Guidelines

To aid in the construction of the facility recommendations proposed in Chapter 3, this chapter presents various bicycle facility design guidelines that are appropriate for the proposed facilities. The Bicycle and Pedestrian Transportation Division (BPTD) of the North Carolina Department of Transportation (NCDOT) created these guidelines to assist municipalities in planning and engineering a safe and comfortable walking environment for pedestrians. The guidelines presented are in accordance with standards set by the American Association of State Highway Transportation Officials (AASHTO), the Manual for Uniform Traffic Control Devices (MUTCD) and the Americans with Disabilities Act (ADA).

4.1 SIDEWALKS

Sidewalks and walkways are "pedestrian lanes" that provide people with space to travel within the public right-of-way that is separated from roadway vehicles. In many ways, they act as the seam between private residences, stores, businesses, and the street. Sidewalks are spaces where children play, neighbors meet and talk, shoppers meander casually, parents push strollers, and commuters walk to transit stops or directly to work. Because of the social importance of these spaces, great attention should be paid to retrofit and renovate areas with disconnected, dangerous, or otherwise malfunctioning sidewalks.

Sidewalk 5 feet in width

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

Sidewalk Widths

BPTD recommends a minimum travel path width of 5 ft. for a sidewalk or walkway, in accordance with the American Association of State and Highway Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the Institute of Transportation Engineers (ITE). A sidewalk width of 5 feet is considered ample room for two people to walk abreast or for two pedestrians to pass each other.

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

AASHTO recommends the construction of sidewalks on all Town streets, including those in rural areas. The Institute of Transportation Engineers (ITE) recommends sidewalk installation on both sides of the street whenever possible for new urban and suburban streets, especially in commercial areas, residential areas with 4 or more units per acre, or residential areas on major arterials and collectors. If sidewalks on both sides of the road are not possible, lower density rural residential areas might adequately serve its pedestrians with a sidewalk on only one side or with four foot wide shoulders on either side of the road.

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

Construction Materials and Methods
Improvements for new, retrofitted, and repair to sidewalks throughout the Town should be constructed using the following methods and materials:

Materials — Sidewalks should be constructed of Portland Cement Concrete (PCC) with a 14-day flexural strength that is not less than 3,000 pounds per square inch (psi).

Subgrade Preparation — Subgrade should be thoroughly compacted and finished to a smooth, firm surface, and should be moist at the time the concrete is placed.

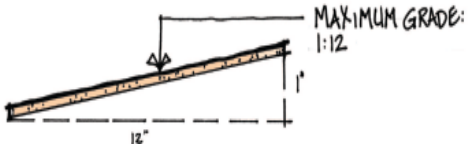
Subgrade Compaction — Except in areas where it is impractical to use standard type rollers, compaction should be by means of vibratory hand compactors.

Final Finish — Surface finish for sidewalks should be completed by brushing (with brooms) or by another approved method to provide a uniform non-skid surface.

Inspections and Performance — Sidewalk forms should be inspected by municipal staff prior to the placement of concrete. Concrete that does not meet minimum mixture and strength standards or settles after placement should be removed and replaced by the installer.

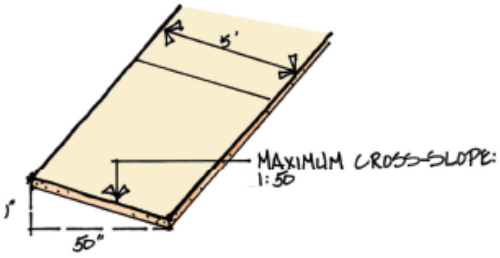
Alternative Materials Usage — Use of materials for sidewalks other than concrete and the construction methods used therewith must be approved by the Town engineer or designated representative on a case by case basis. There are some successful examples where other materials such as asphalt, crushed stone, or other slip resistant material have been used. Concrete is preferred surface, providing the longest service life and requiring the least maintenance.

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



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

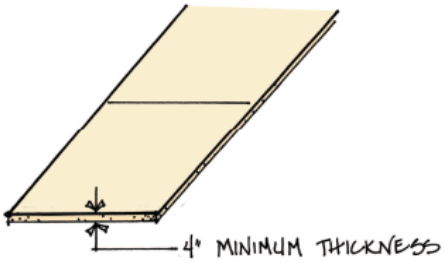
Cross-Slope



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

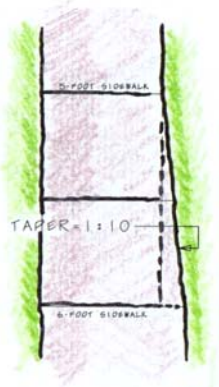
Sidewalk Thickness

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



Transitions

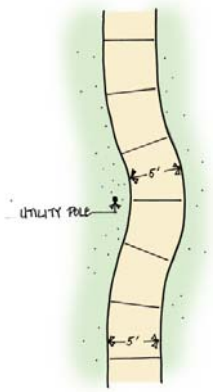
Wheelchair ramp and driveway transitions to or crossing sidewalks must conform to current ADA requirements.



Tapers

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

Sidewalk Alignment
Sidewalks should parallel the roadway. Typical exceptions include:

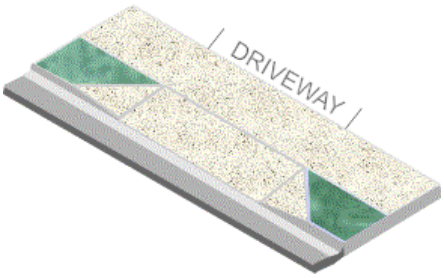


Horizontal Curve Sections on Roadways — In situations where a roadway curves at an angle greater than 60 degrees (and where right-of-way permits), the designer is permitted to adjust the curve of the sidewalk to more easily accommodate pedestrians.

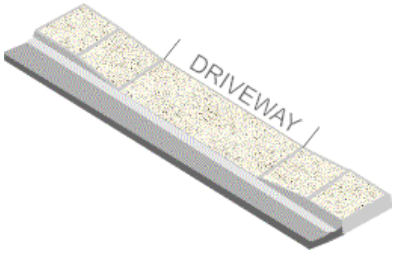
Presence of Natural and Manmade Features — The 5 foot minimum width of the travel path must be free of obstructions. The designer is permitted to alter the sidewalk path to avoid significant obstructions including but not limited to: transformers, utilities and utility poles, fire hydrants, and traffic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

Meanders — Sidewalk meandering is strongly discouraged. Meanders must meet minimum ADA requirements unless otherwise approved by the municipality.

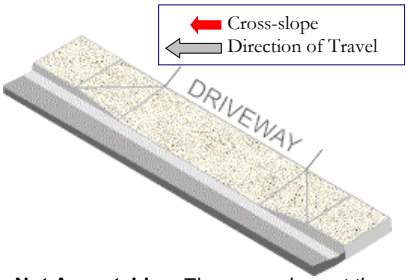
ADA: Dealing with Cross-Slope from Driveways
The figures at right indicate the preferred (top), conditionally acceptable (middle), and unacceptable (bottom) design solutions for new driveways as they interface with sidewalks. The intent is to make wheelchair travel safe along the sidewalk without directing the user into traffic through angled (cross) slope designs. Cross-slope on sidewalks should not exceed 2%, preferably not 1.5% where possible. Need to check against ADA requirements.



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



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



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

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

Planting Strips
Continuous zones of landscape, located between the sidewalk and the street curb or the edge of

road pavement, perform a multitude of essential tasks. Planting strips contribute to the walkability of a street by providing shade. In addition to providing shade, street trees - along with turf and other plantings - help reduce urban temperatures, improve water quality, lower stormwater management costs, and add beauty to the street for the pedestrian, the driver, and the adjacent land use.

The recommended planting width to permit healthy tree growth is 4 to 10 feet measured from the back of curb. Planting strips are the preferred means of providing a buffer, but are not feasible or appropriate in all pedestrian situations.

The width of the planting strip shall increase with a greater plant density as the intensity of development increases. This separation from motorized traffic decreases road noise while increasing a pedestrian's sense of security and comfort. Added benefits of this separation include space for signage, utilities (fire hydrants), and vegetation.

Paved Buffer Zones

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

Sidewalk with a paved buffer zone and planting zone.

Native street tree plantings in tree grates have historically proven to work successfully within these buffer zones. They regulate micro-climate, create a desirable sense of enclosure, promote a local ecological identity and connection to place, and can act as a pleasant integration of nature into an urban environment. In the event that a paved or vegetative buffer zone is not possible, a row of parked cars or a bike lane can be used to create this buffer.

Buffer Paving Options

A different type of paving from the sidewalk paving could be considered for the buffer zone for various reasons. Textured pavements, pavers, or pervious pavement can be used to add significant aesthetic value and help define a unique place. Using pervious materials for parking, sidewalk furniture areas, and for frontage zones can reduce environmental concerns. A change in paving type can help distinguish the pedestrian buffer zone from the pedestrian travel path. Sand-set pavers are recommended in the buffer zone for ease of utility maintenance. In designing sidewalk buffers, it is important to provide adequate clearance from potential obstructions.

Type	Sidewalk Width	Planting Strips	
		With Street Tree	No Street Tree
Local residential	5 ft.	4 - 6 ft.	3 - 5 ft.
Thoroughfares/ Collectors	6 - 8 ft.	6 – 10 ft.	5 - 6 ft.
Downtown or business districts	*10 - 15 ft.	n/a	n/a

* Planting strip would be located within sidewalk width.

Additional Considerations

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

4.2 PATHS/GREENWAYS

Multi-Use Paths

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

The alignment of these corridors should avoid road right-of-way whenever possible to minimize intersection and driveway crossings. Because these paths typically do not cross roads at signalized intersections, they should include pedestrian crosswalks, underpasses, culverts, or overpasses at each road crossing for safety.

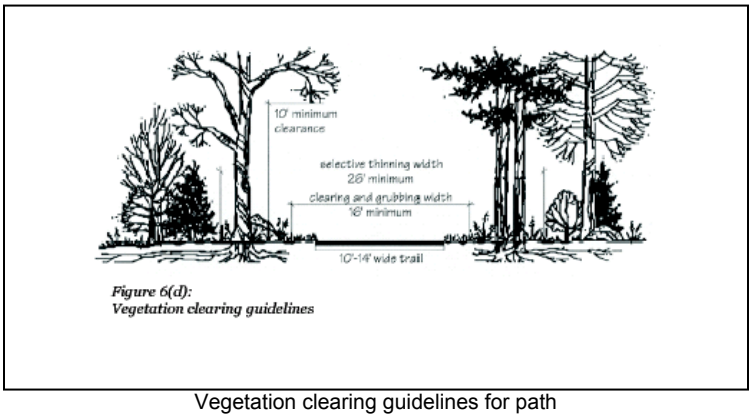
Design Criteria

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

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

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

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



Vegetation clearing guidelines for path

Vertical and Horizontal Clearance

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

Pavement Types

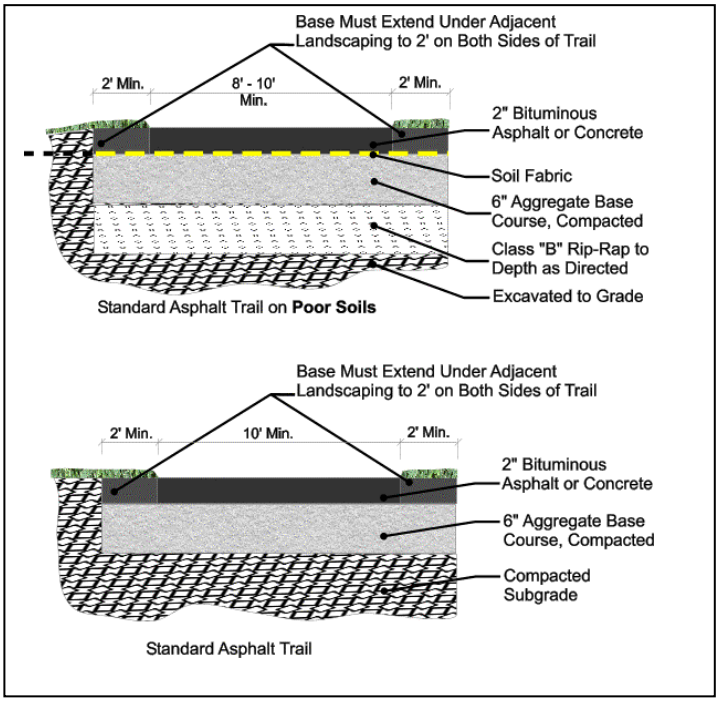
Each path is unique in terms of its location, design, environment, and intended use. For each segment of the path, care should be given to selecting the most appropriate pavement type, considering cost-effectiveness, environmental benefit, and aesthetics.

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

Conventional Concrete – In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of holding up well against the erosive action of water, root intrusion and subgrade deficiencies such as soft soils. Of all surface types, it is the strongest and has the lowest maintenance requirement, if properly installed. Installation of concrete is the most costly of all surface types, but, when properly installed, requires less periodic maintenance

than asphalt or crushed fines. It is recommended to install 4-inch thickness on compacted 4-inch aggregate base course.

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



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

Crushed fines – Crushed fines are excellent for running paths, as well as walking, mountain bike, and equestrian use, and are constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix. They can be constructed to meet ADA requirements. Crushed fines paths must be smoothed out and graded several times per year.

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

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

Environmental Issues

Environmental protection should be a priority with the planning and construction of a path. Path design, construction type, and construction schedule should all reflect environmental considerations. For example, a path offers some leniency with its alignment compared to a sidewalk, offering opportunities for selective clearing of

vegetation. Also, asphalt may not be considered a good surface material in wet areas because of its petroleum base.

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

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

Path Amenities and Accessibility

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

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

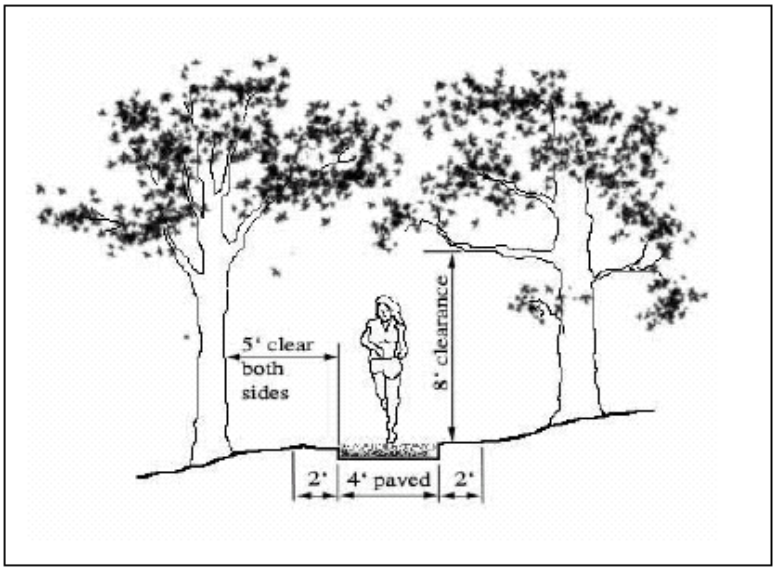
These paths should be open at all hours so that it can serve as a reliable transportation route. Lighting in some situations should be avoided along greenways, as it would disrupt the atmosphere surrounding the path. A reflective stripe or markers would help to make this path navigable in limited light.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

Sidepaths/Wide Sidewalks

A sidepath is essentially a multi-use path that is oriented alongside a road. The AASHTO bike guide and North Carolina Design Guidelines strongly caution those communities contemplating the construction of a sidepath (or wide sidewalk) facility to investigate various elements of the roadway corridor environment and right-of-way before committing to its construction.

Foot Path

In environmentally sensitive areas, such as stream banks and lowlands, a 4 ft. wide soft surface should be used (crusher fines recommended), with 2 ft. wide improved shoulders. A vertical clearance of a minimum of 8 ft. should be maintained. All paths should be maintained with a 5 ft. cleared area from the edge of the path on each side and paths should be pitched to drain with a 2% minimum grade. Paving materials may vary in specific locations.



4.3 RAISED OR LOWERED MEDIANS

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

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there runs a possibility for increased traffic speeds and unsafe

U-turns at intersections. Additionally, the space occupied may be taking up room that could be used for bike lanes or other treatments discussed in this chapter. An alternative to the continuous median is to create a segmented median with left turn opportunities.

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

Landscaping

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

Median Pedestrian Refuge Islands

When used in conjunction with mid-block or intersection crossings, medians can be used as a crossing island to provide a place of refuge for pedestrians. Pedestrian refuge islands should be designed along roadways with fewer lanes and pedestrian signals that will allow the pedestrian enough time to cross the street. Median pedestrian refuge islands should be provided as a place of refuge for pedestrians crossing busy or wide roadways at either mid-block locations or intersections. Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 8 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians.

The graphic at left indicates the design and markings associated with refuge islands. Note that pavement markings delineate the approach to the islands and that the islands are “split” to allow for a level platform for wheelchair use. Median crossings should

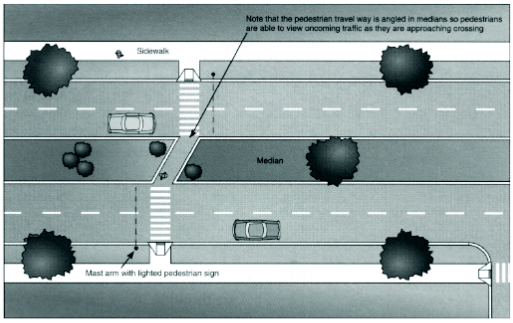


Figure (l):
A lowered median can be used to filter stormwater and provide a refuge for pedestrians crossing a roadway[3].

Median Pedestrian Refuge Island

possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users. In cases where there are wide roads and high traffic volumes, a push-button pedestrian signal may be mounted in the refuge area to allow pedestrians to split their trip into two halves as they cross the street. Note that the crosswalk on the right side of the diagram is configured at a skewed angle as it crosses the median. This allows pedestrians to have a better angle of sight as they approach and cross each side of the street. In all cases, a minimum 10 foot travel lane is maintained for pedestrians.

4.4 MARKED CROSSWALKS

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings). A study should be completed prior to placing crosswalks to determine the need and the best type and location of that crosswalk.

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

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

There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise not difficult to maneuver by any person including those with physical mobility or vision impairments.

Although marked crosswalks provide strong visual clues to motorists that pedestrians are present, it is important to consider the use of these elements in conjunction with other traffic calming devices to fully recognize low traffic speeds and enhance pedestrian safety.

Width

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

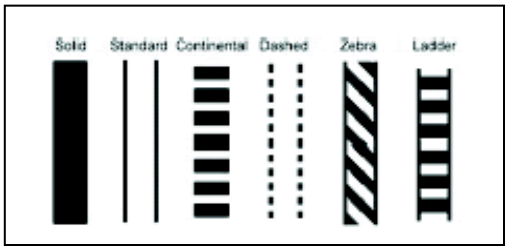


Illustration of all the variety of patterns possible in designating a crosswalk

Paint

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

Pavement Treatment

A variety of colors or textures may be used to designate crossings. These materials should be smooth, skid-resistant, and visible. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the

crosswalk can become slippery. Also, as it degrades from use or if it is improperly installed, it may become a hazard for the mobility or vision impaired.

Raised Crosswalk

Raised Crosswalk

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

Mid-Block Crossings

Midblock crossings can help pedestrian access by supplementing crossing options. Midblock crossings may be used in areas where there are substantial pedestrian generators or where intersections along a roadway are spaced far apart. Mid-block crossings pose special problems for many state and local departments of transportation, since pedestrians will often choose to cross at the location that is the most convenient for them to do so, not necessarily where it is the safest. As a result, engineers and planners have developed guidelines for mid-block crossings.

Below are some general guidelines on mid-block crossings:

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

4.5 ADVANCE STOP BARS

Vehicle and pedestrian visibility is increased by placing a vehicle advance stop bar 4 to 10 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings. In certain situations, a larger setback of the advance stop bar may be required. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other's intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a "Stop Here for Pedestrians" sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90%.

Advance stop bar
Source: Pedestrian and Bicycle Information Center Image Library

4.6 PEDESTRIAN SIGNALS

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

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

Types of Pedestrian Signals

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

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

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

Pedestrian signal timings - The timing of these or other pedestrian signals needs to be adapted to a given situation. There are three types of signal timing generally used: concurrent, exclusive, and leading pedestrian interval (LPI). The strengths and weaknesses of each will be discussed with an emphasis on when they are best employed.

Concurrent signal timing refers to a situation where motorists running parallel to the crosswalk are allowed to turn into and through the crosswalk, left or right, after yielding to pedestrians. This condition is not considered as safe as some of the latter options, however this type of signal crossing generally allows for more pedestrian crossing opportunities and less wait time. In addition, traffic is allowed to flow a bit more freely. Concurrent signal timing is best used where lower volume turning movements exist1.

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

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

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. Theses devices replace the traditional push-button system. Although still experimental, they appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts. Perhaps the best use of these devices is when they are employed to extend crossing time for slower moving pedestrians. Whether these devices are used or the traditional push-button system is employed, it is best to provide instant feedback to pedestrians regarding the length of their wait. This is thought to increase and improve pedestrian signal compliance.

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

4.7 RIGHT TURN ON RED RESTICTIONS

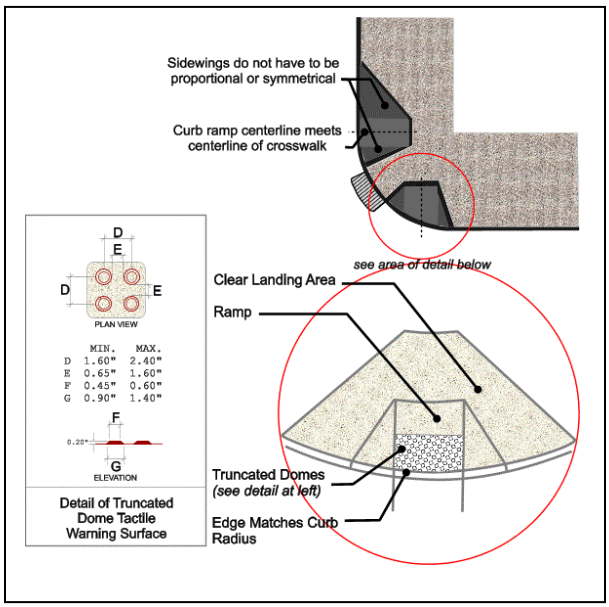
Introduced in the 1970's as a fuel saving technique, the Right Turn on Red (RTOR) law is thought to have had a detrimental effect on pedestrians. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians.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

A low cost sign that restricts right-hand turns at a red light.
Source: Pedestrian and Bicycle Information Center

MUTCD Regulatory Signs

4.8 CURB RAMPS

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

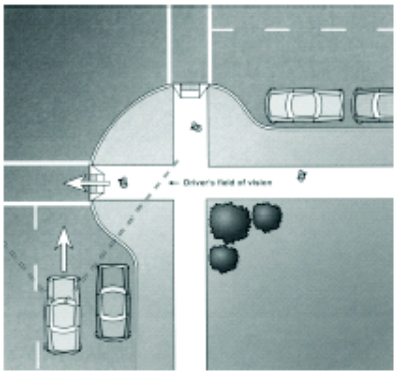


vehicle. To provide a tactile warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete) should be used.i Two separate curb ramps, one for each crosswalk, should be provided at each corner of an intersection.

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

4.9 CURB EXTENIONS (BULB OUTS) AND CURB RADII

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



By reducing a pedestrian's crossing with a bulb out, less time is spent in the roadway, and pedestrian vehicle conflicts are reduced.

Sightlines and pedestrian visibility are reduced when motor vehicle parking encroaches too close to corners creating a dangerous situation for pedestrians. When placed at an intersection, curb extensions preclude vehicle parking too close to a crosswalk. Also, curb extensions at intersections can greatly reduce turning speed, especially if curb radii are set as tight as possible. Finally, curb extensions also reduce travel speeds when used in mid-block crossings because of the reduced street width. Curb extensions should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders.

Curb Extensions (Bulb Outs)

The adjacent table illustrates the relationship between posted speeds and the curb (often called "corner") radiusii. Motorists will travel more slowly around corners with smaller curb radii even without the use of curb extensions.

Posted Speed Limit (mph)	Minimum Curb Radius (Feet)
Residential Street, 10	10
Residential Street, 15-20	20
Residential Street, 25-30	20-25
Collector Street, 30	30

Maximum Desired Speed and Curb Radii

4.10 LIGHTING

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

Source: Pedestrian and Bicycle Information Center

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

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

Light fixtures, as well as other on-street facilities, like street furniture, can add a great deal in terms of street aesthetics and reinforce community identity. It is recommended that the community adopt a particular style of street lighting fixture appropriate for the municipality's identity and coordinate this choice with stylistic choices in other street facilities.

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

Lighting should be sufficient so that pedestrians can see cars, and cars can see pedestrians. However, overlighting of an area can produce an environment that is unattractive to pedestrians.

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

4.11 SIGNAGE

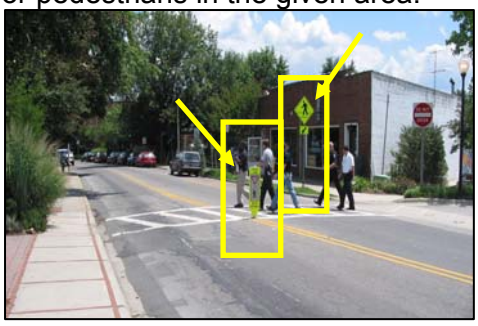
Signage can be an effective tool to alert drivers to reduce speeds and allow pedestrians to exercise extra caution. It is important not to cause "clutter" when using a variety of signage. This can cause complacency and noncompliance with signs in general. Signs, and the sign text, should be large enough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

Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

It is recommended that municipalities adopt consistent and descriptive graphics to identify pedestrian routes. This signage system would assure pedestrians that they are safe and will not encounter gaps in facilities along these routes. A map should be incorporated into each route illustrating the entire pedestrian system and their location. Bus stops, destinations, and mileage should also be identified on the signs.

Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians. Pedestrian-related signage serves primarily to notify motorists and others of the presence of pedestrians. The intended effect is to cause motorists drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area.

Signs can be used in a variety of places, including at crosswalks, at intersections, in-street, and near schools. National standards for sign placement and use can be found in the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway:



An example of two types of signs used to notify motorists of a pedestrian crossing.

"Nonvehicular signs may be used to alert road users in advance of locations where unexpected entries into the roadway or shared use of the roadway by pedestrians, animals, and other crossing activities might occur." (Page 2C – 21, 2003 Edition)

The following are some recommended signs which municipalities should consider installing. For more signs and more detailed guidelines for sign installation and use, Hertford should consult the MUTCD.

Example standard pedestrian warning signs.

The first sign is usually installed within the street to warn motorists to yield to pedestrians in a crosswalk - it does not have to be near a school. The second and third signs are common general pedestrian warning signs, while the fourth and fifth signs notify motorists of specific instances to watch for pedestrians. The fourth sign, "Turning Traffic", is usually placed at intersections to warn motorists that are turning right or left to yield to pedestrians in crosswalks. For the fifth sign, the top sign can either be combined with the smaller "ahead" sign or the arrow symbol to indicate the presence of a crosswalk to motorists in a school zone. The signs at far right are examples of typical wayfinding signage to help direct cyclists at major decision points along a route.

Sign	MUTCD Code	MUTCD Section	Conventional Road	
Yield here to Peds	R1-5	2B.11	450x450 (18x18)	Regulatory
Yield here to Peds	R1-5a	2B.11	450x600 (18x24)	
In-Street Ped Crossing	R1-6, R1-6a	2B.12	300x900 (12x36)	
Peds and Bikes Prohibited	R5-10b	2B.36	750x450 (30x18)	
Peds Prohibited	R5-10c	2B.36	600x300 (24x12)	
Walk on Left Facing Traffic	R9-1	2B.43	450x600 (18x24)	
Cross only at Crosswalks	R9-2	2B.44	300x450 (12x18)	
No Ped Crossing	R9-3a	2B.44	450x450 (18x18)	
No Hitch Hiking	R9-4	2B.43	450x600 (18x24)	
No Hitch Hiking (symbol)	R9-4a	2B.43	450x450 (18x18)	
Bikes Yield to Peds	R9-6	9B.10	300x450 (12x18)	
Ped Traffic Symbol	R10-4b	2B.45	225x300 (9x12)	
School Advance Warning	S1-1	7B.08	900x900 (36x36)	School, Warning, Informational
School Bus Stop Ahead	S3-1	7B.10	750x750 (30x30)	
Pedestrian Traffic	W11-2	2C.41	750x750 (30x30)	
Playground	W15-1	2C.42	750x750 (30x30)	
Hiking Trail	I-4	--	600x600 (24x24)	

1. Larger signs may be used when appropriate.
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.
3. First dimension in millimeters; dimensions in parentheses are in inches.
4. All information in table taken directly from MUTCD.

4.12 SCHOOL ZONE TREATMENTS AND SCHOOL ROUTE PLAN MAP

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

4.13 STREET TREES

Street trees enhance the visual landscape for pedestrians, creating an attractive environment for walking. Street trees also act as a traffic calming device, encouraging drivers to drive more slowly. In addition, a large line of leafy street trees can absorb

engine noise, providing enough of a buffer to block street traffic noise from reaching private yards and homes. Trees also improve air quality by consuming carbon dioxide and emitting oxygen. Street trees may also increase real estate values by increasing curb appeals of homes. This Plan strongly recommends that municipalities adopt a tree ordinance to give direction for tree installation and maintenance.

Source: Pedestrian and Bicycle Information Center

Planting requirements - All street trees should be selected according to the standards described in the American Standard for Nursery Stock of the American Nursery and Landscape Association. Install and maintain trees according to the International Society of Arboriculture (ISA) guidelines.

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

Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians. Source: Pedestrian and Bicycle Information Center

Leaf - Street trees should primarily be deciduous, losing their leaves in the winter season.

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

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

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

Species not recommended – Due to inherent problems with weak branches, aggressive roots, invasive spreading, or vulnerability to vehicular fumes, the following species are not recommended for street tree use: Bradford Pear, Bradford Pine, Eastern White Pine, Silver Maple, Norway Maple, Sweetgum Tree-of-Heaven.

Tree Pits and Tree Grates - Street trees should generally be located in open planting strips. However, tree pits with tree grates may be a practical, although expensive,

alternative in very high pedestrian traffic areas. Tree grates should generally not encroach upon the travel path. For optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway".

Maintenance - Trees and landscaping require ongoing maintenance. Local municipalities typically take responsibility for maintenance of these amenities, although there are instances where local community groups have provided funding and volunteers for maintenance. In order to reduce the amount of maintenance necessary, it is helpful to use native plant material that is already adapted to the local soil and climate. Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and causing a pedestrian obstruction.

4.14 PEDESTRIAN OVERPASS/UNDERPASS

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

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

Attempting to separate pedestrians from the street is often problematic. As shown here, given the opportunity, many choose to cross at street level.

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

4.15 TRANSIT STOP TREATMENTS

To accommodate as many users as possible, a transit system must include well-planned routes and safe, accessible stops. Bus stops should be designed to accommodate the appropriate number of users and should be highly visible to pedestrians and motorists. Bus or other transit stops should be located in places that are most suitable for passengers. For example, stops should be

Pedestrian-friendly bus stop

provided near higher density residential areas, commercial or business areas, and schools, and connected to these areas by sidewalk.

As with any human scale design element discussed, safety is an important factor to consider when locating bus stops. In the case of a bus stop, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus. It is good practice to construct a transit stop just beyond an intersection, which encourages riders to cross the intersection behind the bus and in full view of approaching motorists. The location also should be set back enough from the roadway to buffer users from traffic without impeding pedestrian activity.

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

4.16 BRIDGES

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

Source: Pedestrian Bicycle Information Center Image Library

4.17 TRAFFIC CALMING TECHNIQUES

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

Traffic Circle

Traffic Circles - A traffic circle is a circular shaped intersection featuring a central island. Two-way traffic is allowed within the traffic circle in some instances. However, in most traffic circles, traffic is allowed to go in one direction only, circling a central island. Traditionally, right of way belongs to the traffic entering a circle. In some instances, though circles give right-of-way to the primary roads. Studies have shown that traffic circles reduce the angle and turning crashes and

are effective in reducing vehicle speeds in the immediate area. Traffic circles are a more costly device for traffic calming and require extensive evaluation to determine their effectiveness in a particular location. Traffic circles reduce vehicular speeds as drivers need to slow down in order to maneuver around them.

Roundabout – In roundabouts, as opposed to traffic circles, entering traffic must yield to traffic already in the circulatory roadway. Various other differences between roundabouts and traffic circles are shown in the chart below.

Table 4-1 Comparison of Roundabout vs. Traffic Circle

Roundabout	Traffic Circle
Entering vehicles yield	Stop sign, stop signal, or giving priority to entering vehicles
Vehicles in the roundabout have priority over the entering vehicle	Allow weaving areas to resolve conflicted movement
Use deflection to maintain low speed operation	Some large circles provide straight path for higher speed
No parking is allowed	Some large circles permit parking within the circle
Pedestrians are (usually) prohibited from the central island	Some large circles allow pedestrians on central island
All vehicles circulate around the central island	Mini-traffic circles with left-turning vehicles passing to the left* of the central island.
* For countries that drive on the right side of the road.	
(Source for table: Oregon Department of Transportation, *Modern Roundabouts for Oregon*)	

Roundabout design can become quite problematic in dealing with pedestrian and bicycle use. Every effort must be made to prompt motorists to yield to pedestrians crossing the roundabout. A low design speed is required to improve pedestrian safety. Pedestrian refuge islands and single lane approaches both lend to pedestrian safety. Problems also arise with the vision-impaired because there are not proper audible cues associated with when to cross. Studies are underway to develop and test solutions. Auditory accessible pedestrian signals placed on sidewalks and refuge islands are one solution, but there is no research to prove their efficacy.

In areas where traffic is low, a roundabout presents little in the way of a barrier for bicyclists. However, in multi-lane roundabouts where speeds are higher, and the traffic is heavy, bicyclists are at a distinct and dangerous disadvantage. Adding a bike lane within such a roundabout has not proven to be effective. A possible solution involves creating a bike lane that completely skirts the roundabout allowing the cyclist to use or share the pedestrian route.

The recommended maximum entry design speed for roundabouts ranges from 15 mph for 'mini-roundabouts' in neighborhood settings, to 20 mph for single-lane roundabouts in urban settings, to 25 mph for single-lane roundabouts in rural settings. Refer to roundabout diagram for typical crosswalk placement. In addition, refer to FHWA's report, Roundabouts: An Informational Guide. The report provides information on general design principles, geometric elements, and provides detailed specifications for the various types of roundabouts.

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

Speed Hump
Source: PBIC Image Gallery

Speed Table
Source: PBIC Image Gallery

Speed Tables – flat-topped speed humps typically long enough for the entire wheelbase of a passenger car to rest on the flat section. They often constructed with brick or other textured materials on the flat section.

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

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

4.18 TEMPORARY WORK

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

---

[i] Vanguard Company, accessed November, 2005 (http://www.vanguardonline.com/downloads.asp)

[ii] City of Durham Public Works "Reference Guide for Development," Table of Minimum Design Requirements for Public and Private Residential Streets. Rev. October, 2003. Page 154. (http://www.ci.durham.nc.us/departments/works/handbook/reference_guide.pdf)

Chapter 5 – Implementation

After adoption of this plan, the Town must work toward implementing the projects outlined in this plan. To aid in the selection of which projects to pursue, this chapter presents a prioritization of projects based on a variety of metrics and a discussion of potential funding sources

5.1 PRIORITIZATION OF PROJECTS

The recommendations found in this plan represent a wide variety of projects, from very short connections that can open up large portions of Town, to improvements in infrastructure that will provide pedestrians a safer and more enjoyable walking experience. With the focus on making walking a viable, convenient, and safe transportation choice throughout the Town, WSA staff developed a matrix to aid in categorizing the proposed facility recommendations into short term (less than 5 years), medium term (5 to 10 years) and long term (greater than 10 years) recommendations. This matrix contains three categories based on the goals set forth by the steering committee: safety (Goal #1), accessibility and connections (Goal #3), and recreation (Goal #4). Consideration was also given to the timeframe and funding required to implement a project. The following table, Table 5.1, identifies the main function(s) of each of the facilities recommendations and defines its priority:

Table 5.1
Projects Categorized by Year

IDENTIFIER	0-5 Years	SAFETY	ACCESSIBILITY AND CONNECTIONS	RECREATION
A	Focus on providing **pedestrian facilities along the major corridors within the Town limits, specifically NC 18, NC 268, West D Street, and NC 115** (Statesville Road). A specific focus should be placed on NC 18 and NC 268 as there is emerging growth along these corridors. Pedestrian facilities should be constructed along with new developments, with the Town setting aside funds to fill in the gaps in areas where new development is unlikely to occur. Where possible, sidewalks should be provided on both sides of these major roadways. When this is not possible, appropriately signed and delineated crosswalks should be provided to give pedestrians a clear pathway to cross the major roadways. These crosswalks should preferably be provided at signalized intersections.	✓	✓	
B	**Coordinate with NCDOT** to ensure that pedestrian and bicycle amenities are **provided along the western portion of TIP project R-3405, the widening of Mountain View Road to Three Lanes**		✓	✓
C	**Provide delineated crosswalks and signal accommodations for pedestrians** at the intersection of **2nd Street and Statesville Road.**	✓	✓	✓
D	**Provide sidewalks along Boone Trail from Hickory Street to West D Street** to provide access from the public housing to Wilkes Regional Medical Center.	✓	✓	
F	**Connect missing sidewalk links along West D Street** in the immediate vicinity of Wilkes Regional Medical Center.	✓	✓	
F	**Provide pedestrian crossing facilities in the vicinity of Wilkes Regional Medical Center to increase safety and accessibility** from the hospital area to the greenway, local drug stores, and medical offices along West Park Drive	✓	✓	
G	**Provide a well-lighted pedestrian pathway** from the existing Town-owned parking deck to Main Street.	✓		
H	**Provide a pedestrian crossing at the intersection of A Street and D Street** to allow pedestrians walking along the south side of D Street to access the sidewalk on the north side of D Street.	✓	✓	
I	**Provide a pedestrian crossing at the intersection of 9th Street and Cherry Street and 9th Street and Wilkesboro Avenue** to provide access from the CBD to Memorial Park.	✓	✓	✓

Table 5.1 Continued

IDENTIFIER	0-5 Years	SAFETY	ACCESSIBILITY AND CONNECTIONS	RECREATION
J	**Provide a pedestrian crossing at the intersection of 6th Street and Chestnut Street and 6th Street and Cherry Street** to provide access from the CBD to Memorial Park. With a future connection to the Yadkin River Greenway from Memorial Park, these routes would provide a direct link from the CBD to the greenway in the southern portion of the CBD.	✓	✓	✓
K	**Provide sidewalks along 10th Street from I Street to D Street** to promote additional connectivity between the northern portions of North Wilkesboro into the CBD.		✓	
L	To improve vehicular and pedestrian safety and and to slow traffic, **consider converting the intersection of I Street and Franklin street to All Way Stop Control** (AWSC).Additionally, trim the bushes back around the intersection and move the eastbound Stop Sign backward	✓		
M	**Connect existing gap in sidewalk on the north side of 9th Street just south of I Street.**	✓	✓	
N	**Connect existing gap in sidewalk on the north side of Franklin Street at Hinshaw Street.**	✓	✓	
	5 - 10 Years			
O	Continue to pursue the **expansion of the Yadkin River Greenway from its current terminus eastward to Smoot Park.** A trailhead should also be planned to Memorial Park.		✓	✓
P	Provide a **connection from the historical train depot to Smoot Park** using the existing abandoned rail bed.		✓	✓
Q	**Provide sidewalks along Fairplains School Road** to connect the sidewalks along NC 18 to the Wilkes Senior Center.	✓	✓	
R	**Provide sidewalks along Flint Hill Road to provide access to North Wilkesboro Elementary School.** This sidewalk should connect with sidewalks along NC 268 and be supplemented with an appropriately designed crosswalk at NC 268 and Flint Hill Road	✓	✓	
S	**Provide sidewalks along Armory Road from Statesville Road to the American Drew factory** to provide a clearly marked and safe pedestrian path for factory workers and residents of the Hidden River Mobile Home Park.	✓	✓	
T	**Provide sidewalks along West Park Drive from West D Street to the Yadkin River Greenway** trail head	✓	✓	✓

Table 5.1 Continued

IDENTIFIER	10+ Years	SAFETY	ACCESSIBILITY AND CONNECTIONS	RECREATION
U	Investigate the possibility of **providing pedestrian access from Highland Park to Blair Island and to the Yadkin River Greenway on the north side of the Yadkin River.** This would make Blair Island accessible for recreational use as well as provide an important pedestrian connection to Highland Park, as it may be difficult to provide pedestrian access to the park via sidewalks along Statesville Road, due to the grade in the vicinity of the access to the park.		✓	✓
V	Continue to pursue the **extension of the Yadkin River Greenway from its terminus northward along the Reddies River** following the existing log flume trail.		✓	✓
W	**Coordinate with NCDOT** to ensure that pedestrian and bicycle amenities are **provided along TIP project R-0616, the NC 18 bypass to US 421.**		✓	✓

These categorizations bring to the forefront the numerous small projects that are possible within the Town, that have the potential to greatly improve pedestrian travel. Most of these small improvements are centered around the area south and west of the CBD, and if completed will not only tie the CBD to the parks to the south and the medical facilities to the west, but will tie the entire area together with the Yadkin River Greenway.

On a larger scale, and on a somewhat larger timeframe, the Town should work closely with developers and NCDOT to ensure that sidewalks are provided on the pedestrian focus corridors. The Town will have to play a major role in ensuring that sidewalks are required as part of new developments, but will also have to fund the installation of sidewalks at locations that have already been developed or are unlikely to develop in the future.

5.2 FUNDING SOURCES

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

Funding Allocated by State Agencies

Funding Opportunities through NCDOT:

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

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

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

A total of $5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding

assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html.

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

Sidewalk Program – Each year, a total of $1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state 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.

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

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

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

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

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

1. Bicycle and Pedestrian Facilities
2. Bicycle and Pedestrian Safety
3. Acquisition of Scenic Easements, Scenic or Historic Sites
4. Scenic or Historic Highway Programs (including tourist or welcome centers)
5. Landscaping and other Scenic Beautification
6. Historic Preservation
7. Rehabilitation of Historic Transportation Facilities
8. Preservation of Abandoned Rail Corridors
9. Control of Outdoor Advertising
10. Archaeological Planning and Research
11. Environmental Mitigation
12. Transportation Museums

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

The call process takes place on even numbered years or as specified by the Secretary of Transportation. The next call is anticipated to take place in 2008, barring financial constraints related to federal recessions resulting from the war on terror and Hurricane Katrina. For more information, visit: http://www.ncdot.org/financial/fiscal/Enhancement/

Funding Opportunities from Other State Agencies:

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

The North Carolina Conservation Tax Credit (managed by NCDENR) - This program, managed by the North Carolina Department of Environment and Natural Resources, provides an incentive (in the form of an income tax credit) for landowners that donate interests in real property for conservation purposes. Property donations can be fee

simple or in the form of conservation easements or bargain sale. The goal of this program is to manage stormwater, protect water supply watersheds, retain working farms and forests, and set-aside greenways for ecological communities, public trails, and wildlife corridors. For more information, visit: http://www.enr.state.nc.us/conservationtaxcredit/.

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

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

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

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

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

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

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

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

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

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

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

- Physical activity in the community, schools, and workplaces
- Healthy eating in the community, schools, and workplaces
- Tobacco use prevention efforts in schools

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

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

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

Funding Allocated by Federal Agencies

Wetlands Reserve Program - This federal funding source is a voluntary program offering technical and financial assistance to landowners who want to restore and protect wetland areas for water quality and wildlife habitat. The US Department of Agriculture's Natural Resource Conservation Service (USDA-NRCS) administers the program and provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. For more information, visit http://www.nrcs.usda.gov/PROGRAMS/wrp/.

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

USDA Rural Business Enterprise Grants - Public and private nonprofit groups in communities with populations under 50,000 are eligible to apply for grant assistance to help their local small business environment. $1 million is available for North Carolina on

an annual basis and may be used for sidewalk and other community facilities. For more information from the local USDA Service Center, visit: http://www.rurdev.usda.gov/rbs/busp/rbeg.htm.

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

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

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

Local Funding Sources

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

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

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

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

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

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

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

Sales Tax - In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of

projects and activities. Any increase in the sales tax, even if applying to a single county, must gain approval of the state legislature. In 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit.

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

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

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

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

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

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

raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

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

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

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

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

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

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

Special Assessment Bonds - Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

State Revolving Fund (SRF) - Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

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

Other Local Options

Facility Maintenance Districts - Facility Maintenance Districts (FMDs) can be created to pay for the costs of on-going maintenance of public facilities and landscaping within the areas of the Town where improvements have been concentrated and where their benefits most directly benefit business and institutional property owners. An FMD is needed in order to assure a sustainable maintenance program. Fees may be based

upon the length of lot frontage along streets where improvements have been installed, or upon other factors such as the size of the parcel. The program supported by the FMD should include regular maintenance of streetscape of off road trail improvements. The municipality can initiate public outreach efforts to merchants, the Chamber of Commerce, and property owners. In these meetings, Town staff will discuss the proposed apportionment and allocation methodology and will explore implementation strategies.

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

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

Local Trail 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 form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

Private Foundations and Organizations

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

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

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

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

The following are TPL's Conservation Services:

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

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

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

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

What types of projects will American Hiking Society consider? Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements. Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/ or avoidance of environmental damage. Constituency building surrounding specific trail projects - including volunteer recruitment and support. Web site: http://www.americanhiking.org/alliance/fund.html.

NCDOT Comprehensive Bicycle and Pedestrian Planning Grant Initiative
Town of North Wilkesboro Comprehensive Pedestrian Plan
Start-Up Meeting
October 30, 2007

AGENDA

1. Greetings (Town of North Wilkesboro)

2. Introductions (WSA)

3. Scope of Work (WSA)
    a. Data Collection
    b. Public Involvement
        i. Public Meetings
        ii. Survey
    c. Mapping
    d. Deliverables
        i. Implementation Plan
    e. City Responsibilities

4. Schedule (WSA)
    a. Project Timeline
    b. Meeting Arrangements

5. City Staff Expectations (Town of North Wilkesboro)
    a. Project priorities

6. Public Survey

7. WSA Data Needs (WSA)

8. Next Steps (WSA)

9. Other Discussion

421 Fayetteville Street, Suite 1303 Raleigh, North Carolina 27601
919.755.0583 *f* 919.832.8708 www.WilburSmith.com

NCDOT Comprehensive Bicycle and Pedestrian Planning Grant Initiative
Town of North Wilkesboro Comprehensive Pedestrian Plan
Pedestrian Plan Steering Committee Meeting
October 30, 2007

AGENDA

1. Greetings (Town of North Wilkesboro)

2. Introductions (WSA)

3. Scope of Work (WSA)
    a. Data Collection
    b. Public Involvement
        i. Public Meetings
        ii. Survey
    c. Mapping
    d. Deliverables
    e. City Responsibilities

4. Schedule (WSA)
    a. Project Timeline
    b. Meeting Arrangements

5. Vision, Goals, and Objectives (PPSC)
    a. (i.e. Safety, Access, Comprehensive, Environmental, Livable Communities, Education, Funding, Maintenance, Policy)

6. Public Survey (PPSC)

7. Existing Conditions / Desired Conditions Workshop (PPSC)

8. Next Steps (WSA)

9. Other Discussion

421 Fayetteville Street, Suite 1303 Raleigh, North Carolina 27601
919.755.0583 *f* 919.832.8708 www.WilburSmith.com

NCDOT Comprehensive Bicycle and Pedestrian Planning Grant Initiative
Town of North Wilkesboro Comprehensive Pedestrian Plan
Second Pedestrian Plan Steering Committee Meeting
January 16, 2008

AGENDA

1. Greetings (Town of North Wilkesboro)
2. Introductions (WSA)
3. Comprehensive Pedestrian Plan Update (WSA)
4. Review of Vision, Goals, and Objectives (WSA, PPSC)
5. Public Survey Results (WSA)
6. Discussion of Recommendations (WSA, PPSC)
7. Overview of Public Meeting (WSA)
8. Next Steps (WSA)
9. Schedule (WSA)
10. Other Discussion

421 Fayetteville Street, Suite 1303 Raleigh, North Carolina 27601
919.755.0583 *f* 919.832.8708 www.WilburSmith.com

NCDOT Comprehensive Bicycle and Pedestrian Planning Grant Initiative
Town of North Wilkesboro Comprehensive Pedestrian Plan
Second Pedestrian Plan Steering Committee Meeting
November 5, 2008

AGENDA

1. Greetings (Town of North Wilkesboro)
2. Introductions (WSA)
3. Comprehensive Pedestrian Plan Update (WSA)
4. Review of Report (WSA, PPSC)
5. Discussion of Recommendations (WSA, PPSC)
6. Discussion of Priorities (WSA, PPSC)
7. Overview of Public Meeting (WSA)
8. Next Steps (WSA)
9. Schedule (WSA)
10. Other Discussion

421 Fayetteville Street, Suite 1303 Raleigh, North Carolina 27601
919.755.0583 *f* 919.832.8708 www.WilburSmith.com

NORTH WILKESBORO PLAN
START-UP MEETING MINUTES

INTRODUCTION

A start-up meeting for the subject project was held on October 30, 2007 at 10:00am at the Town Hall of North Wilkesboro. The following persons attended this meeting:

Name	Agency
Rawls Howard	Town of North Wilkesboro Planning Director
Nelson Martin	Town of North Wilkesboro Recreation Department
Paul Hensch	Town of North Wilkesboro
Robert Baugness	Town of North Wilkesboro Public Works
Randy Rhodes	Town of North Wilkesboro Police Department
William Letchworth	Wilbur Smith Associates
Rebecca Brooks	Wilbur Smith Associates
Carol Carter	Wilbur Smith Associates

GENERAL ISSUES

- A meeting agenda was provided to each attendee at the meeting.
- Rawls Howard opened the meeting with introductions and a brief description of the study.
- Will Letchworth discussed the Scope of Work and Schedule of the study:
    - Extensive data collection will occur on October 30 and 31 to identify existing facilities, gaps in existing facilities, current and potential pedestrian routes, areas of growth, and pedestrian origins and destinations
    - WSA will review existing ordinances and plans as well as proposed development plans provided by the Town
    - The pedestrian planning process will include three steering committee meetings and two public meetings.
    - A public survey will be distributed by Town staff to gather data for the pedestrian plan
    - WSA will develop mapping of the area that can be utilized by the Town after completion of the plan.
    - WSA will develop a comprehensive pedestrian plan that also includes an implementation plan with prioritized projects based on Town and Steering Committee input.
- Will Letchworth discussed the Town's responsibilities:
    - Staff the Steering Committee
    - Set up meeting locations for the Steering Committee meetings and public meetings
    - Distribute and tabulate responses from the public survey
    - Provide WSA existing plans and policies
    - Provide input into the pedestrian plan
- Will Letchworth discussed the project timeline
    - First Steering Committee meeting on the evening of October 30

    - Preliminary recommendations submitted to the Steering Committee in mid-December
    - Second Steering Committee meeting and first public meeting in early January
    - Draft pedestrian plan to Steering Committee in late March
    - Final Steering Committee meeting and public meeting in mid to late April
- Will Letchworth presented the draft public survey and asked Town Staff to review and provide him with comments at a later date.
- Will Letchworth discussed WSA's data needs; all necessary information is available on the Town's website.
- WSA and Town staff discussed areas of concern and opportunity in the Town
    - Intersections
        - Finley Avenue / Hinshaw Street
        - 6th Street / Hinshaw Street
        - 3rd Street / L Street
    - Several participants indicated that the Town should focus on repairing what it already has rather than constructing new facilities
    - Focus on providing facilities along major corridors; NC18, NC268, US421
    - Provide connections from the Finley Avenue area to the CBD.
    - Connect parks, possibly through use of non-paved Town-owned right of way
    - Yadkin River greenway is planned to be extended east and north, would like to go over to island and Highland Park
    - NCDOT has plans to extend NC268 westward to US421
    - Public housing at Hickory Street needs connections to the hospital
    - Need connections between hospital and local drug stores
    - Need connections between trailer parks and factories along Armory Road
    - Property to the west of the CBD loop is redeveloping
    - Area in southwest of town near US421 will possibly be annexed.

The meeting adjourned at approximately 11:10am.

This is our understanding of the discussions held during the subject Start-up Meeting. If errors and/or omissions are identified, please email wletchworth@wilbursmith.com .

cc: Project File

NORTH WILKESBORO PLAN
STEERING COMMITTEE MEETING MINUTES

INTRODUCTION

The first of three steering committee meetings for the subject project was held on October 30, 2007 at 5:30pm at the Town Hall of North Wilkesboro. The following persons attended this meeting:

Name	Agency
Rawls Howard	Town of North Wilkesboro Planning Director
Bergie Speaks	WCS
Frieda F Matthews	Town of North Wilkesboro
Doug Tetzlaff	NCDOT District Engineer
Leo Bough	Town of North Wilkesboro
Josh Swift	Wilkes County Health Department
Carol Hermann	Wilkes Regional Medical Center
Bill Clifton	Yadkin River Greenway Commission
Helen Chaney	NCDOT Bicycle and Pedestrian Division
Craig Hughes	High Country COG
Melissa Smithley	HDTNW
William Letchworth	Wilbur Smith Associates
Rebecca Brooks	Wilbur Smith Associates
Carol Carter	Wilbur Smith Associates

GENERAL ISSUES

- A meeting agenda was provided to each attendee at the meeting.
- Rawls Howard opened the meeting with introductions and a brief description of the study.
- Helen Chaney gave a brief description of the NCDOT Pedestrian Planning Grant Initiative
- Will Letchworth discussed the Scope of Work and Schedule of the study:
    - Extensive data collection will occur on October 30 and 31 to identify existing facilities and, gaps in existing facilities, current and potential pedestrian routes, areas of growth, and pedestrian origins and destinations
    - WSA will review existing ordinances and plans as well as proposed development plans provided by the Town
    - The pedestrian planning process will include three Steering Committee meetings and two public meetings.
    - A public survey will be distributed by Town staff to gather data for the pedestrian plan
    - WSA will develop mapping of the area that can be utilized by the Town after completion of the plan.
    - WSA will develop a comprehensive pedestrian plan that also includes an implementation plan which prioritized projects based on Town and Steering Committee input.
- Will Letchworth discussed the Town's and Steering Committee's responsibilities:

    - Appoint members to the Steering Committee
    - Set up meeting locations for the Steering Committee and public meetings
    - Distribute and tabulate responses from the public survey
    - Provide WSA existing plans and policies
    - Provide input into the pedestrian plan
    - Promote the pedestrian plan
    - Reach out to other members of the community
- Will Letchworth discussed the project timeline
    - First Steering Committee meeting on the evening of October 30
    - Preliminary recommendations submitted to the Steering Committee in mid-December
    - Second Steering Committee meeting and first public meeting in early January
    - Draft pedestrian plan to Steering Committee in late March
    - Final Steering Committee meeting and public meeting in mid to late April
- Will Letchworth led a discussion of the vision, goals, and objectives for the pedestrian plan. Please see the attached DRAFT Vision, Goals, and Objectives.
- Will Letchworth presented the draft public survey and asked Steering Committee members to review and provide him with comments at a later date.
- WSA staff and Steering Committee members discussed the existing and desired conditions in the Town

    - Focus on areas around the local schools
    - Take advantage of the water features in the area
    - Crossings near Smoot Park are dangerous
    - Provide access to Senior Center off of NC 18
    - Need sidewalks along D Street near hospital
    - The Town is preparing to make safety improvements to the parking deck
    - Need good access from parking deck into downtown
    - Need pedestrian crosswalks and crossing signals
    - Sidewalk repairs are needed
    - There are good facilities in downtown
    - Need connections to the vocational center down Lincoln Heights Road
    - Investigate the possibility of using existing utility easements
    - Investigate the possibility of converting the rail line into a pedestrian path
    - Connections needed to the Montessori school on Boston Avenue
    - An industrial park may be in the long-term future east of town.
    - Provide connections from the Finley Street area to the CBD.
    - Yadkin River greenway is planned to be extended east and north, would like to go over to island and Highland Park and would like to provide connections over into Finley Park
    - Need connections between hospital and local drug stores
    - Need connections between mobile home parks and factories along Armory Road

ACTION ITEMS

- Contact the COG to obtain existing/ongoing plans
- Obtain the Wilkesboro Pedestrian Plan (Rawls)
- Get Yadkin River Greenway Commission's plans (Rawls/WSA)
- Obtain existing CIP and TIP lists (Rawls)
- Obtain improvements planned by the NCDOT Division Office (WSA)
- Check with Regional North/South Rail in Atlanta regarding the Yadkin Valley railroad lease and track activity (WSA)

The meeting adjourned at approximately 7:00pm.

This is our understanding of the discussions held during the subject Steering Committee Meeting. If errors and/or omissions are identified, please email wletchworth@wilbursmith.com

cc: Project File

Town of North Wilkesboro Public Survey

Comprehensive Pedestrian Plan

The Town of North Wilkesboro is currently conducting a Comprehensive Pedestrian Plan, which will evaluate existing conditions and recommend projects and programs to improve pedestrian activities and access throughout the town over time. In order to gain more information for this important Plan, we need your input and assistance. Please complete the survey questions below and return to the address at the end of the survey or drop off at the North Wilkesboro Town Hall. For more information on the North Wilkesboro Comprehensive Pedestrian Plan, contact Rawls Howard at 336-667-7129.

1. What is your age?
   _____Under 12
   _____12 to 15
   _____16 to 24
   _____25 to 39
   _____40 to 54
   _____55 or older

2. Are you male or female?
   _____Male
   _____Female

3. Do you live and/or work inside the town limits of North Wilkesboro?
   _____Live Only
   _____Work Only
   _____Both (Live and Work)
   _____Neither Live nor Work

4. How often do you walk/run?
   _____Daily
   _____Several times a week
   _____Several times a month
   _____Several times a year
   _____None

5. What is the primary reason you walk and/or run in North Wilkesboro during the past year? *(Check all that apply)*
   _____Personal Fitness / Exercise
   _____Leisure / Recreation
   _____Transportation purposes around North Wilkesboro
   _____No other transportation available

6. Do you think the Town should encourage and promote walking transportation in North Wilkesboro?
   _____Very Supportive
   _____Somewhat Supportive
   _____Not Supportive
   _____Not Sure

   Please state why?
   _____

7. Rank where you walk most often in North Wilkesboro. *(Rank 1=most often and 4=least often)*
   _____ On a greenway
   _____ On the sidewalk
   _____ On the street in the same direction as traffic
   _____ On the street in the opposite direction as traffic
   _____ Do not walk

8. Do you usually wear reflective clothing when you walk around North Wilkesboro?
   _____ Yes
   _____ No
   _____ Do not walk

9. How important do you think it is for North Wilkesboro to develop a connected system of pedestrian facilities that allow people to walk safely throughout the town?
   _____Very Important
   _____Somewhat Important
   _____Not Important
   _____Not Sure

10. Why do you think pedestrian activities are beneficial in North Wilkesboro? *(Check all that apply)*
   _____Environmental benefits i.e. reduce traffic, improve air quality, etc.
   _____Less expensive than driving
   _____Less stressful than driving
   _____Good for tourism
   _____Good for children
   _____Other _____

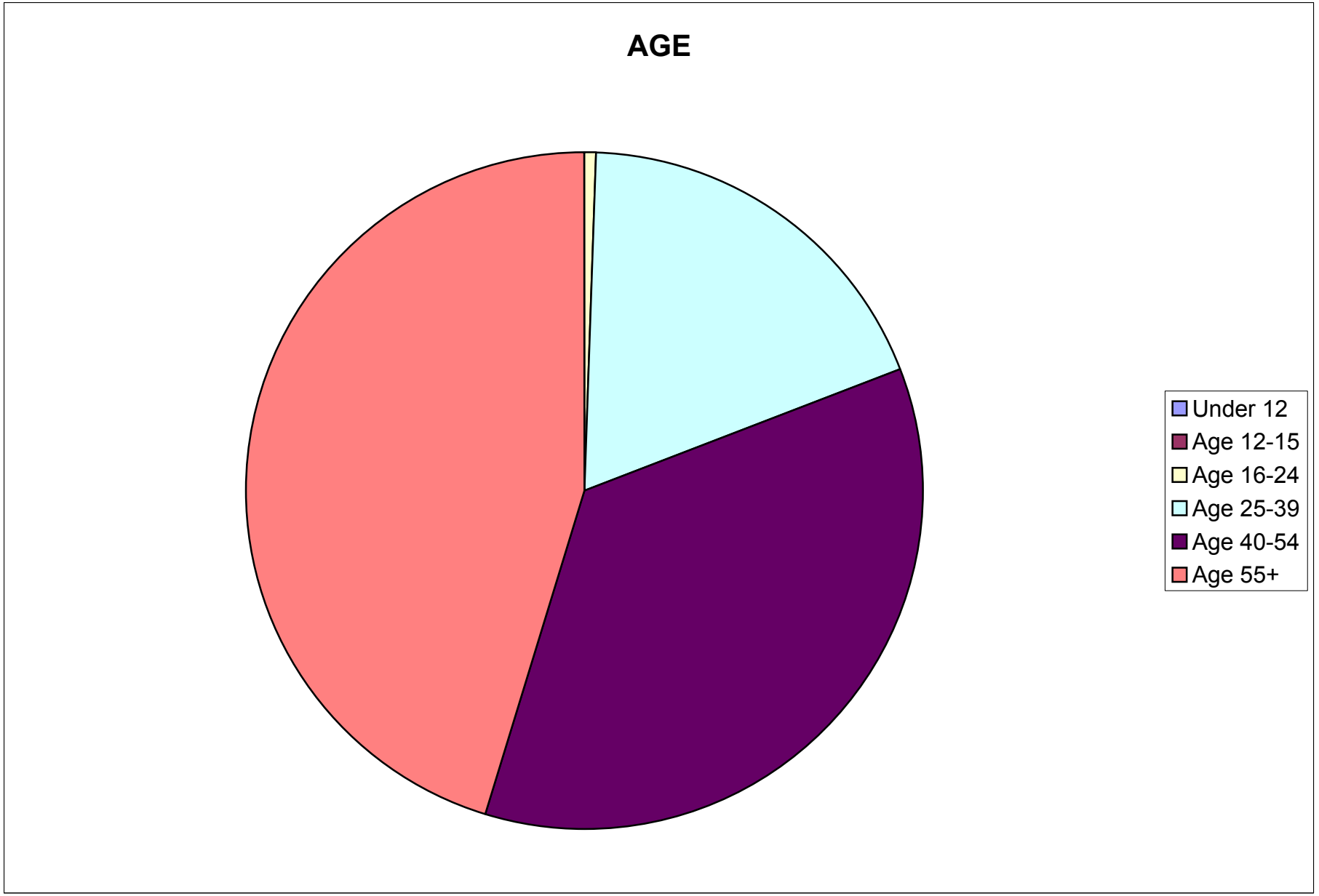
11. Rank each of the following actions you think are most needed for walking in North Wilkesboro. *(Rank 1=Most Important and 7=Least Important)*
   _____ More sidewalks
   _____ More greenways
   _____ Increased enforcement of pedestrian and motorist laws
   _____ Reduction of vehicle speeds
   _____ Increased pedestrian education and safety programs
   _____ A map of pedestrian routes in North Wilkesboro
   _____ Other _____

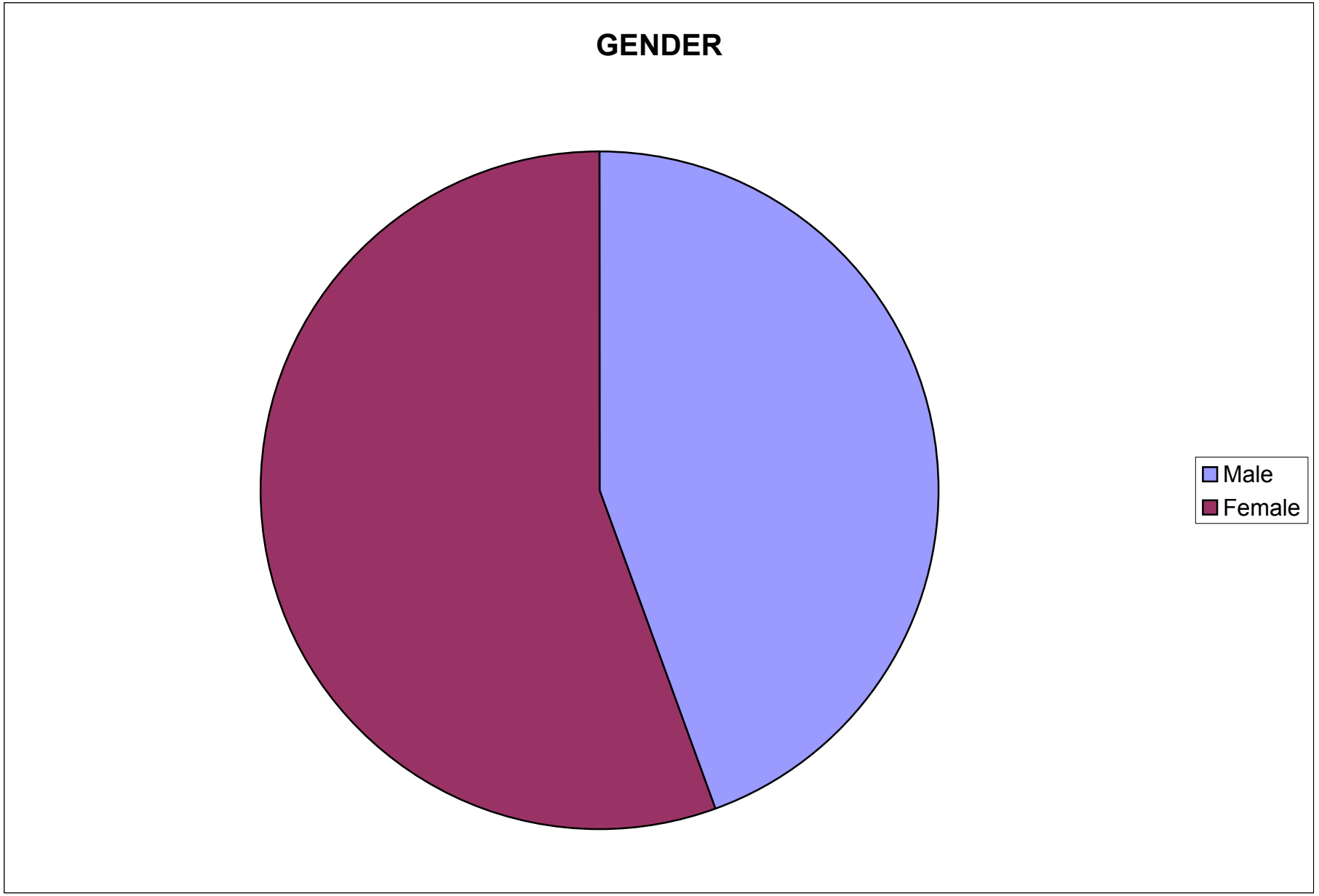
12. Would you be supportive of North Wilkesboro requiring new development to include pedestrian facilities such as sidewalks, greenways, etc?
   _____ Very Supportive
   _____ Somewhat Supportive
   _____ Not Supportive
   _____ Not Sure

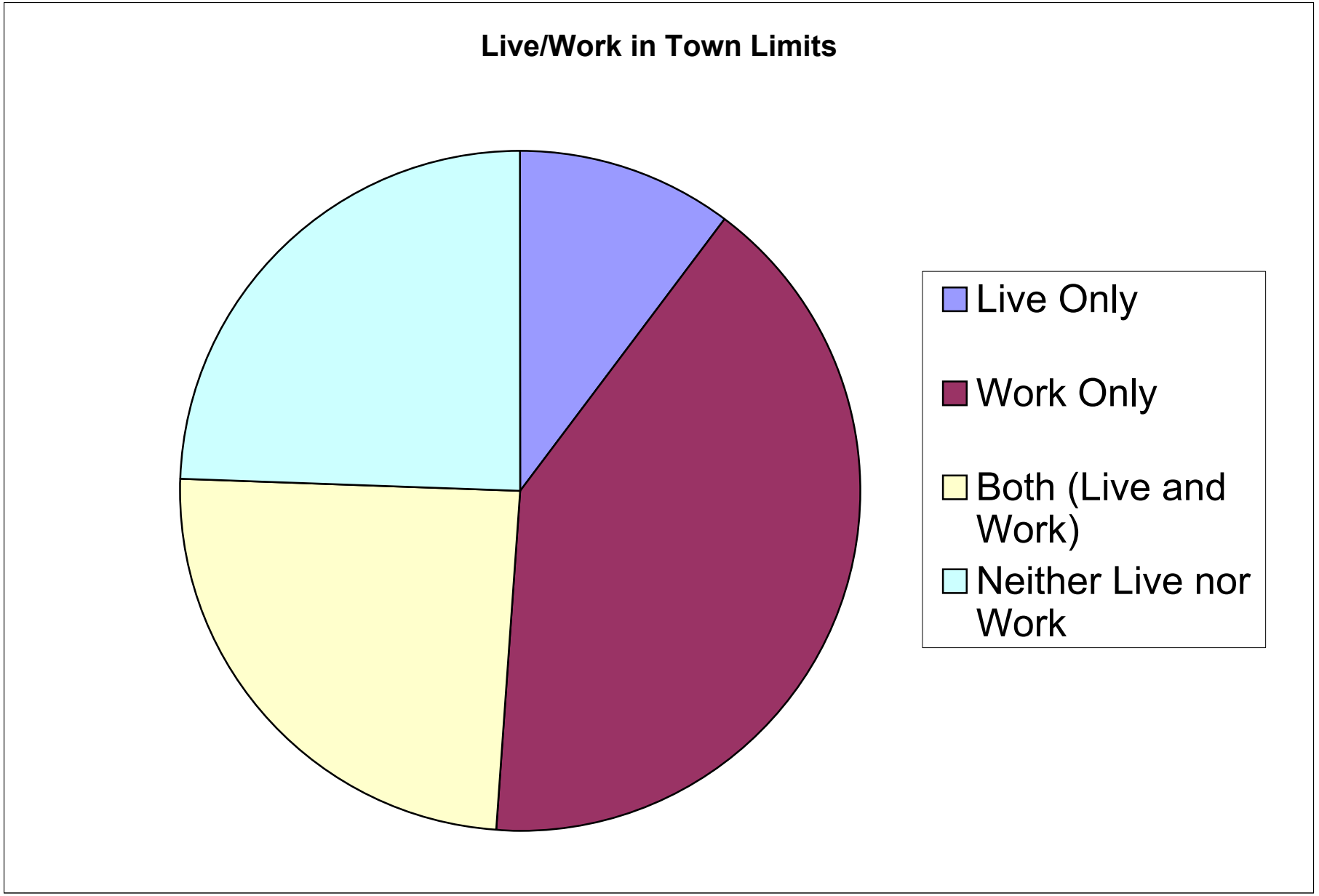
13. What are the key factors that would encourage you to walk more over the next year? *(Check all that apply)*
   _____Safer on-road bicycle routes
   _____Pedestrian facilities map
   _____Education about pedestrian transportation in the town
   _____Community events that promote pedestrian safety
   _____Not a pedestrian facility user
   _____Other _____

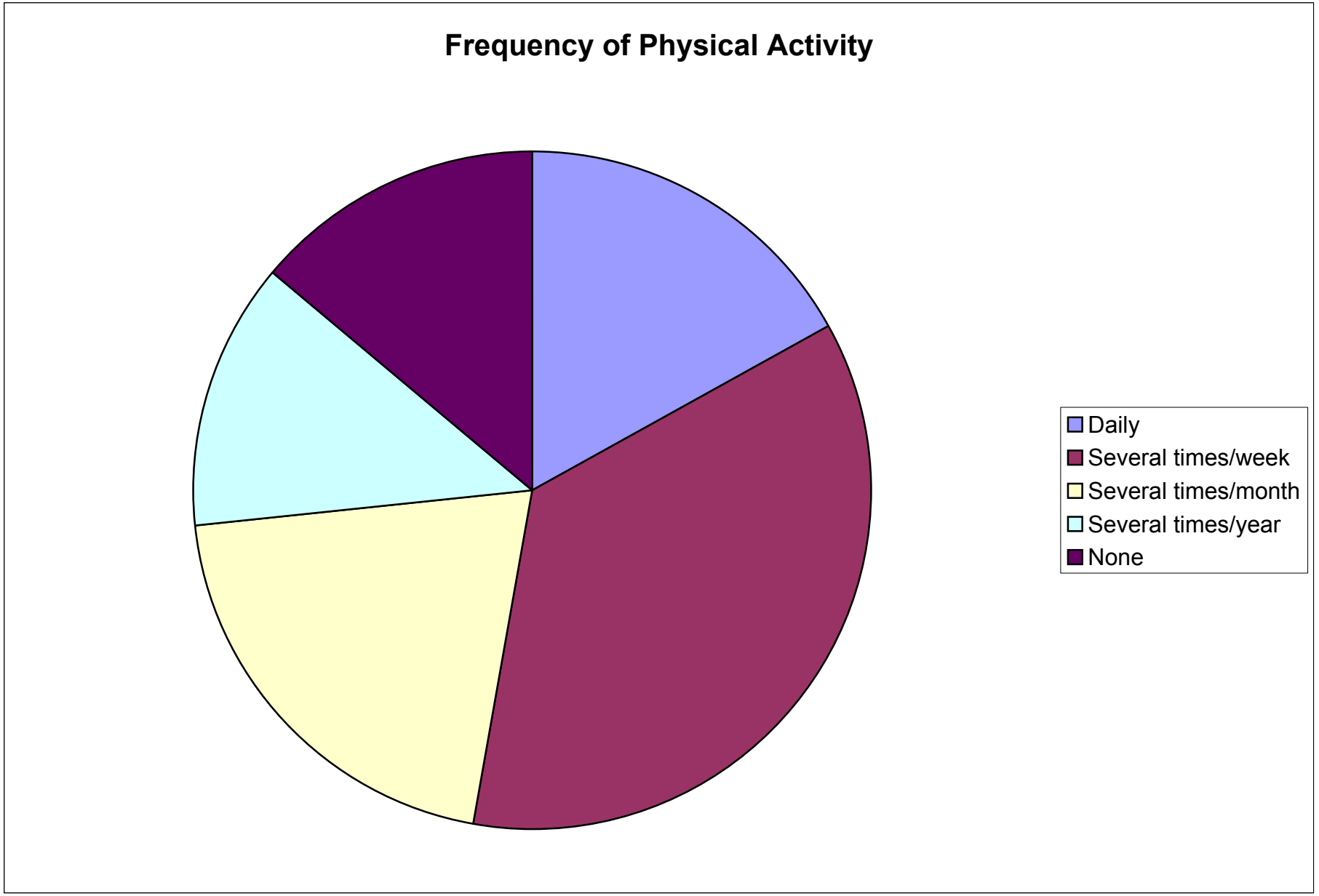
14. What are three problem areas for pedestrians in North Wilkesboro?
   1._____
   2._____
   3._____

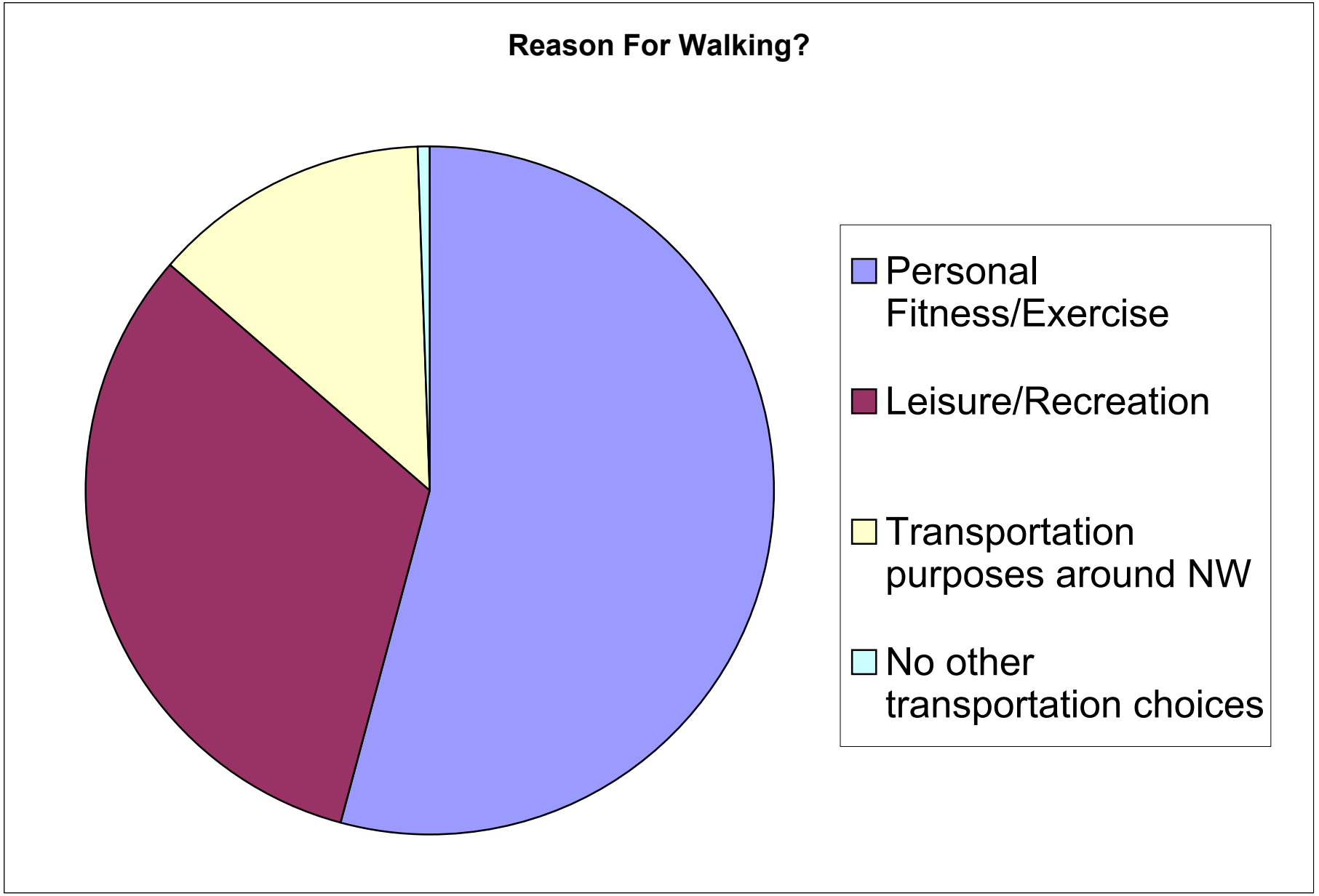
Thank you for your time and participation! Please mail this survey to:
Mr. Rawls Howard, Town of North Wilkesboro PO Box 218, 832 Main Street. North Wilkesboro, NC 28659
Completed surveys can also be submitted at the North Wilkesboro Town Hall


AGE
Under 12
Age 12-15
Age 16-24
Age 25-39
Age 40-54
Age 55+

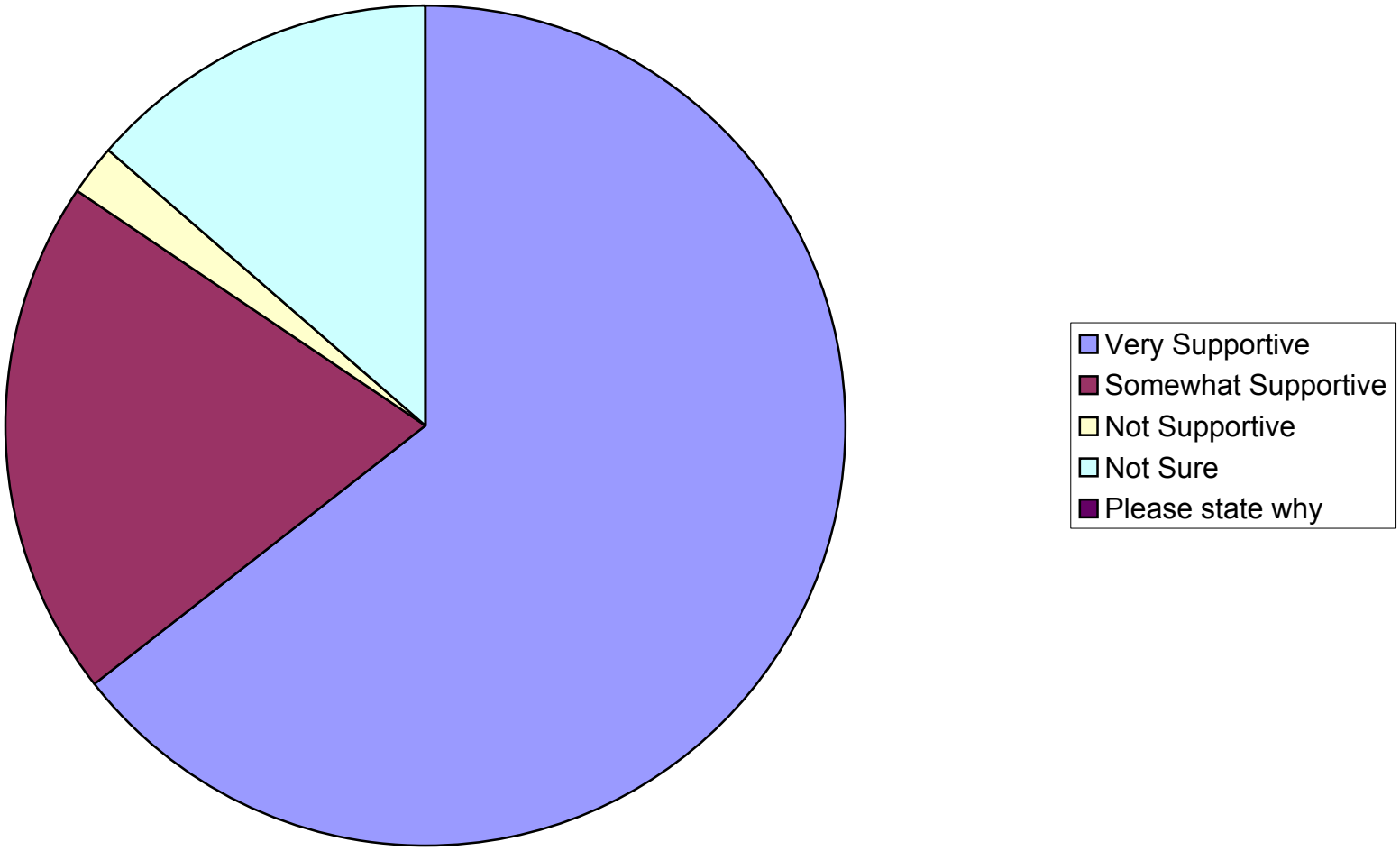

GENDER
Male
Female


Live/Work in Town Limits
Live Only
Work Only
Both (Live and Work)
Neither Live nor Work

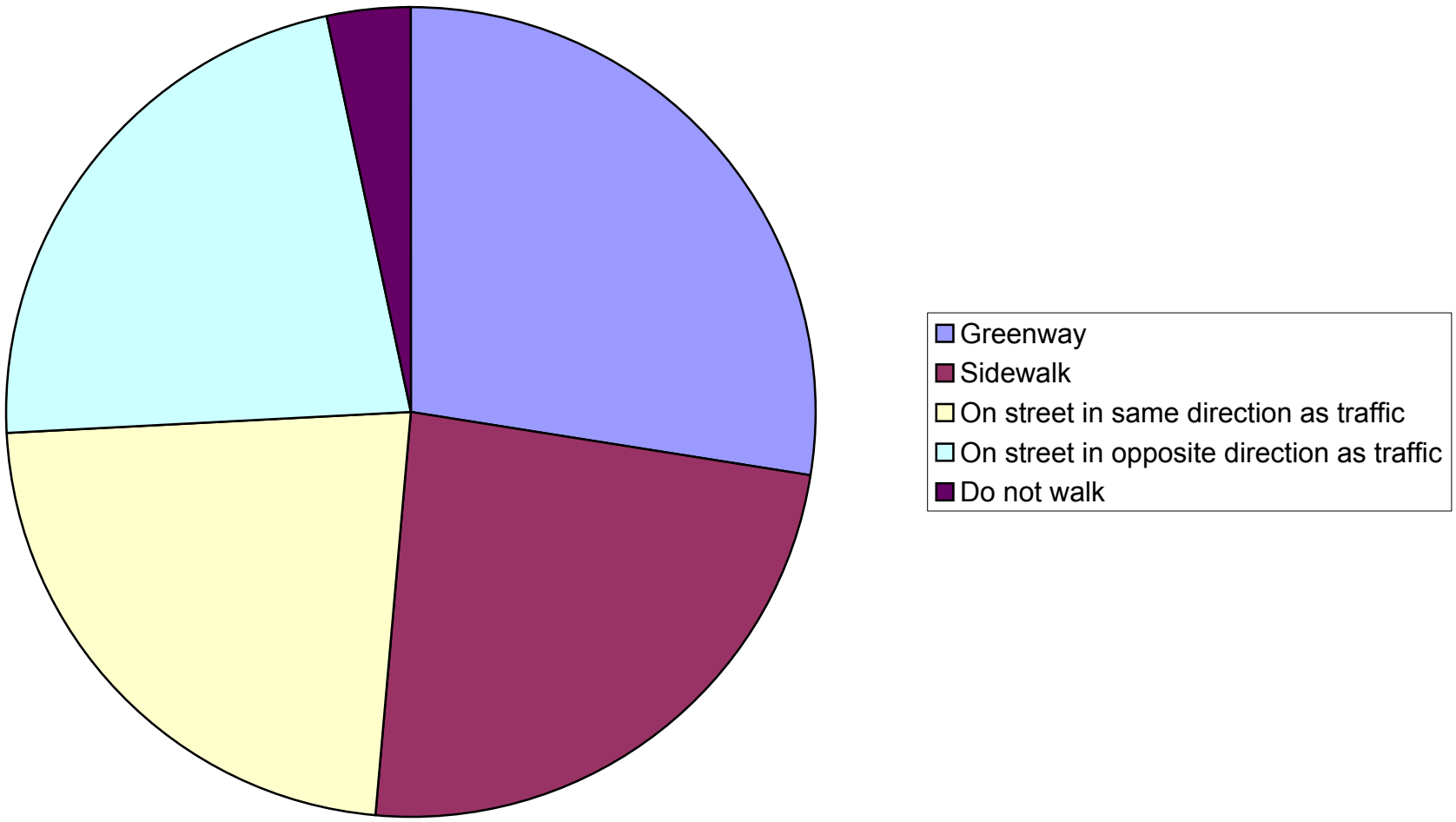

Frequency of Physical Activity
Daily
Several times/week
Several times/month
Several times/year
None

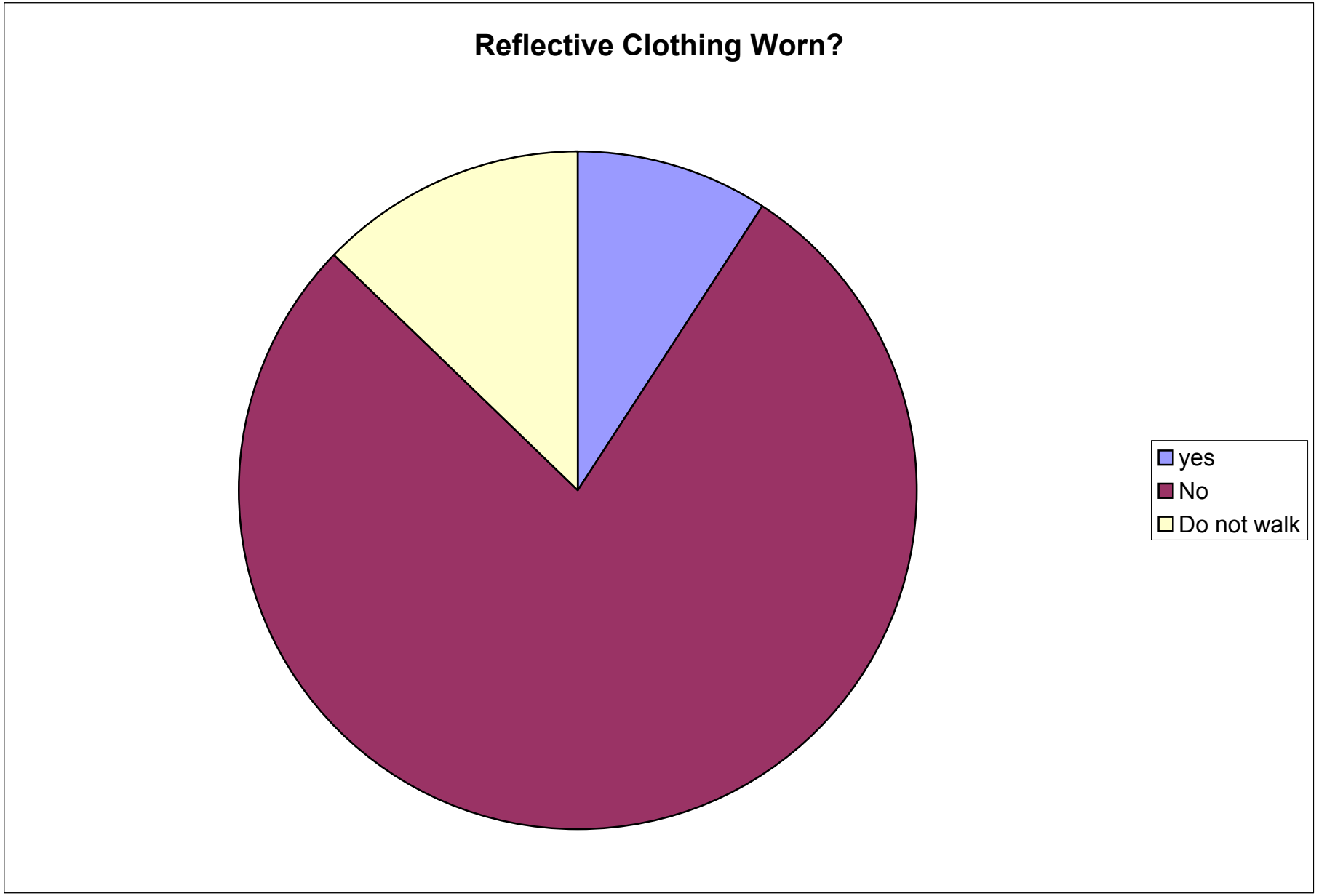

Reason For Walking?
Personal Fitness/Exercise
Leisure/Recreation
Transportation purposes around NW
No other transportation choices

Supportive of Town Involvement?

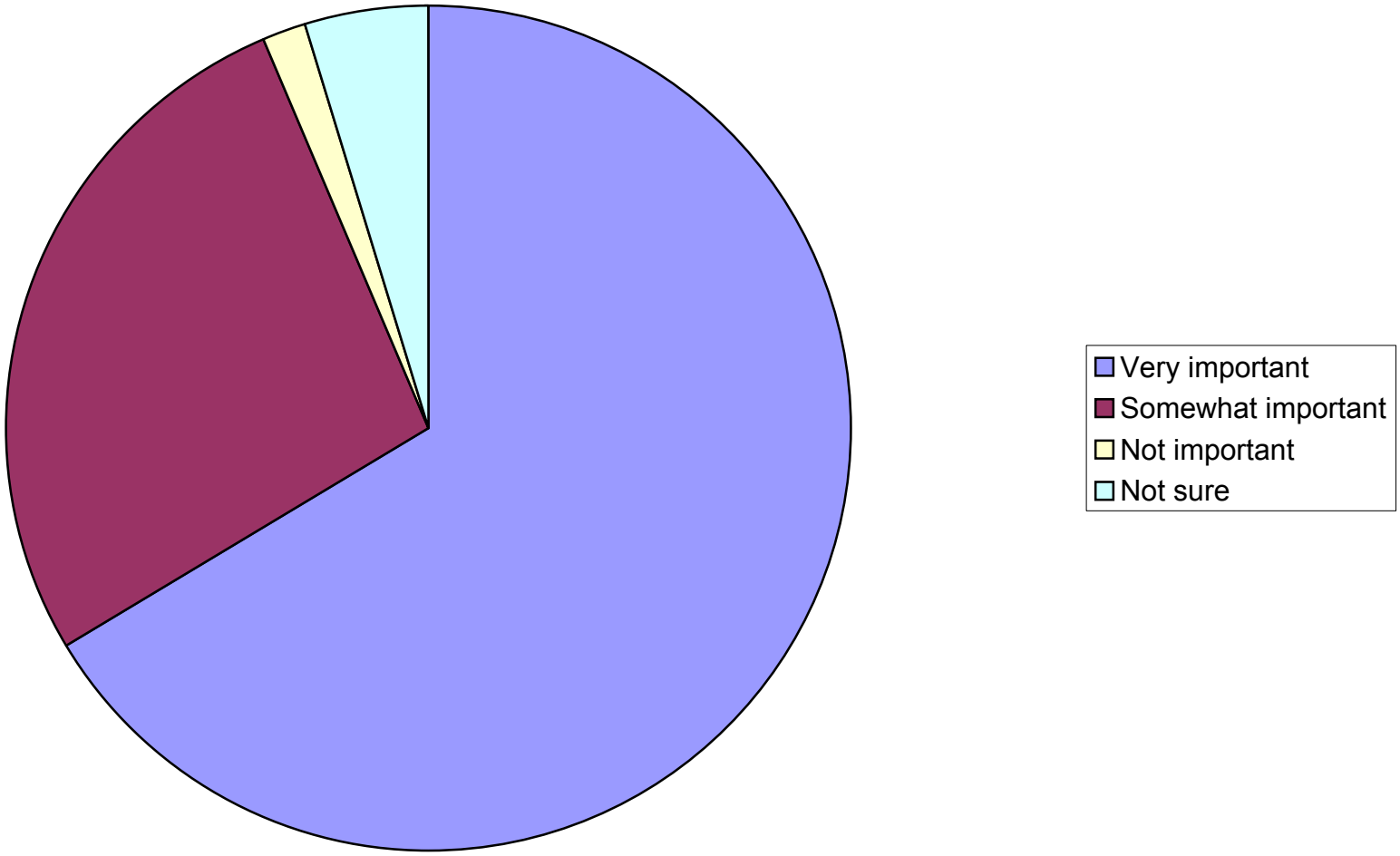


Location Used Most for Walking in N.W.

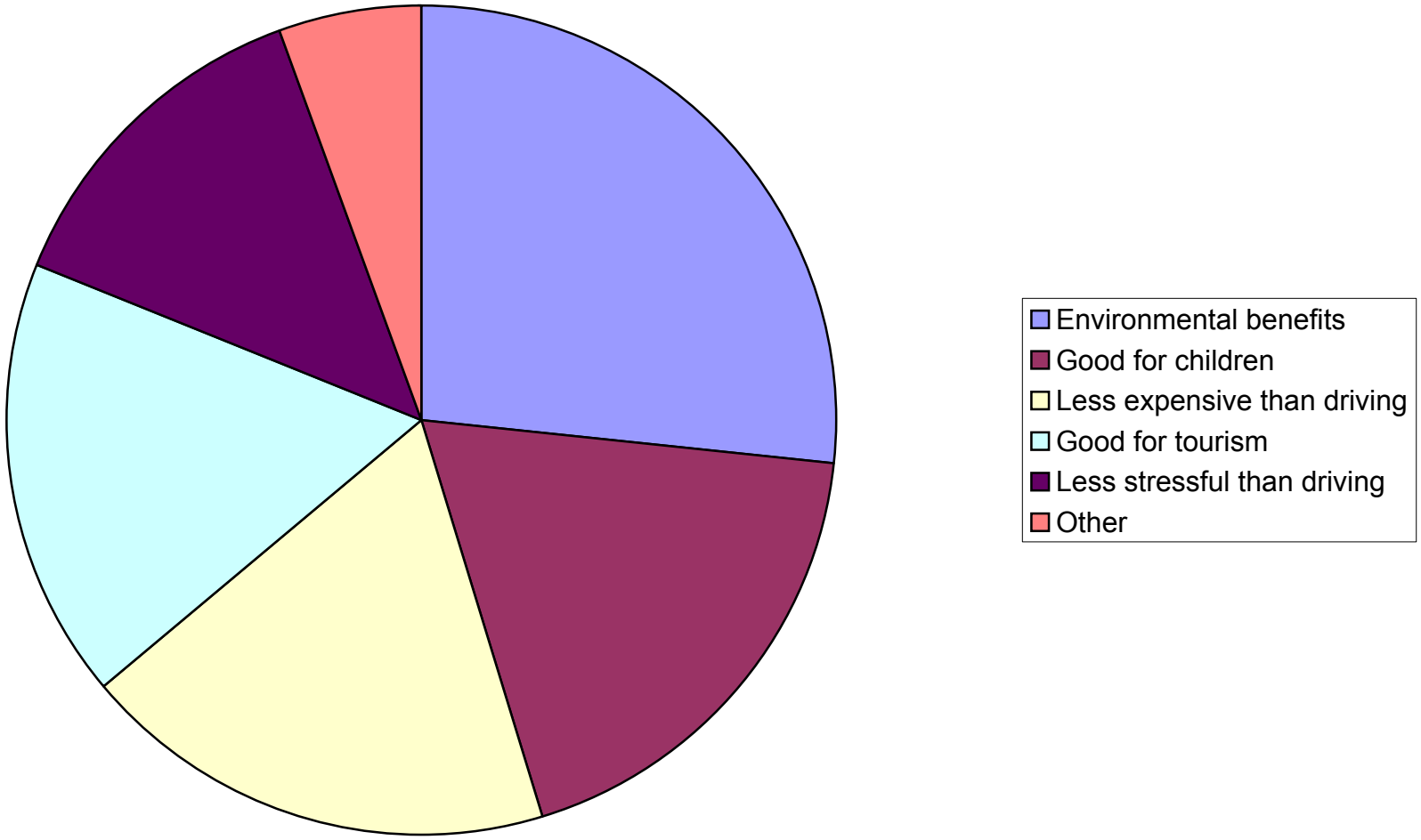



Reflective Clothing Worn?
yes
No
Do not walk

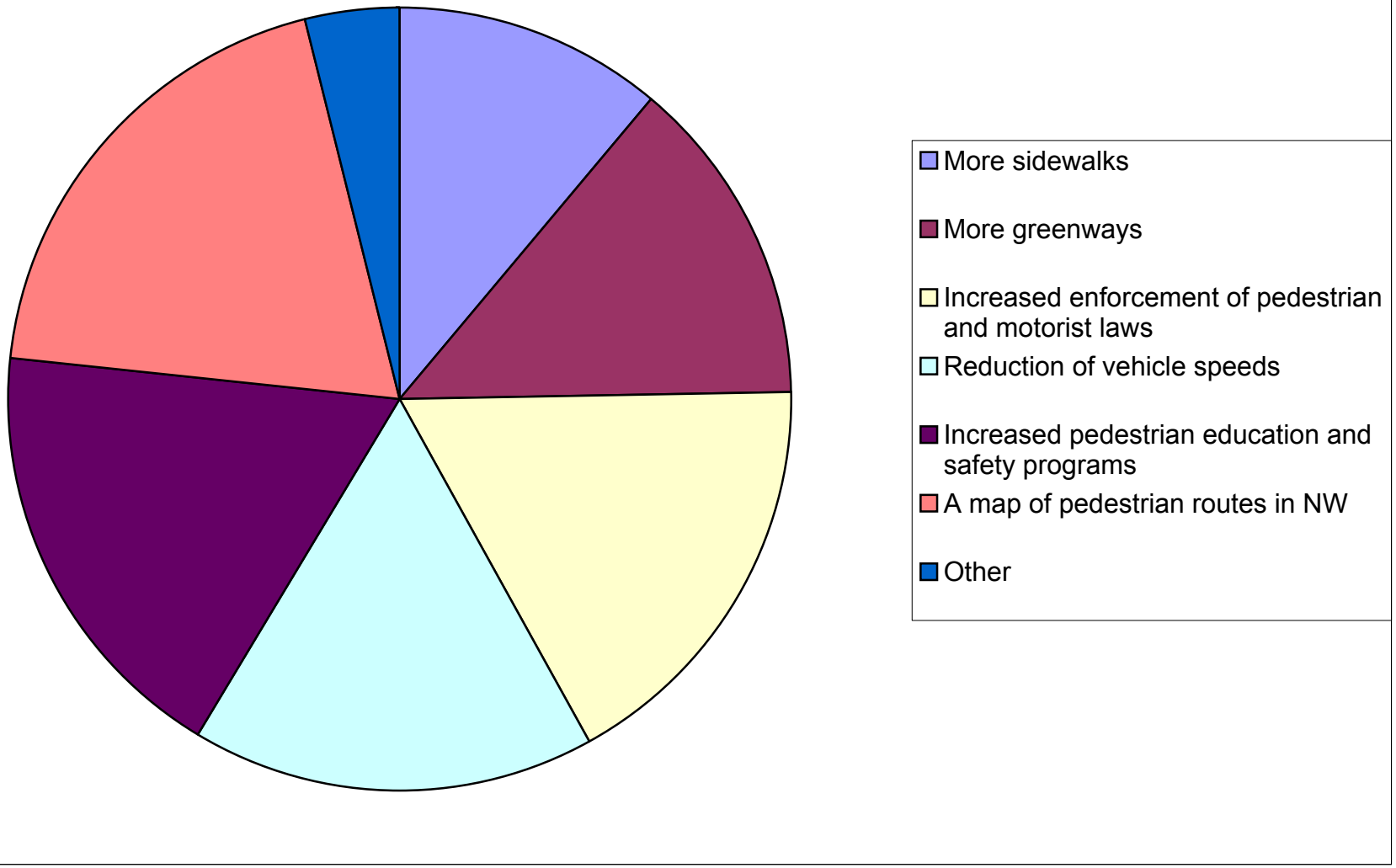
Important for N.W. to Develop a Connected Pedestrian System?



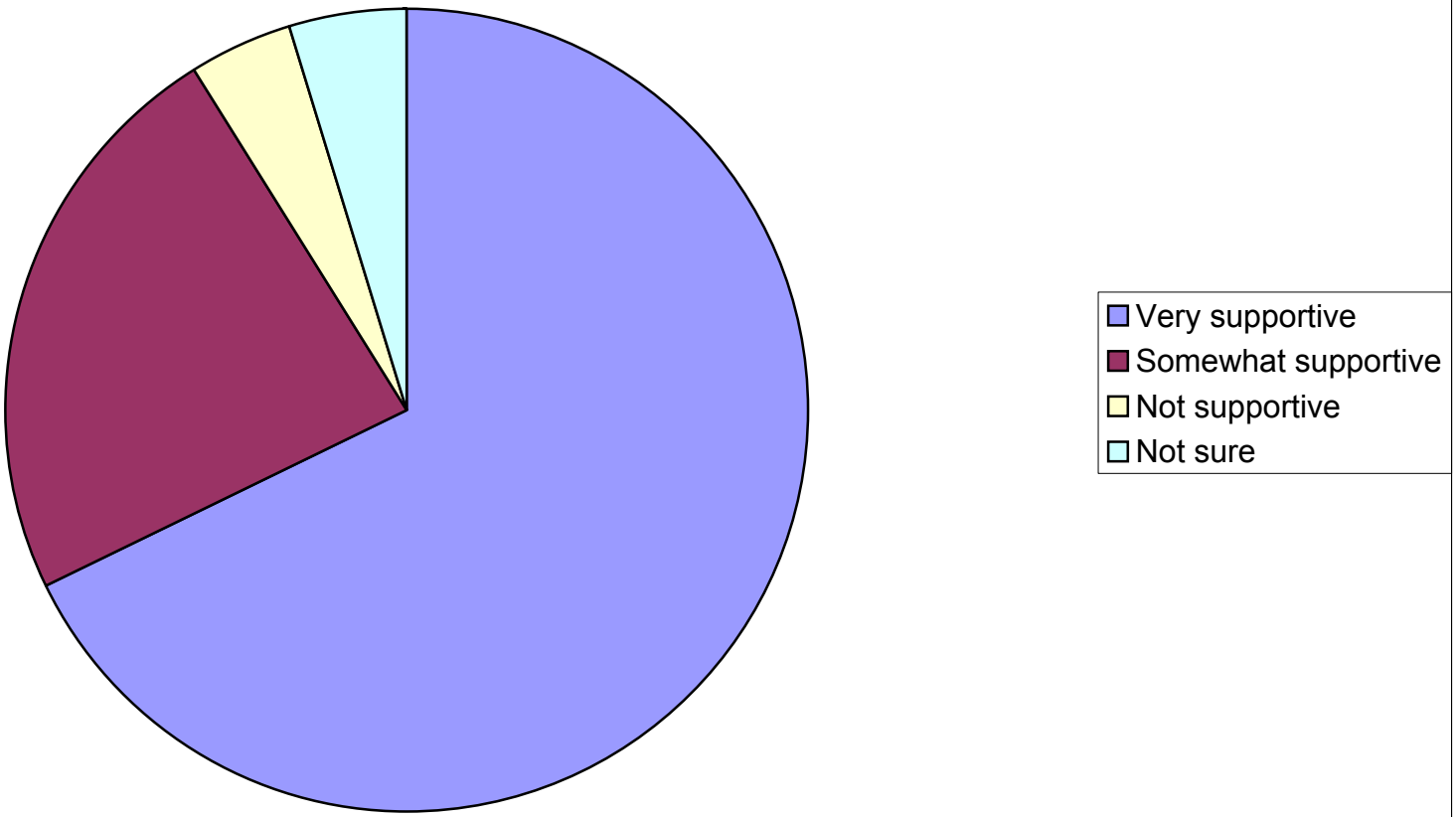
Reasons Pedestrian Activities are Beneficial to N.W.



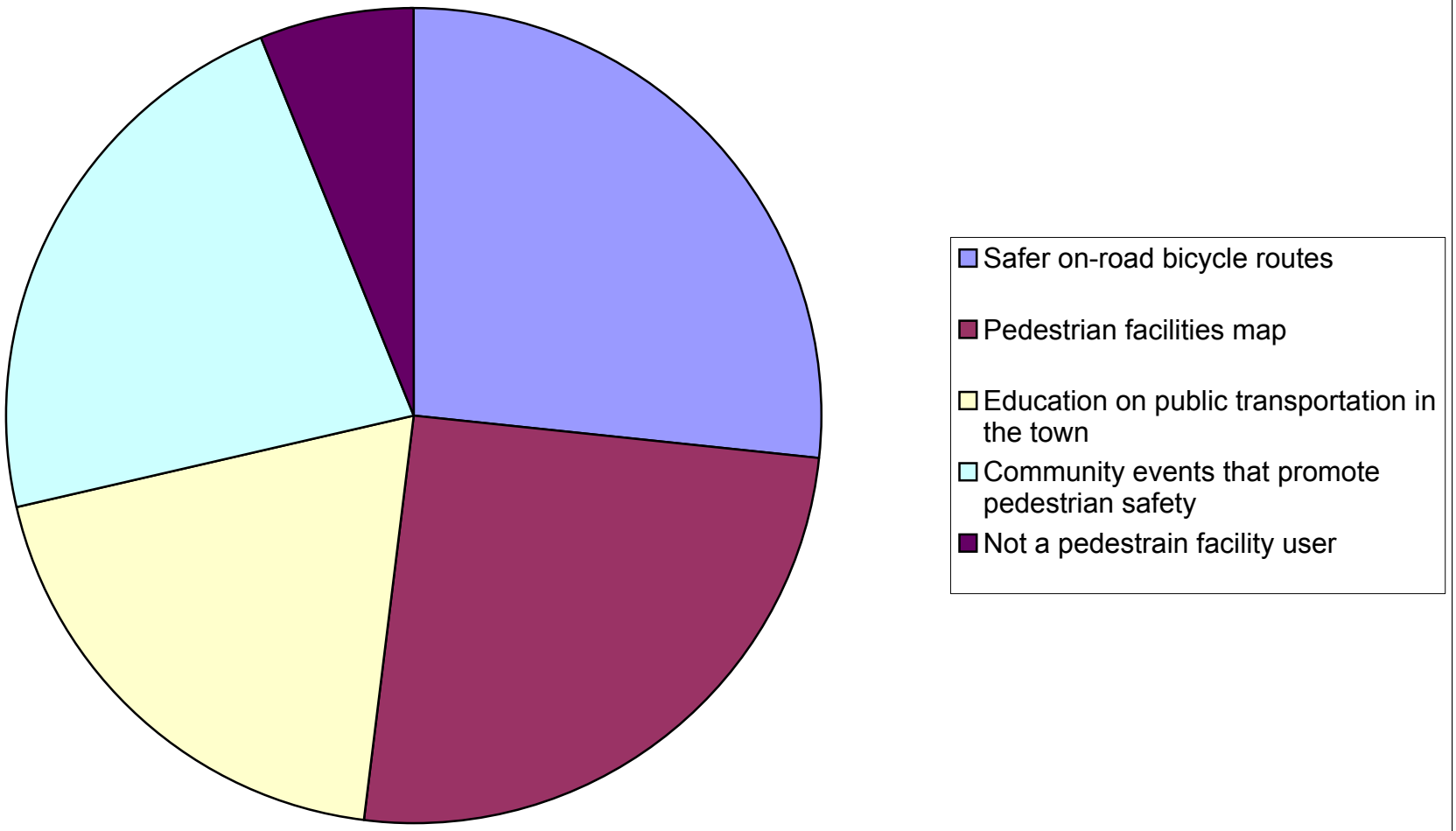
Most Needed Actions in N.W.



Supportive of Pedestrian Friendly Development?



Key Factors to Encourage Walking



Facility Type	Recommendation	Cost	Determination of Cost
Sidewalks	Provide sidewalks along Fairplains School Road to connect the sidewalks along NC 18 to the Wilkes Senior Center.	$ 32,500	650 feet of sidewalk at $50 per foot
Sidewalks	Provide sidewalks along Flint Hill Road to provide access to North Wilkesboro Elementary School. This sidewalk should connect with sidewalks along NC 268 and be supplemented with an appropriately designed crosswalk at NC 268 and Flint Hill Road.	$ 137,090	1750 feet of sidewalk and curb, pedestrian countdown signals, 100 feet of standard thermo, 4 signs
Crosswalks and Pedestrian Crossings	Provide delineated crosswalks and signal accommodations for pedestrians at the intersection of 2nd Street and Statesville Road.	$ 6,200	500 feet of thermo and pedestrian countdown signals
Sidewalks	Provide sidewalks along Armory Road from Statesville Road to the American Drew factory to provide a clearly marked and safe pedestrian path for factory workers and residents of the Mapelwood Mobile Home Park.	$ 165,000	2200 feet of sidewalk with curb
Greenways	Investigate the possibility of providing pedestrian access from Highland Park to Blairs Island and to the Yadkin River Greenway on the north side of the Yadkin River. This would make Blairs Island accessible for recreational use as well as provide an important pedestrian connection to Highland Park, as it may be difficult to provide pedestrian access to the park via sidewalks along Statesville Road, due to the grade in the vicinity of the access to the park.	$ 583,000	1000 feet of paved greenway,1 120 feet long 12 feet wide bridges at $150 per square foot
Greenways	Continue to pursue the expansion of the Yadkin River Greenway from its current terminus eastward to Smoot Park. A connection should also be planned to Memorial Park.	$ 39,900	300 feet of paved greenway
Sidewalks	Provide sidewalks along West Park Drive from West D Street to the Yadkin River Greenway trail head.	$ 97,500	1300 feet of sidewalk and curb
Sidewalks	Provide sidewalks along Boone Trail from Hickory Street to West D Street to provide access from the public housing to Wilkes Regional Medical Center.	$ 90,000	1200 feet of sidewalk and curb
Crosswalks and Pedestrian Crossings	Provide pedestrian crossing facilities in the vicinity of Wilkes Regional Medical Center to increase safety and accessibility from the hospital area to the greenway, local drug stores, and medical offices along West Park Drive	$ 17,400	1000 feet of thermo and pedestrian countdown poles
Greenways	Continue to pursue the extension of the Yadkin River Greenway from its terminus northward along the Reddies River following the existing log flume trial.	$133 per foot	
Safety	Provide a well-lighted pedestrian pathway from the existing Town-owned parking deck to Main Street.	$ 11,000	5 Pedestrain level street lights
Crosswalks and Pedestrian Crossings	Provide a pedestrian crossing at the intersection of A Street and D Street to allow pedestrians walking along the south side of D Street to access the sidewalk on the north side of D Street.	$ 1,200	500 feet of thermo
Crosswalks and Pedestrian Crossings	Provide a pedestrian crossing at the intersection of 9th Street and Cherry Street and 9th Street and Wilkesboro Avenue to provide access from the CBD to Memorial Park.	$ 420	175 feet of thermo
Crosswalks and Pedestrian Crossings	Provide a pedestrian crossing at the intersection of 6th Street and Chestnut Street and 6th Street and Cherry Street to provide access from the CBD to Memorial Park. With a future connection to the Yadkin River Greenway from Memorial Park, these routes would provide a direct link from the CBD to the greenway in the southern portion of the CBD.	$ 480	200 feet of thermo
Sidewalks	Provide sidewalks along 10th Street from I Street to D Street to promote additional connectivity between the northern portions of North Wilkesboro into the CBD.	$ 82,500	1100 feet of sidewalk and curb
Safety	To improve vehicular and pedestrian safety and and to slow traffic, consider converting the intersection of I Street and Franklin street to All Way Stop Control (AWSC).,Additionally, trim the bushes back around the intersection and move the eastbound Stop Sign backward.	$ 600	Two new stop signs and relocate two stop signs
Sidewalks	Connect existing gap in sidewalk on the north side of 9th Street just south of I Street.	$ 18,750	250 feet of sidewalk with curb
Sidewalks	Connect existing gap in sidewalk on the north side of Franklin Street at Hinshaw Street.	$ 10,000	200 feet of sidewalk
Connections and Additional Amentities	Provide a connection from the historical train depot to Smoot Park using the existing abandoned rail bed.	$ 172,900	1300 feet of shared use path
Sidewalks	Connect missing sidewalk links along West D Street in the immediate vicinity of Wilkes Regional Medical Center.	$ 15,000	200 feet of sidewalk and curb

Pedestrian Cost Estimating Template - For Planning Purposes Only [1,2,3]

Item	Description	Unit	Unit Cost	Notes & Assumptions
Pedestrian Infrastructure				
Crossings				
1.0	Audible Pedestrian Crossing Cues at Intersection	Per Intersection	$2,400	Per intersection. Assumes one at each corner of intersection (8 per intersection) Cost is roughly $300 per signal.
1.01	Crosswalk Countdowns	Per Intersection	$4,000 - $6,400	Per intersection (assumes 8 signals). Cost is $500 - $800 for one countdown signal
1.02	Crosswalk: Raised above grade (speed table)	EA	Stationary: $10,000-$15,000 Portable: $6,000	Stationary and Portable: Rubber crosswalk 6' in width and 30' long.
1.03	Crosswalk: Striping (Standard and High Visibility)	LF	Standard: Thermo =$2.40 Paint = $1.60 High Visibility: Thermo = $4.80 Paint = $1.60	24' (2 lane) Standard Thermo: $56.40 Standard Paint: $38.40 48' (4 lane) High Visiblity Thermo: High Visibility Paint:
1.04	Signage (Standard vs. High Visibility)	EA	Standard: $150 High-Visibility: $200	Assumes new post is needed in sidewalk and installation
1.05	Signalized Intersections	Per Intersection	$40,000	Per intersection. Estimate depends on size of street, type of signal and complexity of intersection
1.06	Wheelchair Ramps (w/ warning surface half domes or truncated domes)	EA	Wheelchair ramp: $1,200 Truncated dome panel: $300	Does not include demolition costs.
1.07	Yield Lines (Advanced Limit Lines or Back Lines)	LF	Thermo = $6.50 Paint = $2.75	12-inch lines
Enforcement				
1.08	Radar Speed Display Sign (Electronic)	EA	$2,500	
1.09	Red-Light Traffic Cameras	Per Intersection	Can be acquired on a lease basis	Infrared cameras that photograph autos running redlights. Per intersection.
Sidewalks and Lighting				
1.10	Sidewalk Only	LF	$50 (cost varies widely throughout state)	$75 when curb and gutter is included $50 when curb and gutter is not included
1.11	Concrete Curb and Gutter Only	LF	$20 (cost varies widely throughout state)	

Item	Description	Unit	Unit Cost	Notes & Assumptions
1.12	Pedestrian-Level Street Lights	EA	$2,200	10 - 15 feet in height
1.13	Standard Street Light (Cobra Head)	EA	$3,500	Standard roadway light.
Traffic Calming				
1.14	Speedbumps	EA	Portable: $26 $44 $77 Non-portable: $300	Portable: 10" x 24" 18" x 24" 36" x 24" Non-portable: Cost will vary with size
1.15	Speedhump	EA	$1,000	
1.16	Stop Signs	EA	$280	Standard 30" sign. Including new post and cost of installation
1.17	Curb Extension	EA	$5,000-$25,000	
Pedestrian Amenities				
1.18	Bench (6' Wide)	EA	$800-$1,000	Brick base with seat made from recycled plastic/wood material
1.19	Bike Racks	EA	$600-$1,200	
1.20	Bollards	EA	$600	
1.21	Bus Shelter	EA	$4,000-$8,000	
1.22	Information Kiosks	EA	$1,200	
1.23	Trash Cans	EA	$800 -$ 1,500	Standard-sized trashcan
1.24	Tree Grates includes frame (4'x4')	EA	$1,200	
1.25	Tree Guards (Powder Coated)	EA	$325-$640	
1.26	Tree Well	EA	$500-$1,000	Includes saw cut of 5' x 5' hole, 2.5 cy amended soil, and concrete demo and hauling
1.27	Water Fountain	EA	$2,000	Assumes water source is already available at site.

Shared-Use Pedestrian and Bicycle Facilities				
1.28	Construct 10-foot shared-use path	Linear foot Linear mile	$133 $700,000	
1.29	Construct 10-foot crushed stone walkway	Linear foot Linear mile	$15-$25 $80,000-$106,000	
1.30	Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot Linear mile	$200-$250 $1,000,000-$1,300,000	

Item	Description	Unit	Unit Cost	Notes & Assumptions
1.31	Trail markers - Flat fiberglass pole 4" wide and 1/8 inch wide. Decal 4" in width or a sign applied to the pole. Name of facility, mile marker, feature of interest shown.	EA	$50	

[1] All items listed include installation costs.

[2] All items reflect 2008 pricing.

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

Bicycle Cost Estimating Template - For Planning Purposes Only [1,2,3]

Item	Description	Unit	Unit Cost
On-Road Bicycle Facilities			
1.0	Install bicycle route signs	Per sign	$250
1.01	Install bicycle lanes (on existing pavement or during repaving)	Linear foot per single line	Paint: $0.20 Thermo: $0.60
1.02	Restripe roadway for wide outside lanes	Linear foot per single line	Paint: $0.20 Thermo: $0.60
1.03	Remove existing 4" paint or road stripe marking	Linear foot per single line	$0.40
1.04	Install shared lane markings (on existing pavement or during repaving)	EA	Paint: $40 Thermo: $65
1.05	Construct wide outside lanes (additional lane pavement added during roadway construction)	Linear mile	$300,000
1.06	Construct four-foot paved shoulder (additional lane pavement added during roadway construction)	Linear mile	$600,000
1.07	Construct four-foot bicycle lanes (additional lane pavement added during roadway construction)	Linear mile	$600,000
1.08	Bicycle Route Signage (Standard vs. High Visibility)	EA	Standard: $150 High-Visibility: $200
Bicycle Parking and Bus Facilities			
1.09	Bike Rack	One rack	$150-$300
1.10	Bus rack on bus (purchase and install)	One rack	$570
Shared-Use Pedestrian and Bicycle Facilities			
1.11	Construct 10-foot shared-use path	Linear foot Linear mile	$133 $700,000
1.12	Construct 10-foot crushed stone walkway	Linear foot Linear mile	$15-$25 $80,000-$106,000
1.13	Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot Linear mile	$200-$250 $1,000,000-$1,300,000
1.14	Trail markers - Flat fiberglass pole 4" wide and 1/8 inch thick driven into the ground to mark crushed stone or dirt path. Decal 4" in width or a sign applied to the pole. Used to mark either the name of the trail, used as a mile marker, or to mark a feature of interest, such as a type of tree.	EA	$50

1 All items listed include installation costs.
2 All items reflect 2008 pricing.
3 Cost for paths includes clearing, grubbing and grading. Geotextile cost or other