

Town of Marshville

Comprehensive Pedestrian Plan

EXECUTIVE SUMMARY

Marshville's Current Pedestrian Environment

- US 74 is a major physical barrier through the Town.
- Sidewalks are not common.
- Many existing sidewalks are inconsistent, nonfunctional, or poorly maintained.
- Crosswalks exist, but in many cases without appropriate comfort and safety features and often without connecting sidewalks.
- Land use patterns are shifting away from a centralized town center.
- Downtown is underutilized commercially with substandard pedestrian accommodations.
- Traffic calming on local roadways is good.



Plan Goals

1. Connect important destinations with walkways and crosswalks to increase accessibility to key destinations in Marshville by foot.
2. Improve safety and comfort for walkers with facility improvements, pedestrian amenities, policies, law enforcement, and education.
3. Provide education and encouragement programs for policy makers, the business community, and the general public to promote awareness of the wide-ranging benefits of walking.
4. Develop sustainable policies and programs pertaining to land use, automobile parking, development, funding, facility design and maintenance that support walking.
5. Include pedestrian travel as part of the overall strategies to improve environmental conditions, health and quality of life for Marshville's citizens.
6. Encourage economic and social vitality by creating market, social interaction, and healthcare cost-saving opportunities.

Pedestrian Needs in Marshville

Deficiencies in Pedestrian Network

Marshville has a limited sidewalk network in the downtown area and new sections of sidewalk on a few surrounding neighborhood streets. Pedestrian intersection treatments such as crosswalks and walk signals are rare. Many residential areas designed in the late part of the 20th Century have no pedestrian facilities and intersections across US 74 were designed to accommodate automobile travel only. This creates unique connectivity challenges.



Building setback and design have significant impacts on walkability.



A lack of sidewalks discourages walking.



Existing sidewalks have obstacles and maintenance issues.



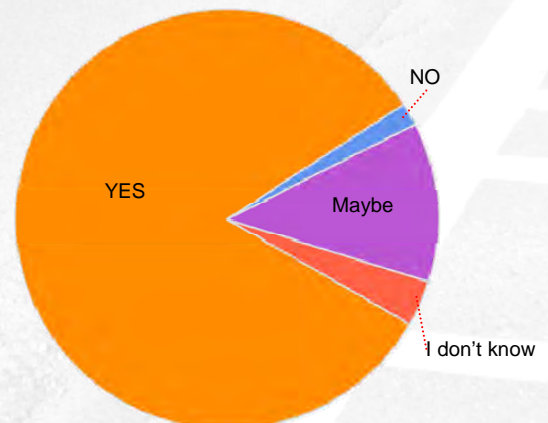
The downtown core is missing key sections of sidewalks and has limited pedestrian amenities.

Summary of Public Input

Two public comment forums have been held over the course of this project and an online survey was used to receive comments on Marshville's current conditions and needs. Key points raised by the public at these meetings and in the survey results include:

- Sidewalks, greenways, traffic calming are needed
- Heavy traffic, poor crossings, and high speeds make walking dangerous
- Existing facilities need to be connected with particular emphasis on schools, low-income areas, public facilities, and parks.

Do you believe that Marshville will benefit from better pedestrian accommodations?



Pedestrian Opportunities

System Overview

Pedestrians generally have three needs when it comes to walking. Their routes need to be (1) short and direct, (2) safe, and (3) pleasurable. Developing a pedestrian plan that provides more opportunities to make short and pleasant trips by walking would provide the largest benefit the Town can achieve over the long term. Increasing commercial and residential density in community centers would decrease the distance that pedestrians need to walk. Providing safe walking and road crossing infrastructure within community centers will help Marshville's citizens become more comfortable with walking. Making the walking experience pleasurable by creating aesthetically pleasing routes that are free from the noise, stress and eyesores caused from pollution, traffic, unattractive architecture, crime, and other factors will allow the residents to enjoy and truly be a part of their community.



Pedestrian Oriented Development Districts

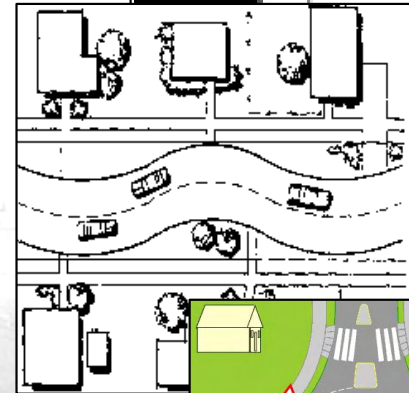
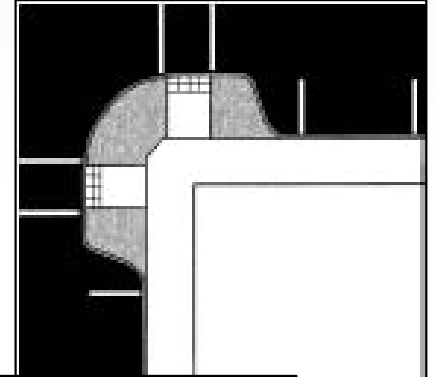
The Marshville Comprehensive Pedestrian Plan is focused around two Pedestrian Oriented Development Districts. Downtown Marshville is connected by short blocks and presently has all of the community necessities such as residential areas, shopping areas, schools, parks, and employment centers, and is the obvious choice for the primary pedestrian district in the Town. The area surrounding East Union Middle School is potentially suited to be a future pedestrian district if sufficient land use development patterns arise.

These Pedestrian Oriented Development Districts are defined using quarter mile and half-mile radius circles that currently have or potentially will have the ingredients necessary for frequent walking trips. A quarter mile is the distance that is most likely to be considered walkable by the greatest number of pedestrians. It is preferred that the majority of the most frequented trip generators be located within the quarter mile district. A half mile is considered to be the upper limit for most simple walking trips, and this portion of the Pedestrian Oriented Development District is usually best suited for lower density residential areas or less frequented trip generators. Shared-use paths and other pedestrian infrastructure connect these districts to each other. These districts are intended primarily to identify areas in which pedestrian-friendly development should be encouraged but it is important to note that sidewalks, paths, other infrastructure projects, and policies can and should be implemented outside of these districts as well.

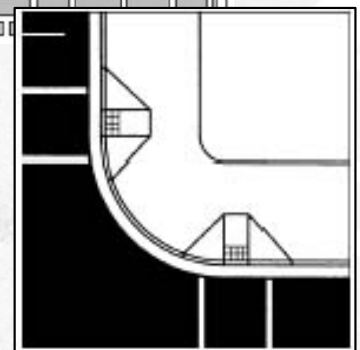
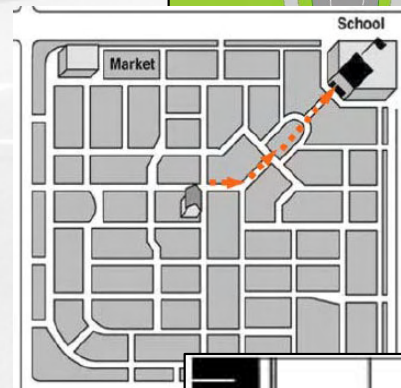
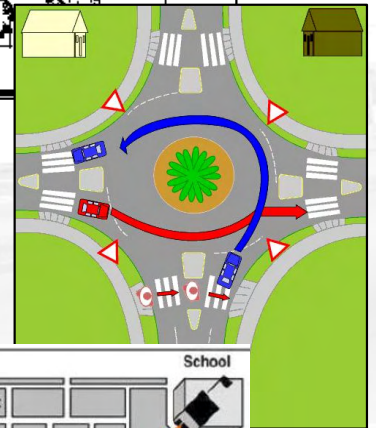


Representative Projects

Sidewalks

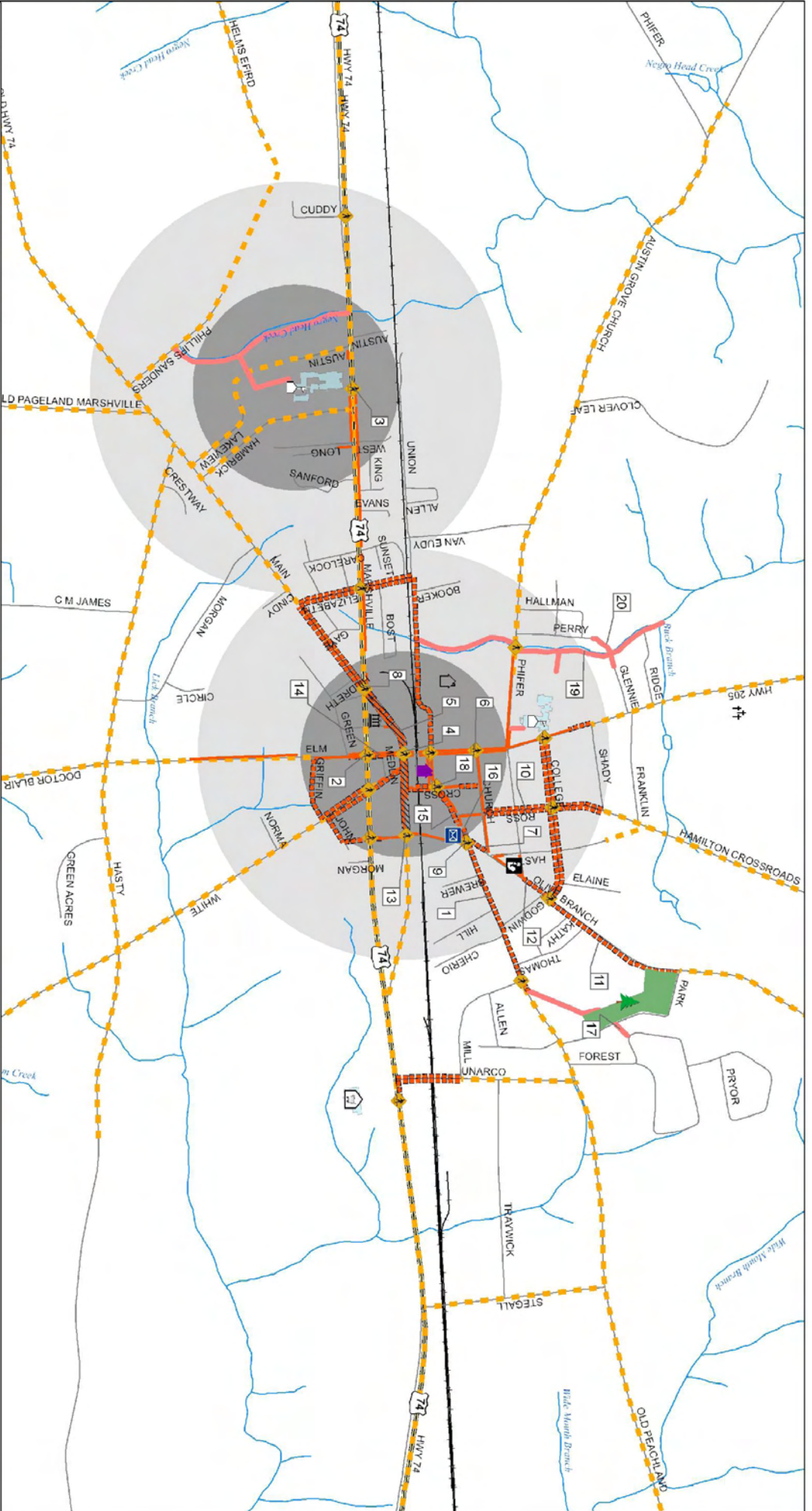


Shared-Use Paths



Crosswalks

Traffic Calming and Accessibility



- Town of Marshville Existing Facilities**
- Town Hall
 - Park
 - Community Center
 - Autumn Care
 - Post Office
 - School
 - Library
 - Grocery Store
 - Cemetery
 - Park Boundary
 - Existing Sidewalks
 - Highway 74
 - Roads
 - Railroads
 - Streams

- Proposed Facilities**
- Crosswalks
 - Pedestrian Districts
 - Quarter Mile Radius
 - Half Mile Radius
 - Proposed Streetscape Corridor
 - Sidewalk By Policy
 - Retrofit 5' Sidewalks
 - Shared Use Path
 - Top 20 Proposed Projects

MAP 4 - Recommended Projects

0 1,200 2,400 3,600 4,800 Feet

N

Programs

In addition to infrastructure projects and policy modifications, a variety of programs are recommended to enhance the overall pedestrian environment and help establish a walking “culture” in Marshville. Examples of beneficial programs are highlighted below; these and other programs are discussed in detail in the full report.

Spot Improvement & Maintenance Programs

Just as potholes, uneven pavement, unsafe intersections, and visual obstructions irritate automobile drivers, they do the same to pedestrians. Funding should be set aside for maintenance of worn sidewalks and consideration should be made as to which material to use to maximize the life of the sidewalk. A sidewalk inventory needs to be completed immediately, and maintenance improvements, connectivity, and ADA compliant upgrades should be prioritized.



Education Programs

School Safety Patrol Programs, safety signs, positive public marketing, and other programs have been responsible for an increased awareness and an increase in safety for pedestrians across the nation. In addition, driver and pedestrian education efforts will make the streets safer so that citizens feel safe walking along the roadways.



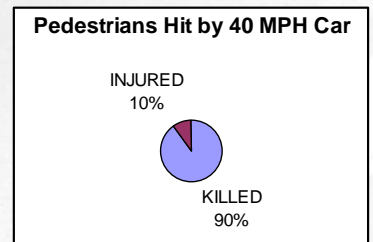
Encouragement and Promotional Programs

Town programs that distribute and award pedometers, patches, and certificates of achievement could encourage the public to walk. Community gatherings or athletic activities on greenways, parkland, or closed roadways can spark awareness and create a desire for Marshville’s citizens to interact and travel by foot. Programs that give security and comfort to the elderly and other adult pedestrians also help to increase the walking population, while organized days where citizens walk to work or school create a sense of security. One valuable program, Safe Routes to School, can be initiated to help create a better walking environment for school children.



Enforcement Programs

Enforcing existing laws, reducing the speed limits, and increasing the police presence throughout the community can help to enforce laws that protect walkers in Marshville.



Other Programs

Providing alternate forms of transportation such as transit or bicycle accommodations can increase the practicality of lifestyle choices to increase walking. Keeping the streets and walkways clear of litter can make the walking environment more appealing, and wayfinding signs can create routes that are more practical and accessible.



Policies and Ordinances

This pedestrian plan is intended to recommend policies that should be considered by the Town as part of its comprehensive update of ordinances. The recommendations provided are intended to create a more pedestrian-friendly environment in the Town. Key recommendations are summarized below; additional suggestions and information are contained in the full report.

Policy Recommendations

Use of Pedestrian Oriented Development Districts as a Planning Tool

As a planning tool, the Pedestrian Oriented Development District should be used to guide the locating of mixed-use pedestrian-oriented developments (such as shopping, high-density residential, and public services). Future growth of this type should be strongly encouraged within Pedestrian Oriented Development Districts and strongly discouraged outside of these districts; likewise, development types that are not pedestrian-friendly by nature (such as most industrial sites, distribution centers, and some low-density residential uses) should not be encouraged within these areas.

Local Ordinance Recommendations

Requirements for Infrastructure Associated with New Developments

Requirements for new pedestrian infrastructure should be consistent throughout the Town's planning jurisdiction, not just in the designated Pedestrian Oriented Development Districts. Selected suggested guidelines are as follows (these requirements should apply to all new developments; not just those that are new subdivisions):

- New residential development must have a grid-like or interconnected curvilinear street pattern. These block separations may be vehicular roads or 10 -12 foot wide non-motorized traffic connections.
- New commercial development must be oriented to the pedestrian and include pedestrian walkways.
- Most cul-de-sacs will not be permitted unless geographic or other natural barriers exist that make connections unrealistic. A developer may create a short cul-de-sac or a "close" if an acceptable bicycle and pedestrian connection is created.
- Any new development or road construction where there is a pedestrian project mapped from the Comprehensive Pedestrian Plan must include that project to a functioning level according to guidelines. In many cases, exact alignment of the projects is not definite.
- New developments must connect to neighboring developments. Commercial areas must create a vehicular and/or pedestrian connection to adjacent residential communities and provide a future connection option for future developments. New residential communities must connect to existing residential and commercial developments, as well as provide connection possibilities to future adjacent developments. Exemptions may apply if there is a substantial natural or geographical barrier, or if there is an environmental concern with such a connection.
- All new commercial, residential, and mixed-use developments should provide sidewalks on both sides of the street, provide buffering from auto traffic and off-street parking lots, and provide trees that will shade sidewalks. All road construction projects should include acceptable pedestrian facilities that complete the transportation system.

Acquisition of Easements for Pedestrian Projects

As the Town seeks to create sidewalk connections in areas that are already developed, the availability of right-of-way inevitably will be an obstacle. The Town should take steps to formalize a policy regarding the construction of sidewalks or other pedestrian projects outside of the public right-of-way. Ideally, the Town should identify opportunities to reach agreements with property owners to provide a sidewalk or shared-use path easement as necessary for new projects without acquiring property, or to use existing utility easements.

Implementation Plan

Infrastructure Project Summary

To help narrow the immediate focus for the Town in the implementation of pedestrian projects, twenty “high priority projects” were identified based on the scores received by each project as part of a prioritization process. Focusing initially on this more limited list of infrastructure projects will enable the Town to implement the projects that will have the most benefit to pedestrians in the area, while building support for additional development of the pedestrian network. The other projects identified in the plan could still be implemented with or before these high priority projects if the resources become available and the need or opportunity is apparent.

Rank	Description of Improvement	Roadway / Location
1	Sidewalk	E. Union St. from Olive Branch Rd. to Allen Dr.
2	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ Elm St.
3	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ E. Union Middle School
4	Crosswalks and Countdown Signals	Main Street @ Elm St.
5	Streetscape Project	Main Street from US Highway 74 to Olive Branch Rd.
6	Crosswalks at Intersection	N. Elm St. @ Church St.
7	Sidewalk	Olive Branch Rd. from E. Church St. to E. Union St.
8	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ Main St.
9	Crosswalks at Intersection	E. Union Street @ Olive Branch Rd.
10	Sidewalk	Ross St. from Shady Ln. to E. Church St.
11	Sidewalk	Olive Branch Rd. from Park Dr. to Godwin St.
12	Sidewalk	Olive Branch Rd. from College St. to E. Phifer St.
13	Crosswalks at Intersection	Main Street @ Olive Branch Rd.
14	Sidewalk	Elm St. from E. Medlin St. to Greene St.
15	Sidewalk	South side of E. Union St. from Fuller Street to P.O.
16	Sidewalk	N. side of E. Union St. from Ross to Olive Branch Rd.
17	Paved Upland Shared-Use Path	Private Property from Park Dr. to Forest Dr.
18	Crosswalks at Intersection	Union Street @ Elm St.
19	Paved Lowland Shared-Use Path	Buck Branch Creek from Ridge Run to W. Phifer St.
20	Paved Upland Shared-Use Path with Bridge	Connector from Perry Ln. to Glennie St.



Funding Sources

A combination of funding sources will be needed to construct the infrastructure projects proposed in this plan. The Town of Marshville should seek all viable funding opportunities for project implementation, including Federal and State monies where available. Special funding programs for specific types of projects (e.g. Safe Routes to School or Community Transformation Grants) should also be pursued. Private foundations should be thoroughly researched to identify possible funding options. The Town should also annually set aside funds specific for pedestrian accommodations to ensure that progress is made every year on constructing the specified projects.

THE TOWN OF MARSHVILLE COMPREHENSIVE PEDESTRIAN PLAN
ADOPTED APRIL 19, 2010

This page intentionally left blank

ACKNOWLEDGEMENTS

This pedestrian plan required help from numerous agency representatives and citizens, and would have been lacking in substance, quality, and foresight without input from each of these stakeholders.

The following staff members and community members participated in the development of this plan:

Kathy Appenzeller, DSS
Tom Appenzeller, Wingate University
Stan Brock, NCDOT Union County Office
Frank Deese, Mayor, Town of Marshville
Rusty Johnson, Marshville Planning Board
Baxter Jordan, Fire Department
Rev. Alex L. Martin, First Baptist Church
Shelley Maness, Town of Marshville Clerk/Finance Officer
Marc McCann, Pilgrim's Pride Plant Manager
Bob Mosher, NCDOT Bicycle and Pedestrian Division
John Munn, Interim Town of Marshville Administrator after March 2009
Angie Hall Riggins, Marshville Elementary School
Radford Thomas, Marshville Town Administrator
Dana Stoogenke, Rocky River RPO
John Underwood, NCDOT Union County Office
Carl Webber, Town of Marshville Administrator through March 2009

Additionally, the Marshville Town Council members and the North Carolina Department of Transportation made this plan possible when they agreed to fund the Plan in 2008, and then to adopt the Plan on April 19, 2010.

This page intentionally left blank

TABLE OF CONTENTS

SECTION 1: INTRODUCTION

1.1. Setting the Stage 1-1
1.2. Planning for Pedestrians in Marshville 1-5
 Map 1: Project Study Area 1-7
1.3. Goals of Pedestrian Plan 1-9

SECTION 2: EXISTING CONDITIONS

2.1. Overview of Current Conditions 2-1
2.2. Community Concerns, Issues, and Needs 2-2
 Figure 2-1: Total Pedestrian Crashes by Year 2-5
 Exhibit 2-2: Roadway Type 2-6
 Exhibit 2-3: Pedestrian Injuries 2-7
 Exhibit 2-4: Age of Pedestrian in Crash 2-8
2.3. Existing Pedestrian Facilities 2-9
 Map 2: Existing Conditions Map 2-11
2.4. Current Usage 2-14

SECTION 3: EXISTING PLANS, PROGRAMS, AND POLICIES

3.1. Inventory of Relevant Plans and Current Projects 3-1
3.2. Existing Policies and Institutional Framework 3-2
 Table 1: Regional Sidewalk Policies for New Subdivisions 3-3

SECTION 4: OPPORTUNITIES

4.1. System Overview 4-1
4.2. Pedestrian Oriented Development Districts 4-2
 Map 3: Opportunities Map 4-3
4.3. Roadway Corridors 4-6
4.4. Other Off Road Town-Wide Corridors 4-8
4.5. Opportunities for Children 4-8

SECTION 5: FACILITY STANDARDS AND GUIDELINES

5.1. General Pedestrian Facility Guidelines 5-1
5.2. Specific Facility Design Recommendations 5-2
 Exhibit 5-1: Crosswalk Marking Types 5-9
5.3. Traffic Calming Initiatives 5-16
5.4. Americans with Disabilities Act (ADA) Facility Transition Plan 5-22

SECTION 6: ANCILLARY PROGRAMS AND PRACTICES

6.1. Spot Improvement Maintenance Programs 6-1
6.2. Education Programs 6-2
6.3. Encouragement and Promotional Programs 6-4
6.4. Enforcement Programs 6-7
6.5. Alternate Transportation Options that Compliment Walking 6-8
6.6. Anti-Litter Programs 6-9
6.7. Other Information 6-10

SECTION 7: PROJECT DEVELOPMENT

7.1. Identification of Projects 7-1

7.2. Prioritization of Projects 7-2

Table 2: Ranking Criteria for Projects..... 7-3

7.3. Proposed High-Priority Projects 7-4

Table 3: Proposed High-Priority Projects 7-4

Map 4: Recommended Projects 7-5

SECTION 8: RECOMMENDED POLICIES AND ORDINANCES

8.1. Overall Policy Goals..... 8-1

8.2. General Policy Recommendations 8-2

8.3. Specific Local Ordinance Critique and Recommendations 8-5

SECTION 9: IMPLEMENTATION PLAN

9.1. Implementation of Proposed Infrastructure Projects 9-1

9.2. Adoption of Policy and Ordinance Revisions 9-2

9.3. Prioritization and Implementation of Ancillary Programs..... 9-2

9.4. Organization of a Pedestrian Committee 9-3

APPENDICES

- A. PUBLIC INPUT
- B. STEERING COMMITTEE MEETING MINUTES
- C. MEDIA ARTICLES
- D. SAMPLE SHARED-USE PATH CROSS-SECTIONS
- E. SAMPLE COST ESTIMATES AND EXAMPLES
- F. PROJECT MAPS
- G. PROJECT TABLE
- H. FUNDING SOURCES
- I. RELEVANT NCDOT POLICIES
- J. SAMPLE ORDINANCE SHOWING DEDICATION REQUIREMENTS
- K. EASEMENT AGREEMENT EXAMPLE

Section 1

Introduction

1.1. SETTING THE STAGE

Like any small southern town, Marshville has undergone significant changes since it was founded, but it has still not seen many of the growth problems experienced by many of its neighboring North Carolina communities. Known earlier as Beaver Dam and Griffinsville before officially becoming Marshville in the early 1900s, the Town's early corporate limits were originally laid out within a 1-mile radius from an iron stake driven at the freight depot site in 1876. The Central Carolina Railroad Co. connected Charlotte with the port town of Wilmington that summer, leading to the Town's economic prosperity as the leading regional cotton market and its eventual growth of other agricultural exports such as timber and poultry.



In these early days of Marshville's development, walking was the primary means of mobility throughout the town. Similar to trends evident all over the country and in the region specifically, a number of factors have contributed to the loss of pedestrian mobility in Marshville since then. In response to the boom of the automobile age, traffic speeds and congestion create uncomfortable walking conditions, while shopping destinations near the center of town are displaced by larger shopping centers further away. Rising costs of living, a change in social norms, and the economic conditions create the

need for dual income households, which, in turn, may position families' homes geographically between the regional employment areas. The pace of life has increased, free time has decreased, nutritional and exercise habits are slipping, and the public more commonly perceives pedestrian transportation as inconvenient, hazardous, or even dangerous. All of these factors make transportation by foot very difficult for those who currently walk, those who would prefer to walk but cannot, and those who will need to walk in the future.

Walking Facts

- Regions with transportation choices such as walking and mass-transit are the most economically productive and competitive, while those that are limited to the automobile tend to have reduced regional economic development. (*World Bank, no date*)
- Large-lot or strip development, lack of through streets or walkways, empty wall space, lack of crosswalks, long blocks, unappealing walks, wide and unshaded streets, wide streets with no medians and large shopping strip malls all inhibit walking. (*Local Government Commission. Why People Don't Walk and What City Planners Can Do About It (online at www.lgc.org - no date)*)

- In neighborhoods with square city blocks, people walk up to three times more than in neighborhoods with cul-de-sac streets or other connectivity-reducing features. (*Rutherford, McCormack, and Wilkinson. Travel impacts of urban form: implications from an analysis of two Seattle area travel diaries. Presented at the TMIP Conference on Urban Design, Telecommunications and Travel Forecasting, 1996*)
- One-fourth of all trips are one mile or less, but three-fourths of these short trips are made by car. (*Center for Disease Control, 2002*)
- In 1969, approximately 50 percent of children walked or biked to school. Today, fewer than 15 percent of schoolchildren walk or bike to school. (The National Center for Safe Routes to School, 2007)
- A recent study of South Carolina schools found that children today were much less likely to walk to a school that had been built more recently. More than 20 percent of students that attended schools that were built during the 1960s walked to school. For schools built in the 1970s the share dropped below 15 percent, while for those built in the 1980s and 1990s it fell below 5 percent. (*Childhood Obesity Journal, Volume 16, Number 1 Spring 2006*)
- The majority of U.S. children do not walk or bike to school, approximately one third ride a school bus, and half are driven in a private vehicle. Less than one of their trips in seven is made by walking or biking. (*Center for Disease Control, 2002*)
- Urban Sprawl is linked to obesity. The denser the city's development, the less likely its citizens are to be overweight. (*University of Maryland's National Center for Smart Growth, no date*)
- 57% of home buyers rank walking trails as their most desired neighborhood amenity, ahead of ball parks and outdoor pools. (*National Home Builder Survey, 2004*)
- Multiple nationwide studies indicate parks, greenways, and trails increase the resale value of nearby properties by 5 to 20 percent. (*Mecklenburg County Park and Recreation web site, 2006*)
- Studies show that a 5 to 10 mph reduction in traffic speeds can increase adjacent property values by roughly 20% (*Local Government Commission. The Economic Benefits of Walkable Communities (online at www.lgc.org - no date)*)
- Around one-third of all Americans cannot or do not drive because they may be too young, too old, or unable to afford a car. (*2000 U.S. Census*)
- Widening roads actually worsens traffic congestion in cities. (*University of London Center for Transport Studies, 2000*)
- The average American directly spends almost 20% of their salary on transportation. This does not include the numerous extra shared public and commercial costs that occur because of an auto-dependent society. (*AAA, 2005 & Bureau of Labor Statistics, 2003*)

- 45% of people in August of 2005 spent less on other things to pay the increase in gas prices. (*ABC News Poll, 2005*) Nearly all of last year's economic downturn could be attributed to the oil price shock. (*April 3, 2009 Wall Street Journal Article featuring UC San Diego Economist James Hamilton at the Brookings Panel on Economic Activity*)
- Traffic calming, mixed-use zoning and pedestrian projects can increase private investment substantially along previously automobile-dominated roads. (*Engineering News Record, 1998*)
- If future housing communities were 25% more compact, driving could be reduced by 12%. (National Research Council's review of almost 100 studies over 20 years, 2009)

The number of facts that could be listed to support pedestrian improvements is practically endless, but it is clear that a better pedestrian community creates a better community economically, aesthetically, socially, and from a public health perspective. Current trends show that planning efforts to accommodate the automobile while ignoring the pedestrian have made our population less active than it ever was in history, and thus more prone to health problems.

Benefits of Walking

A pedestrian plan should not be thought as a way to give a small segment of the population a safe way to cross the street or as a means to become more fit, but as a broader vision to create opportunities, offer choices, increase overall health, improve environmental quality, provide economic sustainability, and add to our quality of life.

Transportation Benefits

Walking and bicycling can help to reduce roadway congestion, and a 1995 Rodale Press survey found that Americans want the opportunity to walk or bike instead of drive. Walking and bicycling require less space per traveler than automobiles, and roadway improvements to accommodate pedestrians and bicycles can actually enhance safety for motorists.

Health Benefits

The health benefits of regular physical activity include the reduced risk of coronary heart disease, stroke, and other chronic diseases; lower health care costs; and improved quality of life for people of all ages. Regular exercise gives senior adults a stronger heart, a positive mental outlook and an increased chance of remaining independent longer. In fact, walking for a minimum of 30 minutes each day or about 12 miles each week is required to retain a healthy body, but 60% of Americans lead completely sedentary lifestyles and 40% are clinically overweight (*1998 Report of the American Medical Association*).

Environmental Benefits

Reductions in air pollution, water pollution (surface runoff, oil production, and disposal), noise pollution, landfill materials, litter, urban sprawl, and ecosystem habitat fragmentation will be a result of a reduction of driving habits. Sixty percent of the pollution created by automobile emissions happens in the first few minutes of operation; therefore, shorter (and more easily walkable) car trips are more detrimental to air quality on a per-mile basis than longer trips.

Economic Benefits

Direct driving costs include gasoline, insurance, taxes and registration, maintenance, accidents, fines, parking, tolls, and depreciation. In fact, the American family spends about one-fifth of its income on transportation expenses, second only to housing. Indirect costs of driving are often subsidized by tax dollars, product pricing, salaries, road infrastructure, environmental mitigation, parking, health costs, and work loss due to traffic, health, or maintenance issues. In addition, the gas price increases over the last several years showed that when people spend more money on gas, they spend less money on other things. (The Charlotte Observer reported that vacationers for the Fourth of July weekend in 2006 still packed Myrtle Beach, but “spent tremendously less (money)” because of high gas prices). For greater perspective, a Wall Street Journal April of 2009 article placed most of the blame for our current recession on the record high gas prices in the summer of 2008. Less dependence on gas would create less of an economic concern when prices surge.

Walking can also stimulate the economy. Pedestrian-friendly shopping areas attract customers who would typically miss the vendors’ storefront advertisements and are more convenient for passers-by on foot to “hop in” for a quick purchase. Shopping is also likely to become a social or a tourist attraction in pedestrian-friendly areas, which can enhance sales for business owners. Property and home values also climb as the area becomes more pedestrian-accessible. Residents have repeatedly confirmed through surveys and home purchases that they want to be able to live where they can safely walk. Higher home values increase the tax base for the community, which in turn provides more public services that increase the residents’ quality of life.

Quality of Life Benefits

Walking relieves stress, improves health, saves money, provides outdoor recreational opportunities, creates learning opportunities for children, gives citizens the freedom of independence, and provides countless other benefits that make life better. In addition, the acts of removing vehicles from the roads or creating more areas where people are free to be away from automobiles make life less stressful. Recent studies show that children who live near busy roads have higher blood pressure, faster heart beats, and higher levels of stress hormones due to the constant low level noise (2001 Cornell University study).

1.2. PLANNING FOR PEDESTRIANS IN MARSHVILLE

Past Efforts

The Town of Marshville has recently expanded its sidewalk network with new walkways on Church Street, South Elm Street, and Olive Branch Road.

Current Trends

This pedestrian plan represents Marshville's first comprehensive study that focuses entirely on improving walking conditions. Many southern cities and towns are growing rapidly, and Marshville recognizes that if it wants to retain its charm, character, and quality of life, walking must be integrated into the fabric of the community across the entire Town. Pedestrian facility improvements must be made to realize the benefits of walking described earlier, and programs and policies must be in place to ensure that walking is a viable option for area residents in the years to come.

Local residents are becoming more actively involved in advocating for pedestrian improvements, particularly with regard to safety concerns for walkers along busy streets in primarily residential areas. Residents of Marshville understand that urban growth patterns have the potential to change their town, and want to protect the safety of pedestrians as growth and development continue to occur. The citizens that have participated in this planning process have reacted favorably to the development of the Comprehensive Pedestrian Plan, and generally are excited about the prospects of improved conditions for walking. In time, the rising energy costs may initiate a demand in Marshville for more alternatives to motor vehicles, and having a plan and the necessary infrastructure in place at that time will be valuable.

North Carolina Department of Transportation Bicycle and Pedestrian Planning Grant Initiative

In 2008, the Town of Marshville was awarded a \$20,000 matching grant from the NCDOT Bicycle and Pedestrian Planning Grant Initiative to create a comprehensive pedestrian plan. This program encourages the development of comprehensive municipal bicycle and pedestrian plans. The Initiative stipulates that plans may be developed by consultants or by a combination of both municipal staff and consultants and a full time, permanent employee of the municipality must be assigned as project manager to oversee the plan development. URS Corporation, using staff based in Charlotte, was selected to develop the plan with Marshville's Town Administrator and Town Council. The requirements also call for a steering committee comprised of relevant local staff, regional planning staff, advocates and representatives of stakeholder groups to oversee development of the plan. Bob Mosher, NCDOT's Division of Bicycle and Pedestrian Planning representative was actively involved with the process of this plan's completion.

Scope and Purpose of Plan

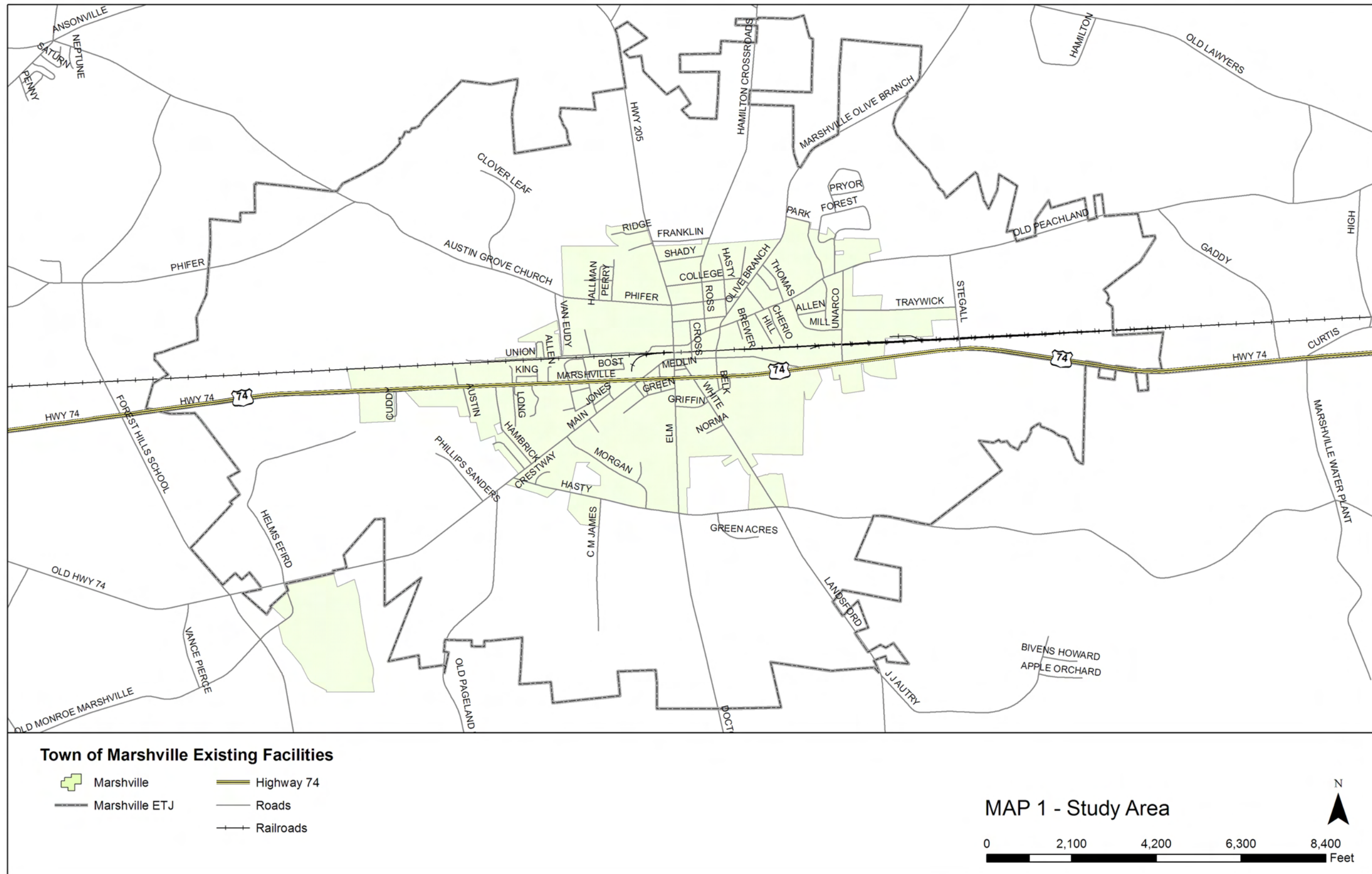
The scope of this pedestrian plan is to provide a comprehensive assessment, including identifying pedestrian needs and deficiencies, examining optional improvements, and prioritizing implementation strategies with viable funding sources. The Plan also examines existing conditions, identifies pedestrian route networks, conducts needs assessments, identifies design elements, and develops a strategic implementation plan.

The development of this plan was guided by a committee comprised of Town staff and local stakeholders, including representatives of the following organizations:

- North Carolina Department of Transportation;
- Marshville administrative staff;
- The Mayor of Marshville;
- Marshville Police Department;
- Marshville Fire Department;
- Marshville Planning Board;
- Department of Social Services;
- Rocky River Planning Organization;
- Union County Schools;
- Pilgrim's Pride;
- Autumn Corporation;
- Marshville First Baptist Church; and
- Local citizens.

The Steering Committee met four times through the planning process to review interim material and offer guidance on study direction and efforts. As discussed later in this document, it is recommended that the Steering Committee or a similar appointed committee continue to be active after the conclusion of this study as an advisory committee to monitor implementation of the Plan and to advocate for additional pedestrian improvements.

The study area includes the Town of Marshville and its ETJ. A map of the study area is shown in **Map 1**.



This page intentionally left blank

1.3. GOALS OF THE MARSHVILLE PEDESTRIAN PLAN

To guide the development of the Plan, the Steering Committee defined a series of goals. The goals provide the framework for the entire study and are needed to ensure that the Plan's recommendations address the true needs of the Town. These goals illustrate the most important pedestrian principles to local stakeholders, based on input received from the Steering Committee, the survey, and at the public information booth displayed at Marshville's Day in the Park (discussed later in this report). The goals developed for this plan were also used as a basis for the project prioritization criteria (also described later in this report). Improvements that address these goals are intended to make Marshville a better community for pedestrians.

Defining the goals at the beginning of the project ensures that the recommendations are tailored to the needs of the Town and linking the project prioritization criteria to the goals provides a mechanism for ensuring that the most beneficial projects are ranked highly for implementation. The following seven goals were defined, based on stakeholder input:

1. Connect important destinations with walkways and crosswalks to increase accessibility to key destinations in Marshville by foot.
2. Improve safety and comfort for walkers with facility improvements, pedestrian amenities, policies, law enforcement, and education.
3. Provide education and encouragement programs for policy makers, the business community, and the general public to promote awareness of the wide-ranging benefits of walking.
4. Develop sustainable policies and programs pertaining to land use, automobile parking, development, funding, facility design and maintenance that support walking.
5. Include pedestrian travel as part of the overall strategies to improve environmental conditions, health and quality of life for Marshville's citizens.
6. Encourage economic and social vitality by creating market, social interaction, and healthcare cost-saving opportunities.

This page intentionally left blank

Section 2

Existing Conditions

2.1. OVERVIEW OF CURRENT CONDITIONS

Although the Town of Marshville has seen some changes, it has the opportunity to take action before it experiences the growth-associated problems that some of its neighboring communities and similar southern cities have already experienced. Acting now to acquire new easements, encouraging pedestrian-friendly developments, and supporting healthy lifestyles will help ensure that Marshville continues to be a good place to live and visit.



Downtown Marshville

Marshville has a town center complete with a library, Town Hall, two barber shops, a post office, restaurants, specialty shops, nearby homes and an elementary school and park within a short walking distance. As the Town's commercial growth has evolved around US 74, the traditional business center has remained intact and functional. The only grocery stores are now located away from the Town center, along with any general stores. Every effort must be made to enhance and promote development of the inner core of Marshville's original downtown. The Central Business District is often the most pedestrian accessible region of a Town because the blocks are short, the sidewalks are

accommodating, vendors are numerous, roadways are narrow with low traffic speeds, and the conveniences are abundant.

Enhancement of a downtown can benefit a community because it:

1. Increases the tax base of the community; taking unoccupied or underutilized buildings and converting them to revenue producing businesses.
2. Increases the retail mix; dollars that would be spent elsewhere are circulated locally.
3. Encourages much-needed building maintenance and facade rehabilitations.
4. Increases tourism and tourism-related dollars.
5. Promotes the image of downtown as a single entity: a fun, attractive place that serves as the hub of community life.
6. Portrays the image and pride of the entire community. It is an active and attractive downtown image which potential new businesses and industries want when looking for new locations.
7. Instills pride in the community.
8. Creates jobs and investment.
9. Decreases the municipal service costs of an outwardly expanding Town Limit.
10. Reduces traffic and its associated health and economic costs.
11. Provides for a self-functioning community where people can live, work, and socialize.

The commercial development style along US 74 both divided downtown Marshville from southern Marshville and guided growth toward an automobile-dependent pattern. Multi-laned highways are very intimidating for pedestrians to walk along, unsafe to cross and can eliminate access to an entire section of the Town for foot travelers. Policies for future roadways can discourage this type of disconnection. The implementation of sound and enforceable policies is

one strategy proven to help prevent the lack of pedestrian connectivity that often occurs when thoroughfares are built or expanded.

2.2. COMMUNITY CONCERNS, ISSUES, AND NEEDS

The determination of community concerns, issues, and needs is paramount to a successful pedestrian plan. The issues described in the following pages were used as the framework to develop strategies and recommendations to improve the walking environment in and around Marshville. Specific recommendations resulting from these efforts are described in subsequent sections.

Public Forums

Two public forums were held over the course of this project. The first was a display booth intended to introduce the project, present background information, and seek input from the community regarding pedestrian needs and issues. A second forum was held later in the study to present draft recommendations, based on an assessment of needs through public and stakeholder input, a review of relevant plans and projects, and policies, and field reconnaissance.



*Information Booth at the May, 2009
"Day in the Park"*

The Marshville Comprehensive Pedestrian Plan was introduced to the general public on May 2, 2009 at Marshville's "Day in the Park" festival. The public was invited to comment on the display and ask questions from 4:00 PM to 8:00 PM. The event was well attended, the information booth was positioned at the entrance to the food tables, and URS canvassed the area to receive additional comments. The second public forum was held on September 29, 2009 at the Marshville Community Center. The meeting was held from 6:00 PM to 7:00 PM, with a 30-minute presentation and a 15-minute question and answer session on the highlights of the plan. Seven people attended. The presentation summarized the highlights of the draft plan, including the following elements:

- Purpose of Pedestrian Plan / Benefits of Walking;
- Pedestrian Plan Goals;
- Existing Pedestrian Conditions and Policies;
- Summary of Public Input;
- Deficiencies in Pedestrian Network;
- Development Patterns and Walkability;
- Types of Pedestrian Projects;
- Overall Recommendations;
- Summary of Projects;
- Policy and Program Recommendations;
- Funding Sources;
- Implementation Process; and
- Next Steps.



A new sidewalk to the library along Olive Branch Rd.

Marshville Comprehensive Pedestrian Plan

In addition, The Town of Marshville posted a survey on its web site and collected paper surveys at Town Hall. There were a total of 65 responses.

Only 12.5% of the respondents reported making \$40,000 or less in family income, showing that the survey may have under-represented the citizens of Marshville who might depend most on walking for transportation. Forty-four percent of the respondents said they often walk for pleasure or exercise, while only 10% of respondents responded that they often choose to walk as a transportation mode.

Seventy percent of respondents do not believe that Marshville has adequate walking accommodations. Citizens were asked to choose from a list of obstacles that most often have prevented them from walking in Marshville in the past. The three most common obstacles were:

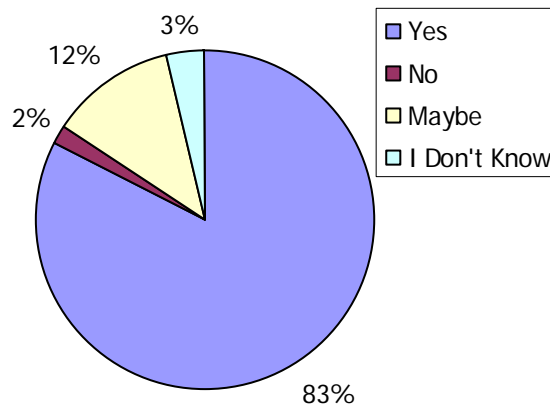
- | | |
|---|-----|
| 1. Lack of sidewalks or paths | 75% |
| 2. Traffic concerns | 51% |
| 3. Intimidating intersections or lack of crosswalks | 37% |

Sixty-seven percent of respondents said that they would walk for transportation more often and an additional 20% said that they might walk for transportation more often if these obstacles were corrected. Eighty-three percent of respondents believe that Marshville will benefit from having better walking conditions.

Eighty-one percent of the respondents supported future development policies that encourage pedestrian facilities, (with an additional 12% stating that they might support these policies) while 60% of the respondents supported future public funding of these facilities (with an additional 28% stating that they might support this funding.)

Only 14% of respondents with school-aged children felt that their children are able to walk to school safely, while 50% of respondents with children feel that their child cannot walk in their neighborhood safely. The top reasons why these children do not walk to school include the distance to the school, the lack of sidewalks or paths, and traffic concerns. Over 83% stated that their children would be more likely to walk to school if it was located next to or in their neighborhood. The lack of sidewalks and paths, along with traffic concerns are the top reasons why parents feel that their children cannot walk safely in their neighborhoods. Almost 88% of parents feel that traffic calming in their neighborhood will allow their child to be able to walk more safely, while 100% of parents felt that sidewalks or paths would make their child more likely to walk safely in their neighborhood. **One hundred percent of parents responded that they would like for their child to be able to walk to more of the places that they need to go in their neighborhood.**

Do you believe that Marshville will benefit from having better walking accommodations?



Further comments on this survey also helped to prepare a plan that provides for the services that concerns the public. Some of the most common comments include:

- *“I have a problem with the speed of cars along the section of Hwy 74 near the Middle School. I feel it is a dangerous situation, especially when you have students walking along that area.”*
- *“Since the town has trouble maintaining existing streets and sidewalks, how can we afford new ones?”*
- *“I would love to see a greenway in Marshville.”*
- *“It would be very helpful if there was a sidewalk on Olive Branch Street all the way to the park.”*

Questions and complete responses to these surveys and comments submitted at public forums are located in **Appendix A**.

Steering Committee

A Steering Committee was formed to help guide the development of this plan. This committee met four times over the course of the study and provided insight and ideas that were incorporated into the planning process. Minutes from the Steering Committee meetings are included in **Appendix B**.

Staff and Agency Concerns and Issues

State and local agency representatives included the North Carolina Department of Transportation, Marshville administrative staff, the Mayor of Marshville, Marshville Parks Department, Marshville Police Department, Marshville Fire Department, Marshville Planning Board, Marshville Public Works Department, Union County Department of Social Services, Rocky River Planning Organization, and Union County Schools.

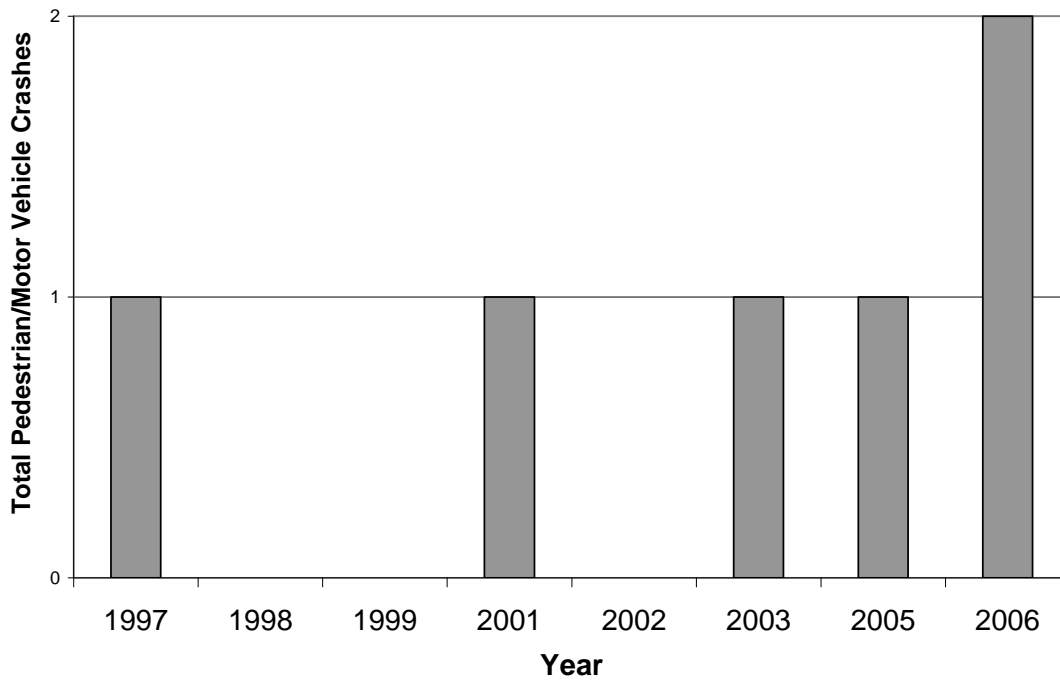
The minutes from the Steering Committee meetings, contained in Appendix B, describe the input and feedback received from these stakeholders. In general, the stakeholders' concerns focused on a lack of pedestrian walkways, a lack of connectivity between the northern and southern sides of Town divided by US 74, and how roadway traffic volumes create uncomfortable walking.

Planning staff emphasized the need for a pedestrian plan that is realistic, implementable, and cost-effective. The Town of Marshville has implemented some sidewalk projects in recent years, and this document should provide a framework for further improvements.

Pedestrian Crash Data

Recent pedestrian crash data for Marshville were analyzed using NCDOT's web-based pedestrian crash database (<http://www.pedbikeinfo.org/pbcat/>) to determine safety trends and identify specific areas of concern with regard to motorist / pedestrian incidents. Using this database, a total of six pedestrian crashes was reported between 1997 and 2006 in Marshville (more recent data were not available). The distribution of these incidents by year is illustrated in Figure 2-1. Only six reported incidents for eight years is a very low number. It is important to note that many pedestrian-related incidents with vehicles are never reported, and incidents that do not involve a vehicle (because of poor sidewalk maintenance or railroad crossings) or that do not result in vehicular damage are often left unreported as well.

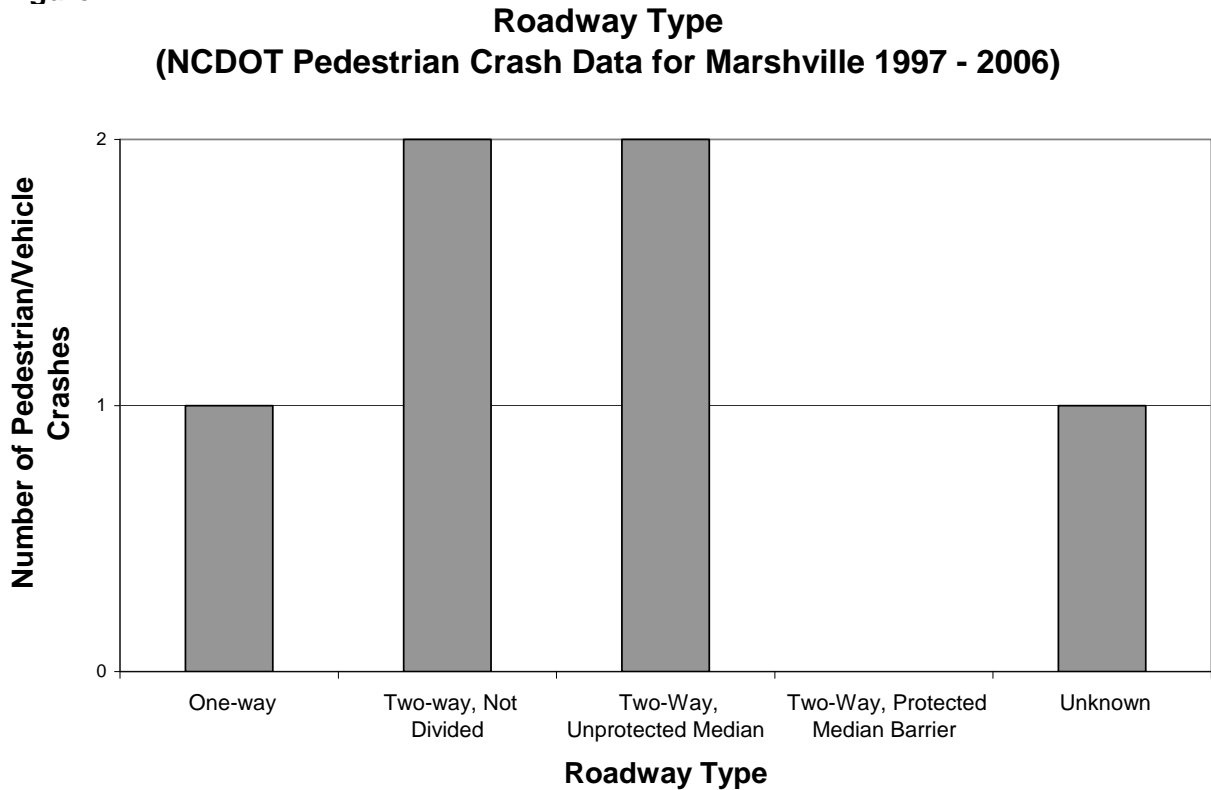
Figure 2-1
Total Number of Vehicle Crashes that Involve Pedestrians
(NCDOT Pedestrian Crash Data for Marshville 1997 - 2006)



It is not easy to identify for certain what factors contribute to the number of crashes each year. One assumption may be that a low crash rate is the result of good safety features in the infrastructure, or on the other hand, the fewer crashes might mean that the number of pedestrians on the road that year was minimal. More pedestrians one year might be because of better pedestrian facilities than the previous year, or it might mean that economic conditions are forcing people to walk more. A change in roadway crowding because of development patterns, job market changes, or changes in populations would also play a role. It is important to remember that any number of factors can contribute to these statistics, and not to assume anything based on the data unless considerable study has been put forth.

Figure 2-2 shows that roadways with un-divided or unprotected medians have higher pedestrian crash rates. Crashes involving pedestrian injuries on un-divided roadways show a need to provide a safe crossing point, such as a pedestrian refuge island, so that a pedestrian is not forced to cross two directions of fast traffic. Refuge islands enable pedestrians to cross one direction of traffic and break before crossing the next.

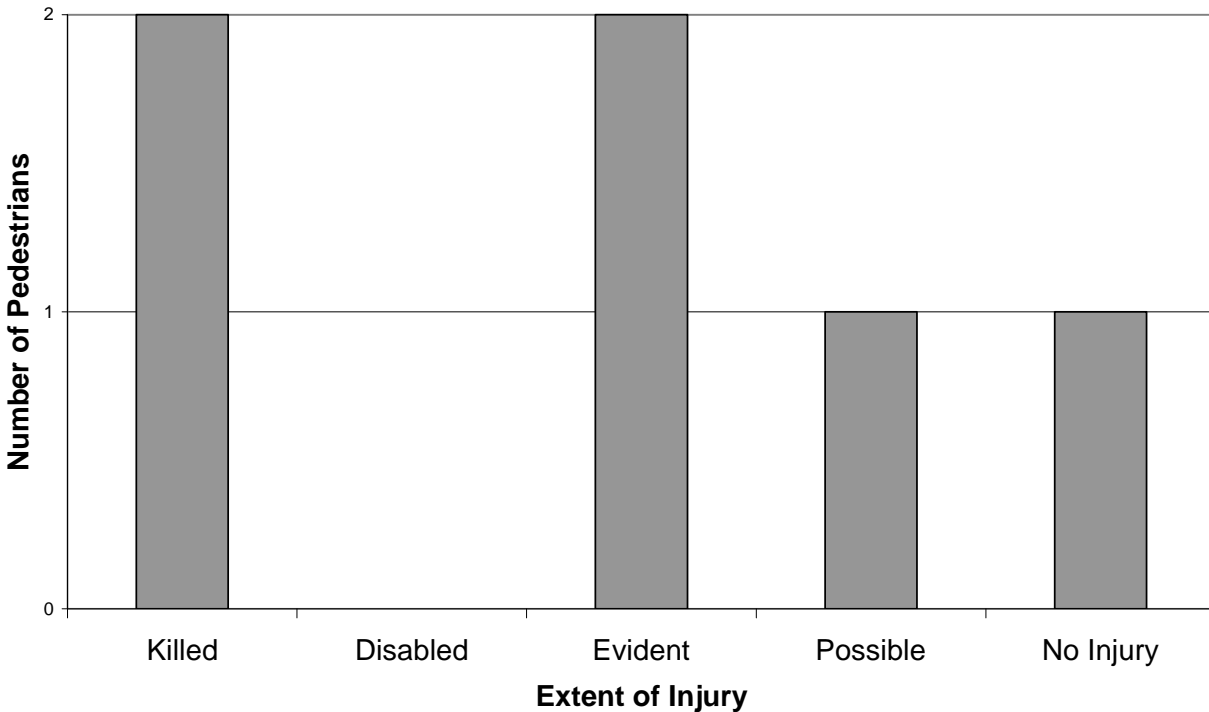
Figure 2-2



The severity of pedestrian injuries associated with reported incidents between 1997 and 2006 is illustrated in Figure 2-3. One-third of the pedestrians were killed, while another third had evident injuries. This fatality percentage is higher than anticipated, and is likely because of the lack of safe pedestrian features on US 74.

Figure 2-3

**Pedestrian Injuries
(NCDOT Pedestrian Crash Data for Marshville 1997 - 2006)**



National statistics show that pedestrians hit by a car in a 35 MPH zone or higher are very likely to be killed, while the possibility of being killed if hit by a car in a 25 MPH zone is almost cut in half. Neighborhood streets with a 15 or 20 MPH speed limit have very low fatality rates with pedestrian/vehicle crashes.

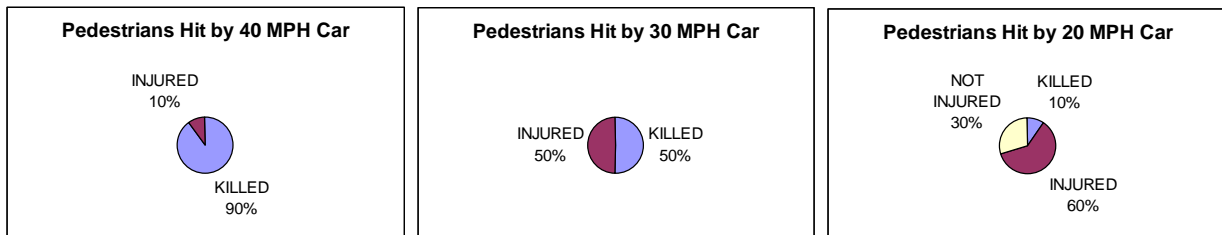
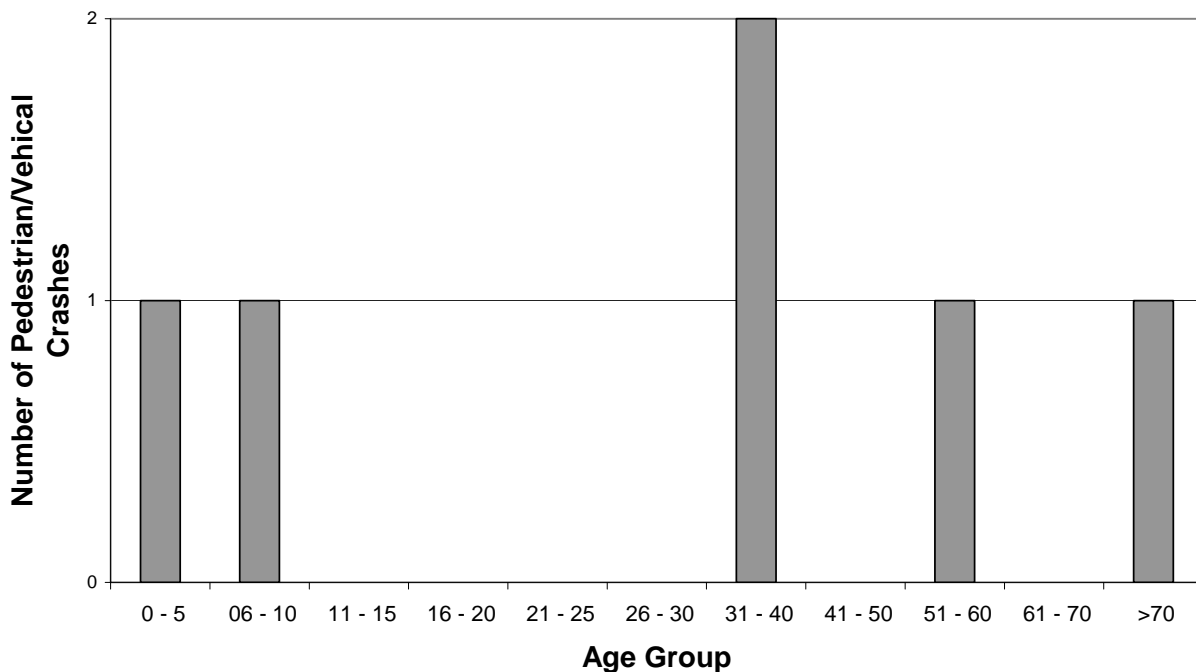


Figure 2-4 shows the age of pedestrians involved in the crashes. People of all ages are pedestrians at some point, and as illustrated in the chart, pedestrians of all ages can be involved in incidents. This table shows that younger and older age groups are involved in accidents, possibly because the younger and older citizens may not drive. A spike with middle aged victims shows that this might be an age where some citizens might be walking more for fitness or possibly when some might be struggling financially. One assumption might be that these data show that young and elderly residents are indeed out walking, and deserve safe walking areas.

Figure 2-4

**Age of Pedestrian in Crash
(NCDOT Pedestrian Crash Data for Marshville 1997 - 2006)**



2.3. EXISTING PEDESTRIAN FACILITIES

Pedestrian Friendliness of Local Transportation System

Marshville has a limited sidewalk network in the downtown area and new sections of sidewalk on a few surrounding neighborhood streets. Pedestrian intersection treatments such as crosswalks and walk signals are rare. Many residential areas designed in the late part of the 20th Century have no pedestrian facilities at all and intersections across US 74 were designed to accommodate automobile travel only. This creates unique connectivity challenges.



A pedestrian in Marshville

Field observations reveal high levels of pedestrian traffic throughout the residential sections of the Town, near the post office, library, and on the roadways that lead to the park. There are often pedestrians traveling along and across US 74, despite the lack of existing sidewalks and crosswalks. Opportunities for longer-distance walking (i.e. between neighborhoods or to nearby commercial districts) are limited, possibly because of the perceived distance to these areas and the lack of safe connecting paths. When such pedestrian activity occurs, walkers are forced to walk in the road or in potentially unsafe areas (e.g. ditches, overgrown areas) adjacent to the roadway.

Marshville has the opportunity to make significant positive enhancements for pedestrians. A growing community awareness of the need for safe and effective pedestrian infrastructure is establishing a climate for improvements, as illustrated by the Town's desire to develop a comprehensive pedestrian plan.

Inventory of Existing Facilities

Marshville's sidewalk network is most robust near the intersection on Main Street and Elm Street, with pedestrian facilities becoming less common as the walker gets further from that intersection. Pedestrians traveling just the few blocks from this intersection to the post office and to the library encounter narrow sidewalks with utility poles, garbage cans, no curb ramps and even missing sections of walkways before reaching the library. Most of the neighborhoods surrounding downtown have limited or no sidewalk provisions and the main commercial areas where the grocery store, pharmacy, and the other high volume businesses are concentrated have no sidewalk access at all. New sidewalks have recently been constructed along Church Street and South Elm Street.



Downtown Marshville was designed for walkers.

Marshville Comprehensive Pedestrian Plan



Most of the Town's sidewalks have inadequate space between the walkway and the roadway, allowing curbside obstructions to walking.

The importance of having space between the walkway portion of the sidewalk and the curb is stressed later in this report. The majority of Marshville's sidewalks, both new and old directly abut the curb. This space between the curb and the walkway is commonly referred to as planting strips, utility zones, or furniture zones. On most roads, it provides a comfortable amount of space between the motorized traffic and pedestrians, but also serves as a zone for curb side structures like utility poles, mailboxes, or newspaper stands. This area can also accommodate trees to provide shade, landscaping for better aesthetics, or even benches or water fountains in urban areas or near parks for the walkers' comfort. This zone can also serve as temporary storage areas for trash carts and debris, and it provides the sidewalk with a smooth and level surface by keeping the path away from the dips associated with a curb.

Providing this buffer strip whenever possible allows the required clearance for



Sidewalk along US 74

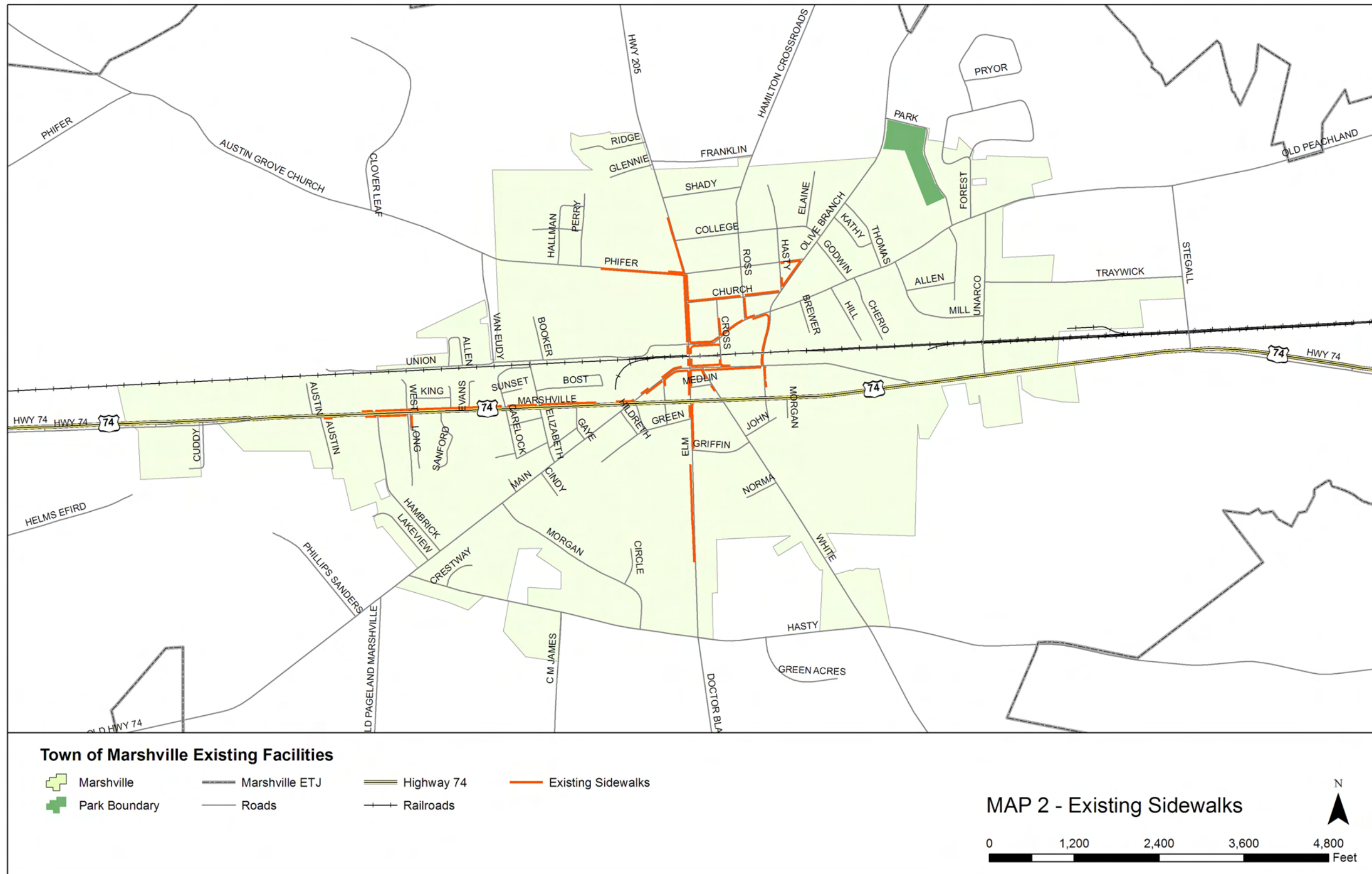
pedestrians, wheelchairs, and baby strollers to maneuver safely down the walkway without clearance issues or grade issues. By policy, sidewalks should be accompanied by a buffer strip between them and the curb. However, if a planting strip is not possible, exceptions can be made if the requirement of a planting strip would not allow the project to be completed at all.



A new sidewalk on Church Street without a planting strip

Many of the older sidewalks that front the businesses in the urban core are in satisfactory condition, but most of the sidewalks that extend outward from the central business district are in need of repair. Crosswalks and curb ramps are also needed at most intersections inside and outside of downtown.

Existing roadways and sidewalks in the study area are illustrated in **Map 2**.



This page intentionally left blank

Identification of Deficiencies

Several key deficiencies are apparent, and a number of barriers increase the challenge associated with providing effective pedestrian facilities. These deficiencies are categorized as follows:

- Natural barriers;
- Man-made barriers;
- Safety hazards; and
- Gaps in system.

Natural Barriers

With relatively flat terrain and few creeks or streams in Marshville, natural barriers are not a significant obstacle to pedestrians in the Town. For the few creeks in Marshville, utilizing the sewer easements that usually run adjacent to these creeks for public access paths with pedestrian bridges is one way to overcome this barrier.



Sewer easements along creeks can accommodate pathways and bridges to overcome the barrier

Man-Made Barriers



US 74 slices through the Town of Marshville, creating an intimidating and dangerous barrier for walkers.

Several man-made barriers impact walkability in the Marshville area, the most significant of which is US 74. Not only is this road a formidable physical barrier, but the highway is also a psychological barrier that can deter citizens from walking altogether. There are few, if any, pedestrian-friendly roadway crossings of US 74 and the shoulders are extremely hazardous to pedestrians. There is, however, a narrow sidewalk directly adjacent to the roadway along much of the north side of this road from Main Street to the East Union Middle School (with some missing sections). Unfortunately, the development patterns and high traffic volumes along

this corridor also make walking impractical and stressful. The railroad tracks through Marshville also create a unique barrier. Crossings are not frequent, and the track can impede or intimidate disabled walkers as well as those with strollers, bicycles, or carts.

The development patterns outside of the original Town Center also create a barrier to safe, effective pedestrian connections. Commercial development in these areas has been almost entirely oriented to automobile access. Large parking lots, extreme building setbacks and limited connectivity severely reduce the opportunities for walking to and from these destinations. As additional development occurs, site planning should include provisions to make the infrastructure and building access more pedestrian friendly.



Development features such as large spans of pavement for parking lots can act as barriers to walking.

Safety Hazards

The lack of sidewalks and crosswalks in specific areas is a significant safety hazard. For example, US 74 near Food Lion has notable pedestrian traffic, but no sidewalks or crosswalks. Olive Branch Road and Union Street have fast traffic, numerous walkers, and no sidewalks. Where sidewalks do exist downtown (for example from the library to Town Hall) there are many places where the walkways are blocked by objects, are uneven, have no curb ramps, or have significant gaps.



A lack of walkways and crossing points over Marshville's main roadway is a safety hazard.

Many potential pedestrian destinations are located along US 74, but heavy traffic volumes, high vehicular speeds, limited pedestrian access from the rear of the businesses, and strip development type shopping areas limit pedestrian opportunities. While options to improve these conditions may be limited by existing and historic land development standards, the Town should take steps to ensure that future commercial development provides more pedestrian-friendly infrastructure.

In addition, the railroad tracks that divide downtown might also have safety issues for any disabled or elderly person.

Gaps in System

As mentioned above, gaps in the existing sidewalk and crossing network present a safety hazard for pedestrians walking in these areas. Furthermore, these gaps discourage walking in these areas for anyone other than those with limited transportation or mobility options. A key focus area for pedestrian facility recommendations as part of this study is to identify these critical gaps in the system. Gaps are evident in areas such as the following:

- Sections in the downtown core;
- Connections from the downtown core to the post office, library and Town Park;
- US 74 from Main Street to the East Union Middle school;
- The roadways around Marshville's Elementary School;
- The commercial developments along US 74 east of Main Street.



There are significant gaps in the sidewalk network

2.4. CURRENT USAGE

No formal pedestrian counts have been conducted in Marshville; however, the survey discussed earlier and anecdotal evidence indicate that there is a growing concern for pedestrian safety. During the field investigations for this project, an unusually high number of pedestrians were observed for the size of the town and given the fact that there are few walkways. Most pedestrian traffic occurs near the residential areas near downtown, and a significant number of these pedestrians walk in areas without sidewalks or crosswalks. According to the 2000 U.S.

Marshville Comprehensive Pedestrian Plan

Census 2,360 people live in Marshville. Of these, 14.5% are 65 and older, 28.8% are under 18 years of age, 25.5% are identified as being disabled and 11% are below poverty level.

Of the total population, 59.5% (1,054) were 16 years of age or older and in the labor force at the 2000 census. Of those 1,054 workers, 3.2% walked to work and 21% carpooled. The national average of workers who walk to work is 2.9%. The approximate percentage of households without a car in Marshville was over 10%. Looking at this data, it could be assumed that more than half of Marshville's population might depend more on walking for transportation than other citizens because they are young, old, disabled, impoverished, or without a car.



On any given day, many children, elderly, and impoverished families in Marshville can be seen walking along its roadways.

This page intentionally left blank

Section 3

Existing Plans, Programs, and Policies

3.1. INVENTORY OF RELEVANT PLANS AND CURRENT PROJECTS

Some relevant plans have been prepared that include findings that can be incorporated into this pedestrian plan. Limited concepts recommended in these other efforts have been integrated as recommendations and considered in the prioritization of projects in this pedestrian plan. Highlights of these relevant planning projects are presented throughout this section.

Transportation Plans

In 2008, Marshville adopted the first three parts of its Comprehensive Transportation Plan including the adoption sheet, the highway Map, and the public transportation and rail map. The two remaining parts of the plan include the pedestrian and bicycle components.

Land Use Plans

In 2004, Marshville adopted its most recent Land Use Plan. The plan recommends provisions of “safe and convenient mobility for Marshville residents of all ages” with new connectivity standards, streetscape requirements, and mixed use land use development in the Central business district.

Roadway Project Plans

Some roadway projects in the Marshville area are currently being designed. As these plans are advanced, appropriate pedestrian accommodations should be incorporated into the plans to enhance walking opportunities in these developing areas. On-going roadway design projects that should account for pedestrian travel include the following:

TIP projects R2559 – The Monroe Bypass will divert traffic around Monroe on US 74 just west of Marshville. The North Carolina Department of Transportation (NCDOT) will construct sidewalks included in TIP projects if local entities will participate in the cost and will agree to maintain them.

Small-Area Plans

No small area plans have been completed in Marshville.

Capital Improvement Plans

The Town’s current Capital Improvement Plan contains no specific references to the provision of pedestrian facilities.

Pedestrian or Bicycle Plans

No pedestrian or bicycle plans or routes are in existence in the Marshville area.

3.2. EXISTING POLICIES AND INSTITUTIONAL FRAMEWORK

Existing Funding Sources

There is currently no dedicated funding source for pedestrian projects in Marshville.

Land Use Ordinance

The primary local ordinance guiding sidewalk additions and connectivity is the 1998 Land Use Ordinance that was revised in 2007. Generally, this ordinance states that sidewalks with a minimum width of four feet must be constructed on at least one side of the road on most residential and commercial streets, with some exceptions. The ordinance also puts forth a requirement of a landscaping planting strip of a minimum width of eight feet along all right-of-way corridors.

The Ordinance is somewhat unclear and inconsistent, in that it requires the sidewalks to be constructed according to the specifications set forth in North Carolina Department of Transportation Design and Construction Standards (which recommends minimum widths of five feet for sidewalks while Marshville requires four foot-wide sidewalks). Furthermore, Marshville's code is unclear as to where its required planting strip will be when included with the sidewalk. A more detailed description of Marshville's Land Use Ordinance is discussed and critiqued in Section 8, *Recommended Policies and Ordinances*.



Sidewalk development should be required by policy for all new developments

Code of Ordinances

There are few sections in the Town of Marshville's Code of Ordinances that help to encourage pedestrian accommodations in Marshville. Marshville does, however, have good policies in place to discourage higher travel speeds in the Town. Ordinances that refer to pedestrian facilities or safety are discussed and critiqued in Section 8 of this plan.

Comparison to Other Ordinances in the Region

It is not clear whether Marshville’s sidewalk policies compare favorably to those of other municipalities in the region because of the discrepancy between its four foot width requirement and its policy to adhere to the five foot width requirement prescribed in the NCDOT standards. Its required width for planting strips is unclear as well. Table 1 provides a comparison of the sidewalk policies in Marshville to that of other North Carolina localities.

Table 1: Regional Sidewalk Policies (For New Subdivisions)			
LOCALITY	MINIMUM SIDEWALK WIDTH	MINIMUM PLANTING STRIP WIDTH	BOTH SIDES OF STREET?
Marshville	4 (5?) feet	(8?) feet	No
Monroe	5 feet	10 feet	Yes
Union County	None	None	NA
Albemarle	5 feet	7 feet	No
Charlotte	5 feet	8 feet	Yes
Davidson	5 feet	6 feet	Yes
Mint Hill	5 feet	3 feet	No
Huntersville	5 feet	7 feet	Yes
Matthews	5 feet	8 feet	Yes
Pineville	5 feet	4 feet	Yes
Concord	5 feet	6 feet	Yes
Cabarrus County	5 feet	6 feet	Yes
Belmont	4 feet	6 feet	Yes
Gastonia	4 - 5 feet	2.5 – 6 feet	No
Rock Hill	4.5 feet	3 feet	Yes
Hickory	5 feet	4 feet	Yes, where ADT > 200

SOURCES: The Charlotte Observer, June 23, 2005, page 10A, City of Albemarle Pedestrian Plan 2007, The Town of Marshville Land Use Plan 2007

Staffing and Committees

It is important to assign a particular staff member with the responsibility for the development of this pedestrian plan, but with the knowledge that other Town staff members are expected to play roles in its implementation as well. As described in Section 1, a committee comprised of agency representatives, local citizens, and other stakeholders was established to provide input to this planning process.

After completion of the pedestrian plan, the existing Steering Committee should be maintained as a pedestrian / bicycle advisory committee or a new committee should be formed to perform this role. This group will work toward implementation of the plan and help continue to build momentum for pedestrian projects.

The Town of Marshville works closely with other local, regional, and statewide agencies as needed for all transportation projects, including pedestrian improvements. Partnerships with Centralina Council of Governments, Rocky River RPO and NCDOT will be particularly important as the Town implements additional projects.

This page intentionally left blank

Section 4

Opportunities

4.1. SYSTEM OVERVIEW

National transportation surveys indicate that more than half the auto trips in the United States are less than two miles long. More than 25 percent of car trips in the United States are one mile or less, and 14 percent of car trips are a half-mile or less. One percent of all trips in American cities are by bicycle. **Developing a pedestrian plan that encourages a reversal of the current tendency to drive short trips or that provides for more opportunities to make short trips would provide the largest benefit the Town of Marshville can achieve over the long-term.**

The largest obstacle to walking in the typical southeastern American town is the large distances that are typically between where the walker is and where he or she needs to go. Compact communities clustered with multi-modal transportation corridors encourage walking as a transportation mode. A community designed to give preference to pedestrians would position schools, businesses, and entertainment in the center of high density residences inhabited by people that use these services daily. Residential densities would decrease as one travels outward from the dense, compact center, to more rural residential areas and agricultural and industrial lands. This development pattern makes it easy for the majority of the community's residents who live near the center of town to walk to many of their daily destinations, with the option of using automobiles on connecting roads to make occasional trips to out-lying neighboring communities.

Downtown Marshville was initially designed around the locomotive, with the rail yard and main train station serving as a primary activity center. As is typical in many railroad communities, the majority of the Town's services and population were located within walking distance of the Central Business District. Pedestrian corridors in this area are easy to identify. The trend toward automobile ownership spurred a different type of growth, particularly around US 74. Marshville has grown outward somewhat, taking on the characteristics of a typical suburban community with a sprawling land use and development pattern. Without an automobile, it is very difficult to make the trips necessary to complete common, daily tasks. However, pedestrian districts can be redeveloped from the infrastructure that is still intact.

4.2. PEDESTRIAN ORIENTED DEVELOPMENT DISTRICTS

The Marshville Comprehensive Pedestrian Plan is focused around two ***Pedestrian Oriented Development Districts*** that surround downtown and East Union Middle School. **Map 3** illustrates these and other opportunities for pedestrian improvements in Marshville. Major pedestrian destinations are also identified on the map. The two most important factors in designing a walkable community are pedestrian infrastructure and distance. There is a possibility that if the infrastructure is put in place physically or by policy, then the surrounding growth would develop to the pedestrian scale. So just as communities once evolved to fit with the pedestrian, then the horse and wagon, the train, and the car; they can evolve to accommodate the pedestrian once again. A non-motorized transportation corridor installed today could attract appropriate shops and restaurants tomorrow. A successful pedestrian plan can be implemented by identifying neighborhoods that presently have or could potentially attract community necessities such as residential areas, shopping areas, schools, parks, and employment centers.

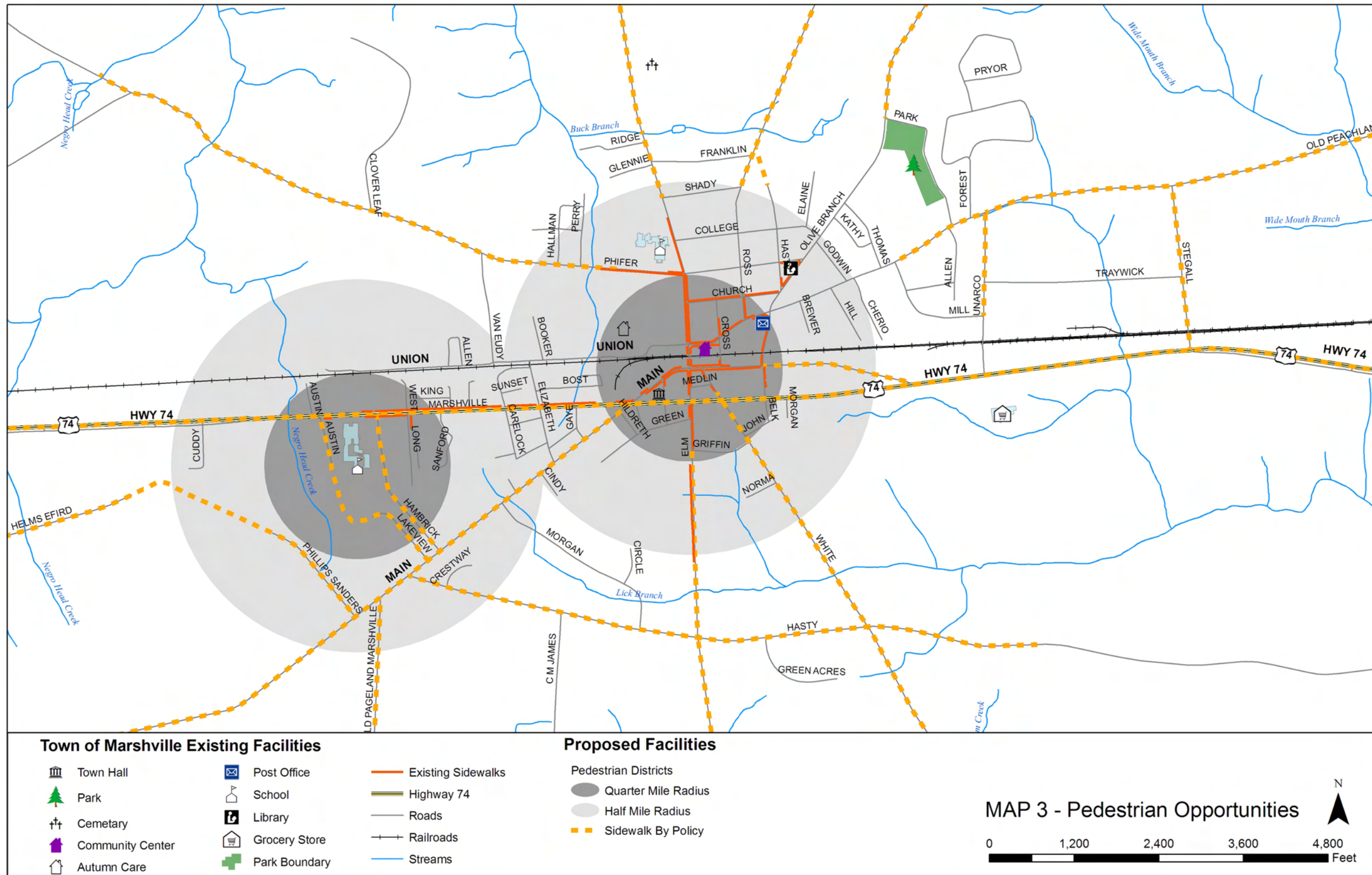
Pedestrian Oriented Development Districts are overlay districts defined by quarter mile and half-mile radii. These districts preserve and encourage the pedestrian character of streets by incorporating zoning policies, ordinances, land use regulations, and architectural standards that aim to enhance both the functional and aesthetic feel of the area. Basically, these districts offer more compact and denser communities with high connectivity and safe pedestrian routes. These are the same types of communities that have been the subject of a 2009 review by the National Research Council conducted over 20 years and using the results of nearly 100 individual studies. The Council theorized that if future American communities are built 25% more dense than they typically are today, it could result in a decline in driving of 12%. Policy recommendations recommended in Section 8 of this plan should be applied in these districts to maximize the efficiency of pedestrian travel.

A quarter mile is the distance that is typically considered walkable by the greatest number of pedestrians, so the majority of the most frequented trip generators should be located within this quarter mile district. A half-mile is considered to be the upper limit for most simple walking trips, and this portion of the Pedestrian Oriented Development District is usually best suited for lower density residential areas or less frequented trip generators.

This plan identifies the intersection of Main Street and Elm Street as the center of the primary Pedestrian Oriented Development District for the Town of Marshville. Greenways and other pedestrian infrastructure connect the district to popular walking destinations that may be located outside of the half-mile radius. This plan recommends that Marshville encourage most of its retail and residential growth to occur in and directly adjacent to this Pedestrian Oriented Development District. This would not only provide sustainable pedestrian accessibility to Marshville's destinations, but also create a more livable Town of Marshville with regard to environmental, economic, and social benefits. A town with less urban sprawl is more sustainable ecologically, costs less to service per taxpayer, and creates an aesthetically pleasing, healthy community for its residents. However, if a development is approved outside of this district, it should also be developed with all of the characteristics of a mini-pedestrian district. An additional Pedestrian Oriented Development District is proposed at the middle school. Although this area of Marshville is currently not walkable, the combination of the school and implementation of future land use policies may yield a suburban residential pedestrian district tailored for walking trips to East Union Middle School and other area institutions, including the Pilgrim's Pride facility.

The designated Pedestrian Oriented Development Districts are intended primarily to identify areas in which pedestrian-friendly development should be encouraged. Recommendations for policies related to these Districts are discussed in Section 8. Although many proposed pedestrian infrastructure projects are located within the Downtown Pedestrian Oriented Development District, it is important to note that **sidewalks, paths, other infrastructure projects, and policies can and should be implemented in other areas throughout the Town of Marshville.**

Descriptions of the opportunities that exist in each of the proposed Districts are provided on the following pages and are referenced in Map 3. The project map (Map 4) shown in Section 7 of this plan illustrates suggested improvements.



This page intentionally left blank

I. Downtown Pedestrian District

Marshville's historic downtown is the ideal setting for a Pedestrian Oriented Development District. To create a plan where land use density and connectivity are key components, the focal point for this district will be the historical intersection of Main Street and Elm Street. Within a half-mile radius is the library, the post office, the Town Hall, a retirement home, several residences, an elementary school, and traditional "Main Street" retail.



Downtown Marshville

Opportunities in this district are nearly endless. The lure of traditional American town centers has attracted recent private investment across the nation, and Marshville may one day benefit from this as well. Increasing its residential base in the immediate central business area and encouraging necessary retail markets such as grocery, hardware, and general stores will further create a small but fully self-contained and functioning urban community. Placing jobs near housing can reduce vehicle trips somewhat more than placing housing near retail alone¹. Therefore, expanding downtown as Marshville's employment center would serve to increase the density of desirable residential units in this district, and thus helps to achieve a higher percentage of walking trips.

Pedestrian improvements and economic stimulation in this district could yield a sustainable centerpiece to benefit the entire Marshville community.

II. East Union Middle School Pedestrian District

The location of East Union Middle School is not conducive to students walking to and from school. Additionally, Pilgrim's Pride, a major employer in the Town located near the middle school, is difficult to access by walking. To make the vicinity more suitable for pedestrians, US 74 should be improved for pedestrians with five foot-wide sidewalks and a minimum of eight foot-wide planting strips on both sides of the road. Signalized crosswalks with pedestrian safety islands would also need to be installed.



The only true access to East Union Middle School is by way of US 74. Note that the crosswalk in this photo leads to no sidewalk

Beyond sidewalks and signal improvements, major land use development policies that attract high density, compact development would also be necessary. Constructing residential units would facilitate new roadways and walking paths that link to the rear of the school. Creating a

¹ *Which Reduces Travel More: Jobs-Housing Balance or Retail-Housing Mixing?* Cervero & Duncan, Journal of the American Planning Association, Autumn 2006, Volume 72, Number 4.

community that is connected to Pilgrim's Pride would also increase walking trips in the Town and present a partnership opportunity between the Town of Marshville and Pilgrim's Pride.

This pedestrian district would take years or decades to fully implement and would require serious political and economic investment. It would, however, be a long-term, sustainable solution to the connectivity problems in the area.

4.3. ROADWAY CORRIDORS

In selecting their preferred route, pedestrians typically require routes that meet three characteristics: 1) short and direct; 2) safe; and 3) pleasurable. Because of high traffic volumes, highway-oriented zoning, and growth opportunities, highway corridors often exhibit concentrated commercial and residential development, yielding numerous trip generators. These corridors are often lengthy, unsafe, and unpleasant from the perspective of the pedestrian. However, as these roadways often serve as the single access point to many major commercial areas, they should provide acceptable accommodations for pedestrians.

A. US 74



Creating a safe walking system along and across US 74 would be very beneficial to Marshville.

According to survey results, field analysis, and public comments, US 74 is probably the greatest obstacle to pedestrian safety and connectivity in Marshville.

Future plans for this roadway may once again shape Marshville's pedestrian infrastructure. While the plan to bypass the existing US 74 in Monroe with an interstate-grade roadway west of the city presents concern, it also exhibits strong opportunity for pedestrians in Marshville. Although the increase of traffic through the center of Town may be dramatic and continue to divide the northern and southern sections of the Town, NCDOT may need to redesign and enhance the existing highway through Marshville because of this increase in

volumes. The Town of Marshville can work with NCDOT to create adequate crosswalks, sidewalks and planting strips along with construction improvements to the roadway. If plans for the Monroe Bypass eventually changes to divert traffic away from Marshville as well, then the current US 74 could be redeveloped to function more as a pedestrian-friendly urban roadway through downtown Marshville. Section 7 of this plan describes projects that could specifically improve pedestrian access along and across US 74 in Marshville.

B. Main Street/Smith Road



Main Street could be Marshville's Gateway Street.

Many cities are redesigning streets similar to Main Street as their "signature street" radiating from their downtown area. This roadway could incorporate narrow thru lanes, on-street parking, wide sidewalks with shade trees, benches, and public open space. In time, the investment may attract a diverse mix of businesses that encourage pedestrians to live and do business in downtown Marshville. The proximity of Marshville's Main Street to US 74 presents opportunity to attract retail shoppers and thereby boost economic development for the Town.

C. East Union Street

Marshville Municipal Park is located within walking and bicycling distance of downtown and can be accessed by East Union Street. The street is currently 37 feet wide from Olive Branch Road to east of Allen Drive and does not accommodate on-street parking by Town ordinance. A drainage ditch also runs from the intersection of Union Street and Allen Drive into the rear of the park.

Currently, this wide roadway encourages higher rates of vehicular speed, and does not have a sidewalk. To better accommodate pedestrians and bicyclists, the roadway can be narrowed to accommodate a five foot wide sidewalk with an eight foot wide planting strip on the north side of Union Street from the post office to Allen Drive. Vehicular lanes would still be twelve feet wide in each direction. The roadway becomes narrow east of Allen Drive, requiring new right-of-way for any sidewalk to reach the park. As an alternative, the Town can purchase a 30 foot easement surrounding the drainage ditch to construct a path that provides a connection to the back side of the park.



East Union Street is very wide with no sidewalks.

D. All Highway and Roadway Corridors in Marshville

The North Carolina Department of Transportation and the Town of Marshville have the opportunity to incorporate what is known as a *Complete Streets Policy* on every one of its arterials within the Town limits of Marshville.

Complete Streets Policy:

A policy that every new or refurbished roadway should be designed and built to be able to functionally, safely, and comfortably accommodate motorized and non-motorized transportation. Motorized vehicles (automobiles) and non-motorized vehicles (bicycles) should both be accommodated together in the road right-of-way, with separate lane designations, additional roadway width, or additional shoulder pavement for each where appropriate. Pedestrians should have a grade-separated travel corridor along with appropriate and safe road-crossing points and acceptable access points to destinations.

4.4. OTHER OFF ROAD TOWN-WIDE CORRIDORS

Future pedestrian and bicycle corridors could be identified years or decades before they are created. Creeks, sewer lines, railroad corridors, and other utility easements offer the Town the opportunity to develop a shared-use path system (greenways) that circumnavigates the Town. As these corridors are acquired and developed by the Town for utility use, a policy should be place to designate these for non-motorized travel and recreation as well.

4.5. OPPORTUNITIES FOR CHILDREN

At a minimum, appropriate pedestrian accommodations should be created that will allow children to safely access the elementary school, the middle school, the library, and the park without a car. The new public library and Marshville Elementary School are positioned near downtown and within a short distance from many of Marshville's residents. Location of both facilities affords residents an advantage in terms of accessibility and convenience. Providing adequate walkways is more feasible than reducing the distances that the children need to walk. The middle school, and to a smaller degree the park, offer more of a challenge because their proximity to the center of town. The park's location near local roads and a neighborhood creates an opportunity to construct walking path facilities that connect the origins and destinations away from the busy highway while the middle school's location adjacent to US 74 presents both connectivity and safety obstacles.

Children comprise a high percentage of Marshville's population and are by nature a captive audience for walking and bicycling because they cannot legally drive. It was once common practice for children to walk or bike to schools, parks and other neighborhood institutions. Today, however, fewer children are walking and biking and more parents are driving. In 1969, 42 percent of students walked to school; in 2001, that percentage dropped to 16 percent.² This decline in physical activity among youth has contributed to alarming negative health trends among adolescents, including obesity and diabetes.

² US Center for Disease Control and Prevention, 2005

Marshville Comprehensive Pedestrian Plan

This shift in behavior can be attributed to a variety of factors. Sprawling land use patterns disconnect communities and spread them out such that walking becomes impractical. No longer are schools, parks, and libraries being constructed as small centers of communities. Instead, they are increasingly built on large pieces of land on the periphery of towns and cities and often on busy streets. Roadways are engineered now to increase the speed of motorized vehicles, without accommodations for pedestrians and bicyclists. Parents, concerned for their children's safety, drive them to school and other places, in turn making it even less safe for others to walk and bike. The fear of crime, both real and perceived, is also an obstacle to children walking and bicycling in their communities. This trend towards physical inactivity is likely to be passed on to future generations to come.

According to the survey used for this plan, 86 percent of those surveyed with children in Marshville stated that their children cannot safely walk to school. Fifty percent of responders stated that their children cannot walk safely in their neighborhood. Of these, 88 percent stated that their children are not able to walk safely because of a lack of sidewalks or paths, 50 percent stated that traffic concerns prevent safe walking, while 38 percent have crime concerns. All of the respondents to this survey (100 percent) stated that they would like for their child to be able to walk more often.



Marshville's children need safe walking paths

Parents can all be excited to know that as more children (and adults) walk and bicycle in their community, the safer that community can become. More citizens outside in the neighborhood bring more eyes on the street and a familiarity among neighbors that helps keep their community safer from crime. Motorists expecting to see pedestrians and bicyclists may habitually keep speeds more reasonable. Children who are outside exercising are staying mentally and physically healthy, creating good habits that can stay with them their entire lives.

This page intentionally left blank

Section 5

Facility Standards and Guidelines

5.1. GENERAL PEDESTRIAN FACILITY GUIDELINES

Guidelines for the placement and design of pedestrian facilities should be flexible to some extent so that context-sensitive design solutions can be implemented, but should adhere to standards established by the American Association of State Highway and Transportation Officials (AASHTO), the Manual on Uniform Traffic Control Devices (MUTCD), and the NCDOT. Several overall guidelines for facility development are highlighted below.

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

A number of specific pedestrian improvement projects are proposed in this plan. These projects will play an important role in helping to improve the walkability of the Town; however, it is even more important to ensure that appropriate pedestrian accommodations are made with future development. It is useful for the Town to consider a set of guiding design principles that cater to the needs of pedestrians and the general means by which these needs are to be met. Some basic principles for incorporating pedestrian accommodations in a transportation system include the following:

- It should be accessible.
- It should connect to the places where people want to go.
- It should be easy to use and convenient.
- It should provide a sense of place and make an effort to be appealing to the senses.
- It should be well maintained.
- External factors such as noise, crime potential, exposure to the elements, and hazardous objects should be minimized.
- It should be used for multiple purposes such as dining, shopping, and special events so long as it does not contradict any of these principles.

5.2. SPECIFIC FACILITY DESIGN RECOMMENDATIONS

Design considerations for a variety of types of pedestrian facilities are highlighted on the following pages. These design considerations are not intended to serve as “standards”, since the most appropriate design will vary from project to project. However, suggested minimums and guidelines are addressed for the following types of facilities:

- Sidewalks and planting strips/furniture zones;
- Intersections and crosswalks;
- Shared-use Paths;
- Lighting, Landscaping, and Signage.



Sidewalks

Clearly, no pedestrian system is complete without sidewalks. Even if no pedestrian travel exists, studies show that walking can be expected to increase when the facilities are provided, and walking levels are highest when the pedestrian routes are complete and continuous. It is relatively easy to design a policy that requires new development to include sidewalks in their construction, but it can be difficult to retrofit new sidewalks into existing communities. The American Association of State Highway and Transportation Officials (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 four 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 and/or four-foot wide shoulders.

Although separate pedestrian and automobile corridors are necessary on any roadway other than a low-speed driveway, sidewalks are the most useful along roadways with a fair amount of traffic volume and with speeds higher than 20 miles per hour. The higher the speed of traffic, the more the need may exist to route the pedestrian away from that road. Store frontage walkways or shared-use paths that provide the pedestrian with multiple options are sometimes preferred. Sidewalks should never be intentionally built directly adjacent to a roadway if the space exists for a buffer such as a planting strip, on-street parking, a furniture zone or bicycle lanes. Because of frequent intersections, dips, and narrow widths, sidewalks are not meant for bicycles other than new riders who are accompanied by a pedestrian trainer. One of the most common reasons for bicycle/car collisions are attributed to that rider being on the sidewalk. Bicycle provisions are addressed briefly in this plan as a traffic calming measure, but should be addressed completely in a separate plan.

ITE Recommendations for Sidewalks:

- *Central Business District: Wide enough to accommodate users. Minimum 8 feet.*
- *Commercial area outside the central business district: 7 feet wide if no planting strip is possible, or 5 feet wide with a 2-8 foot planting strip (Wider planting strips*

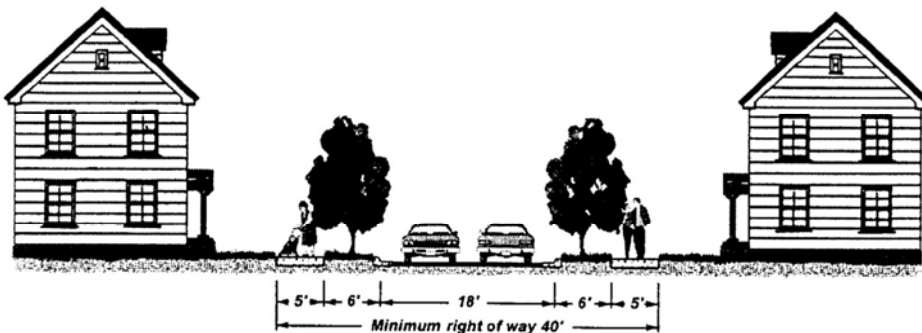
accommodate greater buffers from traffic and the opportunity to plant large shade trees).

- Residential areas should have 5 foot-wide sidewalks with a minimum of two-foot wide planting strips.
- Four to 8 foot wide planting strips or furniture zones are preferred along all sidewalks to provide separation from vehicles. This space is useful for landscaping, lighting, poles, trash receptacles, signage, water fountains, benches, weather debris, bike racks, and curb ramps. Six foot wide minimum buffer strips between the sidewalk and the curb are required for the correct slope needed to accommodate ADA requirements for curb ramps while maintaining the sidewalks' 2% maximum cross slope (see section 5.4). Eight foot wide buffers are recommended for the planting of any shade tree.
- Sidewalks should be clear of obstructions such as utility poles, sign posts, fire hydrants, bike racks, newspaper stands, etc. These objects must remain in the furniture zone or planting buffer strip.
- Vertical clearance should be at least 7 feet from ground level to the bottoms of signs or the lowest tree branches.
- Increasing sidewalk widths by 2 - 3 feet would accommodate shoulder-high intrusions like building walls, bridge railings, and fences.
- Maximum cross-slope of 1:50 (2%) is considered to be level. Limit running slope to 5% (1:20), or no greater than 8.33% (1:12) where topography requires it. Ramps with level upper and lower landings are necessary for ADA requirements.



General Sidewalk Recommendations:

The recommendations of this plan are to require sidewalks in neighborhoods and on arterial roads to be a minimum of 5 feet wide. Five feet widths are necessary to accommodate two people walking side by side, for two wheelchairs to pass one another, or for a wheelchair to turn around. **Planting strips of 6-8 feet should be required whenever possible.** Six feet is required to maintain the necessary cross slope for ADA standards, and 8 feet is the minimum recommended width for medium and large shade tree growing space.



A typical neighborhood cross-section street from NCDOT's TND Street Design Guidelines

There are many reasons to include a planting strip between the sidewalk and the curb:

1. Buffer from traffic allows safety and comfort for the walker
 - a. The feeling of being more removed from the street creates a stronger comfort level for the walkers, thus inviting more people to use the sidewalk,
 - b. Safety zone - children, dogs, elderly, disabled, novice bicyclists, etc. have more space to wander or accidentally travel before being in danger of falling off the curb and into the roadway,
 - c. Safety from objects that may extend or be knocked from passing vehicles such as tools, mirrors, or water spray from puddles,
 - d. The planting strip allows trees for shade, and shade provides comfort.
 - e. A planting strip can serve as a more comfortable "fall zone" for bicyclists in training on the roadway or on the sidewalk.
2. Utilities, landscaping, and furniture
 - a. Utility services like poles, meters, underground access, storm drains recessed from roadway, fire hydrants, lighting, etc.,
 - b. Trees and landscaping (8 ft. wide planting strip minimum requirement for most shade trees, 6' wide strips are adequate for low landscaping),
 - c. Street furniture such as garbage cans, benches, water fountains, newspaper stands, bike racks, signs, post office or resident mailboxes, etc.
3. Temporary Storage
 - a. Trash and recycle bins,
 - b. Storm debris,
 - c. Leaves in fall or snow in winter,
 - d. Other temporary maintenance instruments or debris,
 - e. Vending carts/tables for downtown street fairs outside of sidewalk travel way.
4. ADA
 - a. 6' minimum planting strip to accommodate ADA requirements for appropriate slope on curb ramps,
 - b. Planting strip allows constant cross slope of less than 2% - no or inadequate planting strips would create dips at each driveway/intersection.
5. Traffic
 - a. Planting strips with sidewalks have been shown to slow traffic because of the illusion of a more narrow roadway (sidewalks at the curb make the illusion of a wider roadway and thus creates the urge to drive faster),
 - b. Vehicles have a space at intersections to view oncoming traffic that does not completely impede walkers in the intersection,
 - c. Planting strips on the curb rather than walkways have been shown to discourage parking beyond the curb (and thus on the sidewalks),
 - d. The landscaped or grass space between the walkway and the roadway will guide walkers to the best crossing points by encouraging them to follow the pavement,
 - e. Vehicles can more clearly view driveways when sidewalks are not on the curb, allowing a better flow to traffic and less sudden stops.
6. Property/quality of life values
 - a. Neighborhoods with sidewalks and planting strips have higher home property values than those without,
 - b. Planting strips add to the aesthetics of a roadway compared to a sidewalk without a planting strip.

- c. The social gains from sidewalks are more apparent due to more usability.
- 7. Environmental
 - a. Water runoff from sidewalks can be drained through the planting strip before reaching storm drains,
 - b. The Town sees more of the benefits realized from tree canopy cover.
 - c. The pedestrian can avoid breathing the majority of motor vehicle exhaust fumes if they are walking several feet away from their source.

In general, an 8 foot wide planting strip is preferred on these corridors to provide all of the benefits of this zone. Having a 6 foot wide planting strip would provide most of these benefits, particularly the ADA requirement, but would not accommodate most shade trees species. Providing a 2 to 3 foot wide planting strip is the minimum that should be allowed to provide only the most basic of these benefits, but should only be considered under special circumstances. These narrow buffer strips might not be acceptable for typical landscaping, but may be a candidate for fill that requires little maintenance such as screening, gravel, stone, mulch or low maintenance groundcover vegetation.

Central Business District and Mixed Use Developments:

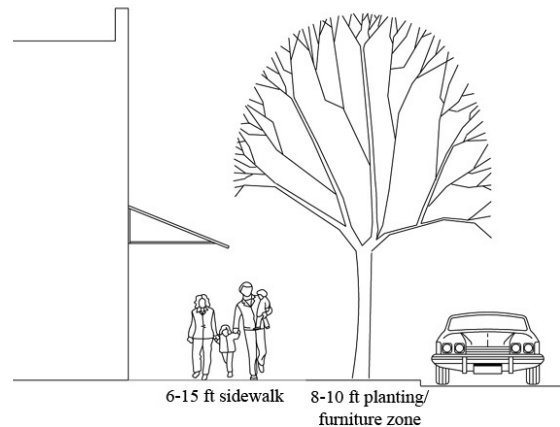
Sidewalks in mixed-use and higher density commercial corridors such as the Central Business District should accommodate the level of service, with widths generally from 10 to 15 feet wide in the main traffic areas with 8-10 foot wide furniture zones. There are three distinct zones between the business storefront and the curb in these districts, the Frontage Zone, the Sidewalk Zone, and the Furniture Zone:

Frontage Zone:

Store frontages should be encouraged to be built with small setbacks close to the sidewalks with a frontage zone of 1-3 feet from the sidewalk travel area.

Sidewalk Zone:

The width requirements for the sidewalks increase to provide for the increased use in higher density, mixed use or commercial centers. This sidewalk zone continues immediately adjacent to the building frontage zone and extends a minimum of 6 to 15 feet from that frontage zone. This area should be kept completely clear of all obstacles so that pedestrians have a clear walkway. All benches, poles, racks, newspaper stands, signs, etc should be placed in the *Furniture Zone*.



Furniture Zone:

Furniture zones are different from planting strips in that they can, in many places, be paved areas adjacent to the sidewalk for street furniture such as benches, trash receptacles, dining, lighting, bicycle racks, water fountains, informational boards, or for additional walkway width. Tree planters should be added to these furniture zones by policy and should be placed every 25-50 feet, depending on species and depending on the demand for sidewalk furniture and

parking. In addition, certain types of large trees may not be appropriate in planting strips because of the extensive pavement damage that their roots can cause. Shade trees require a minimum width of 8 feet, while the minimum width suggestions for furniture zones are 8-10 feet. If space is minimal, a six foot minimum width is acceptable to provide the slope necessary for curb ramps.

On some roadways, on-street parking pockets could alternate in-between the occasional landscaping or sidewalk furniture in the space that is otherwise utilized as a furniture zone. On-street parking pockets require a minimum width of 7 feet (including gutter pan). Using pervious materials for parking, the furniture/planting strip zone, and for some parts of the frontage zone could reduce storm drainage concerns.

Intersections

Driveways



Sidewalks that ramp down to driveways gives the false impression to the pedestrian and to the driver that this section of the sidewalk is the drivers' territory, plus it makes conditions difficult for the disabled, along with common walkers and runners. Sidewalk and driveway standards that require new and maintained driveways to ramp up

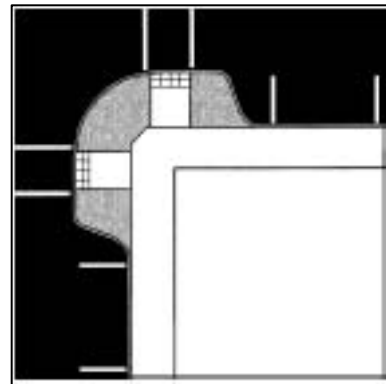


to greet a level sidewalk makes the driver more aware that they are crossing into the pedestrians' territory, and makes the sidewalk more agreeable to the user.

Curb Extensions

Curb extensions can be installed into places where the sidewalk can project into the roadway such as near planting strips, furniture zones, or where on-street parking is provided.

- The curb/walkway should protrude out to the width of the parking spaces at intersections. This:
 - tightens the curb radius;
 - reduces the length of the crosswalk;
 - gives drivers better visibility;
 - restricts fast turns.
- Limiting right turns on red may decrease the chances of pedestrians being hit by right-turning vehicles. The above curb extension treatment reduces the common collision between fast-moving vehicles turning right on a green light and pedestrians crossing with the green light.



A curb extension (Image Source: United States Department of Transportation)

Crosswalks

Every effort must be made to ensure the safety of locations where pedestrians and vehicles will cross paths, and visibility is vital. Every intersection (even small neighborhood crossings) should receive some visual clue to automobile drivers that pedestrians may be crossing, whether it is a sign, pavement markings, flashing warnings, or all of the above.

Eight-foot to ten-foot wide crosswalks are recommended, with 6 feet being the absolute minimum (most likely in neighborhoods). Wider crosswalks could be used in locations with higher pedestrian volumes or where the crosswalk needs to be more conspicuous. Crosswalk lines of 10-12 inches of width are the recommended minimum for the standard double horizontal bar crosswalk, but may differ for the thicker-lined *Piano* style crosswalk illustrated in Exhibit 5-1. Crosswalks must line up with curb cuts. Other recommendations include the following:



A crosswalk at a shared-use path intersection with a roadway



Even many small neighborhood roads should have crosswalks

- The shorter the crosswalk the better. Minimize intersection widths with curb extensions, decreased lane widths, or pedestrian refuge islands (explained in more detail on page 5-8).
- Pedestrian refuge islands are important safety considerations for any crossing point. These should be included in every intersection or mid-block crossing where there is more than one travel lane in any direction or on two-lane arterial roads that have a significant vehicle or pedestrian volume.
- Countdown signals give pedestrians a clear understanding of the amount of time that they have to cross an intersection and should eventually be placed at every signalized intersection in Marshville.
- A continuous travel path from sidewalk on to crosswalk is necessary.



Although this crosswalk includes positive features such as a countdown signal, a pedestrian refuge island, and detectable warnings, it fails to line up with the curb cuts.

- All sidewalks must have adequate curb cuts, ramps, landing areas, and detectable warning plates (See Section 5.4). These curb cuts must align with crosswalks and pedestrian refuge islands.
- Provide clear, consistent white markings (Zebra, Ladder, or Piano bars are recommended). Textured crosswalks such as brick are not recommended because they may cause difficulties for the disabled and are less visible to the motor vehicle driver than the crosswalks recommended here. See Exhibit 5-1 for examples of crosswalk types.

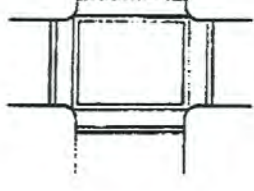
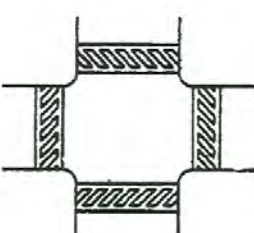
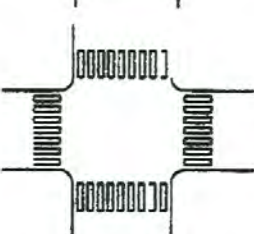
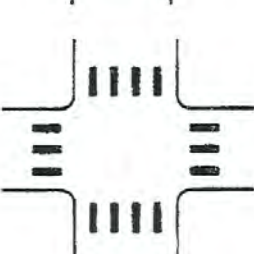
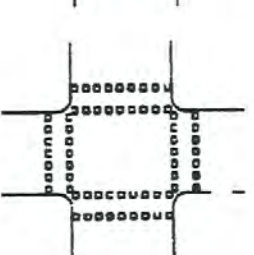
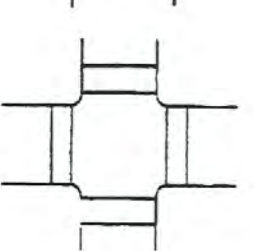
- Bring the road to meet the sidewalk rather than the sidewalk to meet the road at driveways wherever possible. This reduces travel problems for the disabled and alerts drivers that they are crossing a pedestrian zone.
- ADA ramps should be a minimum of 8 feet wide.

Combining safe, high visibility crosswalks with traffic calming devices (explained in more detail in Section 5.3) such as raised crosswalks and curb extensions are useful in commercial, residential, or mixed use areas with high amounts of vehicular and pedestrian traffic.



A raised crosswalk connecting a parking lot to a storefront, but lacking paint markings that would increase visibility

Exhibit 5-1: Types of Crosswalk Markings
 (Source: Washington DOT, *Pedestrian Facilities Guidebook*)

MARKING PATTERNS	MARKING PATTERNS	ADVANTAGES	DISADVANTAGES
	HORIZONTAL BARS	Common practice at stop-controlled intersections, less expensive, easy to install and maintain.	Not as visible as some other marking types; bars tend to wear faster than other types; not appropriate for mid-block locations.
	ZEBRA	Highly visible.	More maintenance required since wheel friction rubs off diagonal stripes; surface can be slippery.
	LADDER BAR	Highly visible.	Wider stripes rub off with wheel friction, but can be placed to minimize this effect; surface can be slippery.
	PIANO	Highly visible and becoming more commonly used; easy to maintain since stripes can be placed outside the wheel friction areas.	
	DASHED (European)	Captures attention because it is not a commonly used pattern.	May not define space as well as some other choices.
	SOLID	Visible (but may not be as eye-catching as other patterns); not commonly used.	Expensive; more difficult to install and maintain; surface can become slippery.

Mid-Block Crossings

- Install 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.
- These crossings are recommended near schools, pedestrian routes, retail areas, recreation, and residential areas.
- Require advance warning signs and good visibility for both the driver and the pedestrian. Placing a stop bar with signage a few car lengths before the crosswalk will ensure better visibility for the vehicles and the pedestrian.
- Providing a safe crossing point is necessary since pedestrians will not walk far for a signalized intersection.
- Provide an audible tone at signalized crosswalks.
- Include a pedestrian refuge island on wide streets where:
 - There are fast vehicle speeds or large vehicle or pedestrian traffic volumes.
 - There is more than one travel lane in any direction.
 - Children, people with disabilities, or elderly people would cross.
 - There are complex vehicle movements.
 - There is insufficient time to cross the entire road because of traffic demands.



A Mid-block crosswalk in Charlotte, NC that has piano-style markings and a pedestrian refuge island

Pedestrian Refuge Islands

These are 4-6 foot wide and 8-12 foot long refuges that are physically separated from motorized traffic, and can be in the center of two directions of traffic as the one pictured here, or can offer pedestrians a safer place in between right turning vehicles and through traffic (pork chop refuge islands). Some benefits to these refuge islands are that they:



Center turn lanes offer safety island opportunities

- enable pedestrians to focus on crossing each direction of traffic separately and provide a safe place in the middle of the street to wait;
- offer shorter crossings and improve safety at heavy right-turn traffic intersections;
- place pedestrians in a better position to see oncoming and turning traffic, and allow drivers to more clearly see pedestrians.

Pedestrian Signals at Intersections

- A displayed automatic *Walk* signal with a countdown is recommended at all intersections when pedestrians have the right-of-way to cross, whether or not the button was activated.
- Timed signals should display the entire countdown phase until it reaches zero, when all pedestrian and vehicle traffic



Countdown signals allow pedestrians to cross with more certainty

should get a red light in that direction. Pedestrian signals should display a walk symbol at all times when the pedestrian has the right of way, and include the countdown as soon as the signal is scheduled to change.

- A safe and adequate time must be allowed for any pedestrian to cross who may already be in the intersection. A 3.8 ft/s walking speed is recommended for timing pedestrian clearance intervals at locations with normal pedestrian demographics (i.e., downtown areas, shopping areas, most neighborhoods, schools areas) or locations where the age or physical disability status of the pedestrian population is unknown. When the proportion of pedestrians over the age of 65 exceeds 20, 30, 40, and 50 percent of the total pedestrians at a location, walking speeds of 3.6, 3.5, 3.4, and 3.3 ft/s, respectively, are recommended for pedestrian clearance timings. A 2.9 ft/s walking speed is recommended for intersections where nearly all of the pedestrians are over age 65.
- Clear, consistent activation buttons 42" high are necessary where these buttons are preferred.
- Countdown signals can be installed 7 – 10 feet high.
- Visible signs should be placed in the medians for automobiles to be reminded that North Carolina State Law requires vehicles to stop for pedestrians in both marked and unmarked crosswalks.



Examples of common signage at signalized crosswalks

Signalized Mid-Block Crossings

The in-pavement flashing light crosswalk is a mid-block crosswalk that is better visible to motorists than crosswalk markings alone. The HAWK signal is a mid-block crosswalk that is used on roads where the pedestrian would require help crossing with a signal. This system uses traditional traffic and pedestrian signal heads but in a different configuration. It includes a sign instructing motorists to “stop on red” and a “pedestrians” overhead sign. There is also a sign informing pedestrians on how to cross the street



In-pavement flashing crosswalks improve visibility



A HAWK signal in Tucson, Arizona

safely. When not activated, the signal is blanked out. The HAWK signal is activated by a pedestrian push button. The overhead signal begins flashing yellow and then solid yellow, advising drivers to prepare to stop. The signal then displays a solid red and shows the pedestrian a “Walk” indication. Finally, an alternating flashing red signal indicates that motorists may proceed when safe, after coming to a full stop. The pedestrian is shown a flashing “Don’t Walk” with a countdown indicating the time left to cross.

Shared-Use Paths



A shared-use path on an old rail corridor in Madison, Wisconsin

Shared-use paths are intended to serve walkers, wheelchair users, runners, bicyclists, or any other non-motorized mode of transportation. These facilities may also be referred to as “greenways,” or greenway trails and should not be confused with sidewalks that share the right-of-way with vehicular roads, nor with “Greenbelt Buffers” that are not necessarily intended to accommodate public access. Shared-use paths can act both as pedestrian walkways and as vegetative buffers with an ecological function. Besides encouraging the reduction of all of the harmful environmental effects of automobile use, these trails can also stimulate the acquisition and conservation of wildlife corridors, be associated with stream improvement projects, and give people a healthy respect

for their natural surroundings by making public open space more accessible.

Shared-use paths need to 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 trail where shoulders are not possible because of stream crossings or other elevated grade issues should have protection such as rails, fences, or hedges. Parks and urban corridors tend to be highly-used sections of these trails and should possibly be wider. If it is not possible to increase the width in these popular sections, consider including a stripe down the center to indicate bi-directional traffic, especially around sharp or blind curves.

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, converted culverts, or overpasses at each road crossing for safety. Vertical clearance of 8 feet is required for safety of all users, and structures and shrubbery should not extend horizontally into the corridor. A vertical clearance of 10 feet is recommended for underpasses and culverts. Safe road crossings are very important in creating a successful shared-use path. Proper crossings should be included in all design for these paths.



This underpass was designed and built during bridge construction

These paths should follow the contour of the land for aesthetic and environmental reasons, but for practical 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



A shared-use path along a sewer easement in Charlotte, NC

ADA and AASHTO guidelines. Right angles should be avoided for safety reasons, especially when considering bridge and road crossings.

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

petroleum base, and construction during certain months of the year may disrupt wildlife nesting.

These trails should be open at all hours so that it can serve as a reliable transportation route. Lighting is not necessary and not recommended except through underpasses and culverts, and near safety hazards such as curbs, sharp directional changes, road crossings, obstacles, or ending points, and some high-use areas such as parks and urban locations. A reflective center stripe or markers would help to make this trail navigable in limited light. Lighting the trail itself can restrict the visibility of areas beyond the trail. Existing street and structure lighting in urban areas can effectively and adequately light the adjacent trail. For safety reasons, a requirement that states that all bicycles and skaters carry lights and all pedestrians wear reflective clothing during non-daylight hours would be useful.

We recommend that these paths should be surfaced with a hard material that allows for easy walking and bicycling. Asphalt is cost effective and practical in most terrains, while concrete and boardwalks are best suited for flood prone (culverts and underpasses) or wet areas (wetlands and creek borders). Finely crushed stone or granite screening (rock dust) is a cost effective alternative that may be used outside of high traffic urban areas. Private motorized vehicles of any kind (besides motorized wheelchairs for legally disabled citizens) should never be allowed access to these trails. A summary of our recommendations for two-directional traffic shared-use trails is below:

- Trails adjacent to roadway
 - Minimum 10 feet wide. (12 feet preferred)
 - 10-foot planting strip is preferred. (except for intersection approaches)
 - A cross slope of 2% is recommended.
 - Grades of less than 8.3% are required, with more than 5% being treated as a ramp.
 - Minimum 2-foot graded shoulder on each side, with 5 feet preferred.
 - Asphalt is the best surface for multiple users such as bikes and roller blades. Concrete is a good alternative in flood-prone areas such as culverts, while boardwalks are best in

frequently wet parts of the trails. Very fine gravel or Granite Screenings (rock dust) is a cost-effective substitute in rural areas and can accommodate pedestrians and most bicyclists; however, non-paved trails may have higher maintenance costs.

- Minimize intersection and driveway conflicts; path should stay level over driveways. Non-paved driveways should have paved bibs to restrict debris accumulation.
- On separate right-of-way
 - Minimum 10 feet wide. (12 feet is preferred in high use areas)
 - A cross slope of 2% is recommended.
 - Grades of less than 5% are required, with occasional grades up to 11% for short distances.
 - Minimum 2-foot graded shoulder on each side with 5 feet preferred.
 - Asphalt is best surface for multiple users such as bicycles and roller blades. Concrete is a good alternative in flood-prone areas such as culverts, while boardwalks are best in frequently wet parts of the trails. Very fine gravel or granite screenings (rock dust) is a cost-effective substitute in rural areas and can accommodate pedestrians and most bicyclists; however, non-paved trails may have higher maintenance costs.

Examples of typical shared-use path cross-sections are shown in **Appendix D**. An upland shared-use path cross section from NCDOT's guidelines is shown separately from an example of a floodplain example from Mecklenburg County Parks and Recreation.

Lighting, Landscaping, and Signage

Lighting

- Use lighting that is appropriate for the pedestrian scale, not the automobile scale. When lighting is not feasible or desirable (such as on suburban or rural sidewalks or greenways,) reflective materials on signs or paint striping on pavement can be used to guide pedestrians.
- Well used pedestrian areas such as Central Business Districts, Neighborhood Business Districts, and parks should have appropriate lighting.
- Determine a need for lighting before installing it. In many cases, lights can make visibility poorer in areas beyond an off road path, which causes some uneasiness for pedestrians. Lighting should be standard where pedestrians cross under a structure, or when the sidewalk or path has obstacles such as curbs, steps, roadway crossings, or abrupt directional changes.



Lighting should be to the pedestrian scale

Landscaping

- Native vegetation should be used to minimize maintenance and long term costs.
- Use low height shrubs near crossings or transit stops.
- The limbs of large canopy trees should not encroach within the walking area.
- Some tree species have more damaging root systems than others and should not be planted in tight planting strips or without root barriers.
- Planting strips should be wide enough to accommodate the vegetation planted. Large canopy trees need 5 – 8 feet, with 8 feet being preferred.

- Space large canopy trees evenly to provide adequate shade (25-50 feet apart). Small canopy trees might be spaced 20-25 feet apart.
- Utilize smaller canopy trees when conflicting overhead utilities are present.
- Recent studies suggest that the cover that trees provide sidewalks actually increase their lifespans. It may not be appropriate to use sidewalk cracking issues as a reason not to include trees in a pedestrian plan.
- Consider trees that are low maintenance. Evergreen or tardily deciduous trees that continually drop too many leaves or acorns throughout the year would need constant attention. Deciduous trees that only drop leaves once in the year are easier to maintain.

Signage

- Signage is typically used for warning, regulatory or way-finding purposes.
- Signage should be minimal.
- Signage should be aesthetically appealing.
- Signage should be maintained to be readable.



Planners have a variety of regulatory and warning signs that can be used to increase pedestrian safety

Signing is governed by the Manual on Uniform Traffic Control Devices (MUTCD), which provides specifications on the design and placement of traffic control signs installed within public rights-of-way. The MUTCD encourages a conservative use of signs (Sections 2A-1, 2A-6, 2B-1, and 2C-1). Signs should only be installed when they fulfill a need based on an engineering study or engineering judgment. In general, signs are often ineffective in modifying driver behavior, and overuse of signs breeds disrespect. Used judiciously and located with consistency, signs and markings can be effective.

The MUTCD outlines guidelines governing signs and pavement markings but it does not prohibit any creative design. Colors for signs and markings should conform to the color schedule recommended by the MUTCD to promote uniformity and understanding from jurisdiction to jurisdiction. For the background color of signs, use:



This crosswalk in Mooresville, NC uses a Pedestrian Crossing street sign, an in-street warning sign and pavement markers

- YELLOW & FLUORESCENT YELLOW/GREEN - General warning
- RED - Stop or prohibition
- BLUE - Service guidance
- GREEN - Indicates movements permitted, directional guidance
- BROWN - Public recreation and scenic guidance
- ORANGE - Construction and maintenance warning
- BLACK - Regulation
- WHITE - Regulation

Warning signs are used to inform unfamiliar motorists and pedestrians of unusual or unexpected conditions. Advance pedestrian warning signs should be used where pedestrian crossings may not be expected by motorists, especially if there are

many motorists who are unfamiliar with the area. A new fluorescent yellow/green color is approved for pedestrian, bicycle, and school warning signs (Section 2A.11 of the MUTCD). When used, warning should be placed in a way that allows adequate response times. Warning signs are generally diamond-shaped with black letters or drawings on a yellow background and shall be reflectorized or illuminated.

Regulatory signs, such as STOP, YIELD, or turn restrictions require certain driver actions and can be enforced. Warning signs can provide helpful information, especially to motorists and pedestrians unfamiliar with an area. Some examples of signs that affect pedestrians include pedestrian warning signs, motorist warning signs, NO TURN ON RED signs, and guide signs.

North Carolina General Statute § 20-173 states that vehicles must yield to pedestrians in any marked crosswalk or within any unmarked crosswalk at or near an intersection. Each intersection should be marked with the proper crosswalk and some intersections may benefit from signs reminding drivers of this law.



Signs may be placed on pavement, furniture, or other locations

Sample costs for these items shown in Section 5.2 are given in **Appendix E**.

5.3. TRAFFIC CALMING INITIATIVES

Tightening Turns and/or Extending Sidewalks

Tightening turns at intersections will force motorists to reduce their speeds and will give drivers a better angle-view on approaching traffic and pedestrians while decreasing the length of the crosswalk for pedestrians. This solution enhances pedestrian safety at all intersections, and would greatly improve the safety at major intersections where vehicles make quick turns. A drawback to this is that standard intersections with minimum turn radii increase fuel efficiency because vehicles can make rolling stops more easily and that design can therefore decrease air pollution. Pedestrian islands (pork chops) at these right turn locations where it is desired to keep traffic moving can make it a little safer for pedestrians, and still save motorists fuel costs. This technique, however, is still not optimum for the pedestrian and should be limited to select major intersections. Each new intersection and driveway should be constructed according to new guidelines that address these considerations.



Pedestrians have less road width to cross when there is a curb extension and cars are forced to slow down to make right turns.

Road Diets (Lane Conversions)



A lane conversion creates bike lanes from motor vehicle lanes and a new center turn lane.

Roads with two or more wide travel lanes in each direction (or one very wide travel lane) and no designated left turn lanes may be evaluated for the possibility of applying a “road diet”. This lane conversion typically reduces the widths of and/or the number of motor vehicle travel lanes in each direction, includes designated center left turn lanes with occasional median strips for pedestrian crosswalks, and adds bicycle lanes. This configuration will allow through traffic to keep a constant pace without stopping for turning vehicles, supports alternate forms of transportation, provides buffers for pedestrians on the sidewalks, slows traffic to the posted speed limit, and may give pedestrians safer crossing opportunities.

Some studies show that this configuration could be safer and can be more efficient as a traffic mover than some other roadway configurations. The ideal roadway for this conversion is often a four-lane road carrying 12-18,000 auto trips per day, but upper limits of 20-25,000 ADT are also achievable on some roadways without decreasing their capacity. No specific roadways in Marshville were studied for this practice in this report, but it may be a conceivable alternative in the future for conversion plans that meet specific objectives.

Back-in Diagonal Parking

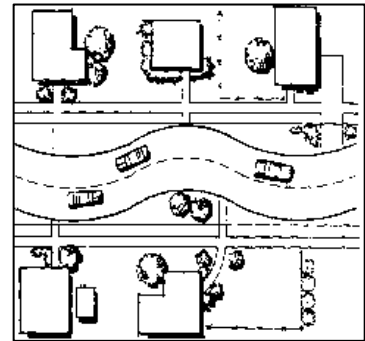
A new method of on-street diagonal parking has some positive benefits to pedestrians. Instead of diagonal parking that allows a car to quickly enter a space, and then have to back out of it rather blindly, some towns have been considering diagonal back-in parking. This method requires the driver to pull in front of the space on the roadway and then back into the parking slot. This gives easy access for the driver, the passengers, and the car’s payload to the sidewalk without having to first shut the door. The open door also acts as a buffer to keep small children from moving towards the roadway when they exit the car. When the car is ready to leave the parking space, the driver has a clear view on their side of the vehicle of the oncoming traffic and can maneuver easily into the flow. Uncertain maneuvers into traffic and speedy turns into parking spaces that may have pedestrians blocked from view are eliminated.



*Back-in diagonal parking has benefits for pedestrians
(Photo by Michael Ronkin)*

Alternate On-Street Parking and Chicanes

Where there is space for on-street parking on only one side of the street on low-speed roads, consider striping the travel lanes so that the parking spaces alternate from one side of the street to the next with each block or half block. This will give the road a serpentine shape and naturally reduce the speed of traffic. Roads through downtown that currently have some on-street parking and that have speed issues may be candidates for this treatment. Chicanes can also be artificially created by adding landscaping, changing lane striping, or by creating pedestrian refuges with crosswalks. (This picture and other traffic calming techniques can be found on the Federal Highway Administration's Web Site at <http://www.ite.org/traffic/tcdevices.htm>)



Chicanes can be developed on wide streets to help maintain a desired traffic speed

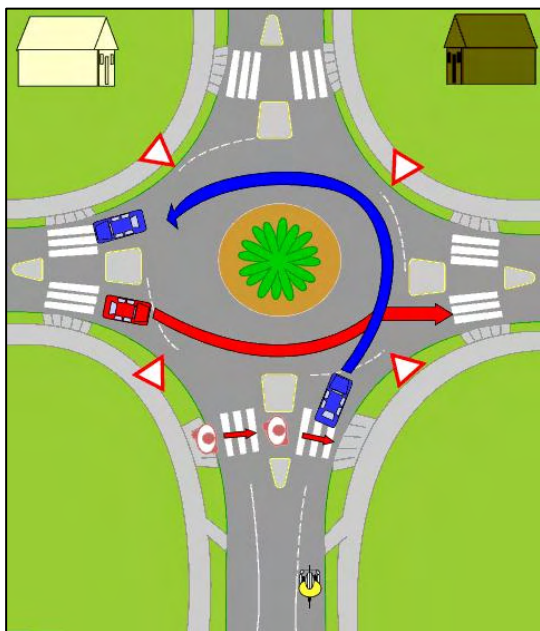
All-Way Stops and Yields



A four way yield intersection, with some modification, can become a mini-roundabout

Neighborhood road intersections that currently have a stop in one direction can be modified to have a stop or a yield in all directions, if other speed controls are already in place. This photo shows a four-way yield, but this location can easily be made safer for pedestrians by including a mini-roundabout in the middle of this intersection.

Roundabouts



This roundabout image from Yorkton, Canada shows crosswalks, safety islands, and optional bike exits for inexperienced cyclists who prefer not to take the lane.

Roundabouts are great for pedestrians, bicycles, and automobiles, despite the fears from those who are unfamiliar with these traffic control devices that are popular worldwide. Roundabouts limit potential conflict points because the automobiles and bicyclists are unable to make left turns. Instead, the vehicle moves in a counter-clockwise direction around the circle, and turns right at their chosen road. Vehicles get through the intersection more quickly, even though their speed is lower. Since these traffic speeds are slow, bicyclists can move into the travel lanes as if they were a larger vehicle.

Pedestrians and novice bicyclists use sidewalks and crosswalks (sometimes with



A mini-roundabout in Madison, WI

pedestrian refuge islands) on the outside of the roundabout, and have been shown to have fewer collisions with vehicles at these roundabouts than with conventional intersections.

Narrowing Residential Streets with Striping

On low volume neighborhood roadways where some streets currently have no sidewalks, pedestrians sometimes choose to use portions of the roadway for walking. While this practice is allowed by law, it is important that vehicle speeds be controlled for safety purposes. This is particularly true when street lanes are so wide that drivers feel less constricted and can travel at speeds not conducive to safely sharing the roadway with pedestrians or young cyclists. Narrowing lanes and other traffic-affecting policies are effective in reducing vehicle speed on streets with or without sidewalks.



A striped shoulder in Albemarle

When retrofitting to install sidewalks in neighborhoods is not currently feasible, reducing vehicle lane width, and thereby vehicle speed, on these broad neighborhood streets will increase safety for pedestrians sharing the street with vehicles. Standard 9½ to 10½-foot lanes can be established by installing outside boundary lines with either paint or thermoplastic striping. While thermoplastic striping costs more, it will last significantly longer than will lines of standard paint, although standard paint will likely last for years on lower-volume streets. This practice is limited to roadways with speed limits of 25 miles per hour or less, and with an ADT of 3,000 or less.

The opportunity for on street parking does not necessarily need to be removed to accomplish this. If the newly striped shoulder is less than seven feet wide (including gutter pans), cars parked along a street in these margins can effectively create a chicane for vehicle drivers, and also contribute to slowing traffic. Margins seven feet wide (including gutter pans) can adequately fit vehicles, but pedestrians will be forced to cautiously walk around them. On-street parking should not be allowed near intersections or other common pedestrian crossing points.

Pedestrians who choose to use the areas outside the painted lanes must still comply with local and state law. North Carolina General Statute § 20-174 specifically states that pedestrians must



Striped shoulders in Albemarle wide enough for on-street parking

use sidewalks where they are provided. When no sidewalks are provided, pedestrians should walk facing traffic and must yield right of way to vehicular traffic, while vehicle drivers must use due care to avoid pedestrians on the roadway. The presence or the expectation of pedestrians on a street may also slow traffic on these neighborhood roadways.

Experienced bicyclists should use, and be expected to use, the vehicle lanes. Young and inexperienced bicyclists may use the area with the pedestrians, but should ride in the same direction as traffic. This photo shows striped shoulders in Albemarle that are primarily for on-street parking, but still offer decent pedestrian accommodations.

Bicycle Lanes

It is important to understand that sidewalks are not designed for bicycles, and bicycle planning needs to be incorporated with roadway planning or with paved paths off of the road right-of-way. This plan does not provide specific projects or recommendations for bicycles. The previous paragraph describes lane striping specifically for traffic calming, but bicycle lanes are functional lanes for bicycles that also serve to slow traffic and as traffic buffers for pedestrians on the sidewalk. Although neighborhood roads typically have low enough automobile speeds and volumes for cyclists to ride in the vehicle lanes, bicycle lanes on arterial roads offer a perception of safety to bicyclists, and make many drivers more comfortable with sharing the road with a cyclist. NCDOT guidelines require designated bicycle lanes to be a minimum of 4 feet from the edge of the gutter pan to the stripe.



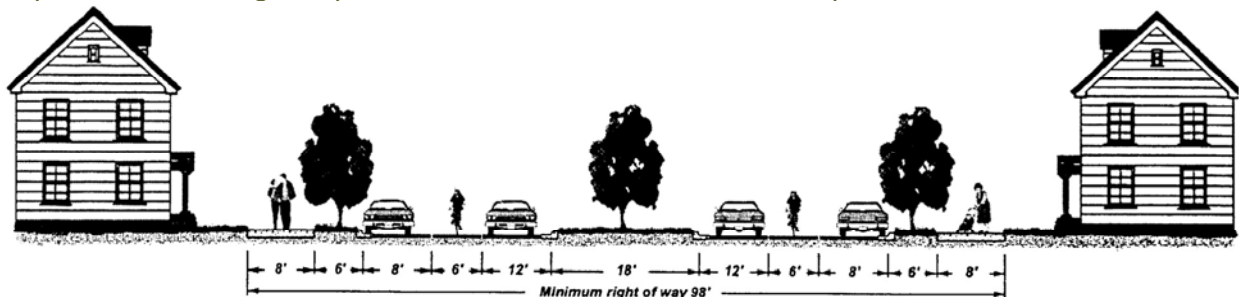
A bike lane in Charlotte, NC

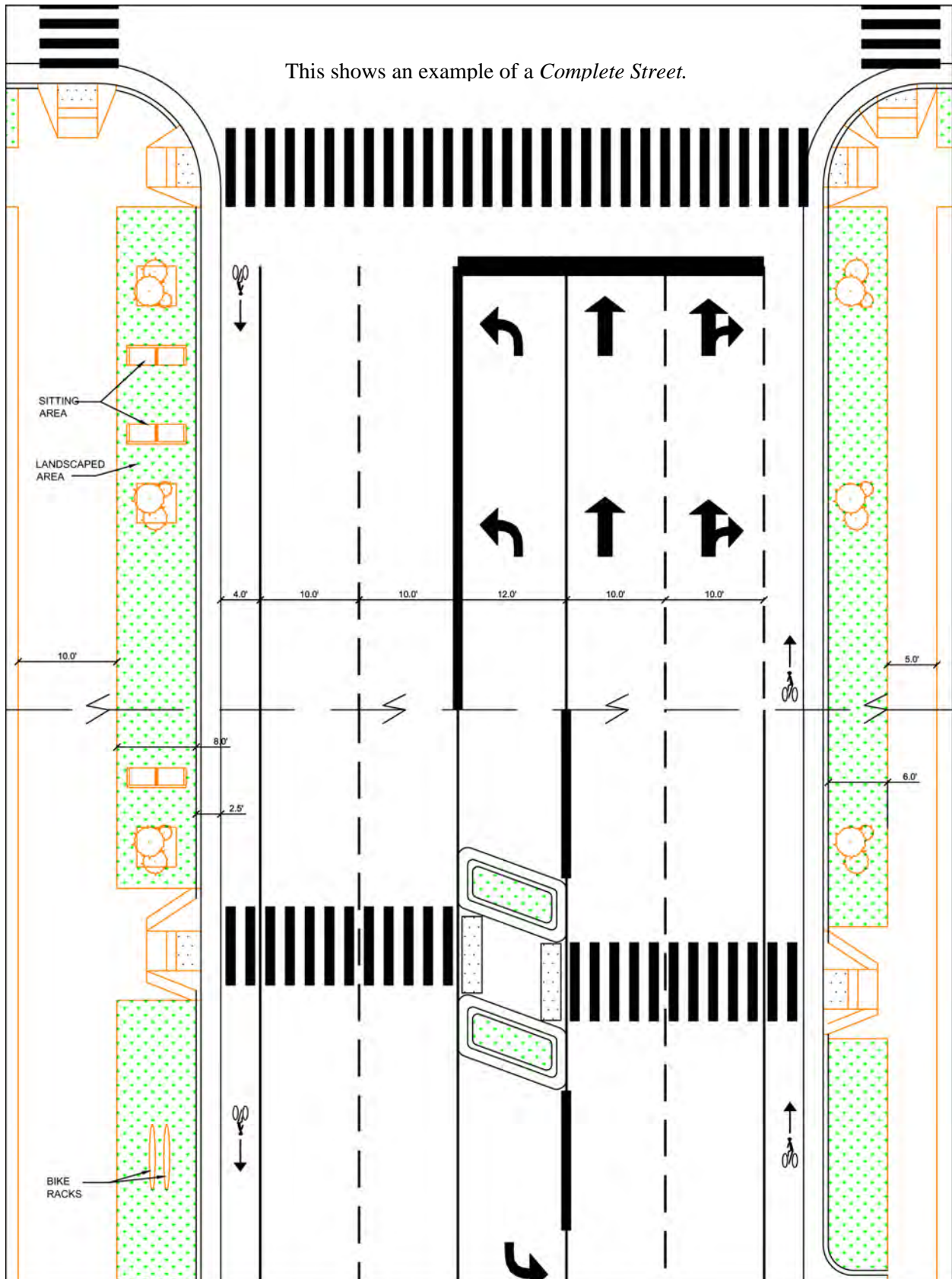
Vehicular Lanes

To keep pedestrians safe and comfortable, roadways in the core of the Pedestrian Districts and in residential areas should keep traffic speeds at a maximum of 20-25 mph. Keeping motor vehicle lanes at a width of 9.5' – 10.5' with other traffic calming features could naturally keep speeds limited. 30-40 mph roadways should have 11' wide inside travel lanes and 12' outside lanes, but 35 MPH roadway lanes can be as narrow as 10' if separate bicycle lanes exist, and outside lanes can be as wide as 14' if they are meant to be shared travel lanes for bicycles and automobiles. Roadways that are 45 mph or greater are not recommended within Pedestrian Districts, and travel lane widths depend on a range of existing conditions.

Designing “Complete Streets” that provide accommodations for pedestrians, bicycles, and motor vehicles are the optimal means by which vehicular traffic and pedestrian traffic can coexist. The Federal Highway Administration states that, “Bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.” Marshville and NCDOT need to adopt a *Complete Streets* policy as well. A good resource that should be obtained from the North Carolina Department of Transportation is their *Traditional Neighborhood Development Street Design Guidelines* from July 2000. This manual goes into further detail on design speeds, street widths, on-street parking, sidewalks and other street features and can be found on-line at:

<http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>.



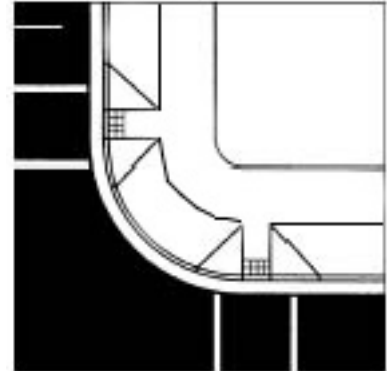


5.4. AMERICANS WITH DISABILITIES ACT (ADA) FACILITY TRANSITION PLAN



Lack of pedestrian planning in this NC neighborhood disadvantages the disabled population as well

Title II of the Americans with Disabilities Act of 1990 (ADA) requires that local governments complete a Transition Plan that describes how that municipality will upgrade its existing public right of way facilities so that they are compliant with ADA. This plan was supposed to be complete for states and larger municipalities by July of 1992; with modifications done by January of 1995. The US government



This is a good design

and the disabled community realized that this goal was lofty, but now, ten years later, it is likely that its provisions will be expected to be completed. In some instances, comprehensive pedestrian

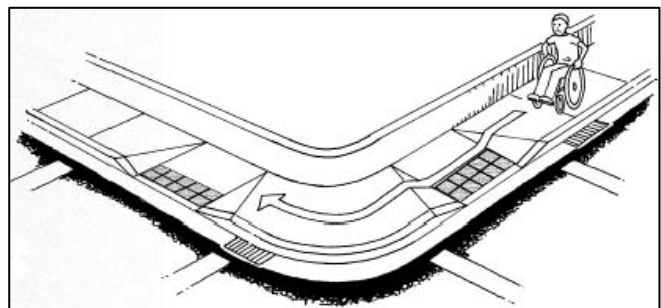


New sidewalks with ADA considerations.

plans have served as the Transition Plan for municipal and state governments around the country.

This plan recommends that the Town of Marshville takes special care to make certain that each and every right-of-way project done in the Town incorporates upgrades to its existing pedestrian features such as curb ramps, sidewalk maintenance, and crosswalks that will satisfy ADA guidelines. This includes, but is not limited to: sidewalk and crossing cross slopes, sidewalk widths, surface, grades, curb cuts, ramps, landing areas, gaps, obstacles, detectable warnings, and signals. The illustrations here

show some of the problems, issues and solutions that are involved with the proper planning for disabled pedestrians. Placing curb ramps out of the travel area, making sure to accommodate all users once they are in the vehicle right-of-way, and providing detectable warnings on the ramps for the visually impaired are some of the many improvements that can be done. These illustrations and a lot more information and guidance on this topic are located on the United States Department of Transportation's web site at:



Curb cuts and ramps without a minimum 6 foot buffer from the curb create dips and the absence of adequate landing areas.

<http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks207.htm>

Section 6 Programs

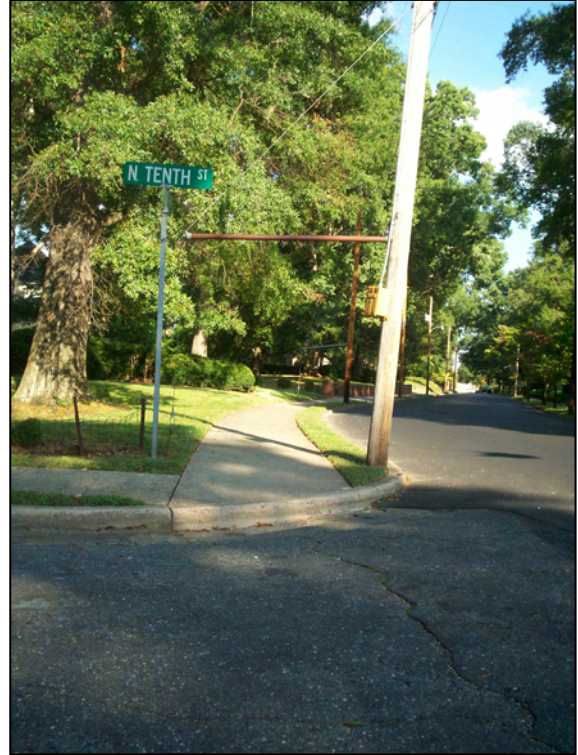
6.1. SPOT IMPROVEMENT AND MAINTENANCE PROGRAMS

Sidewalks / Walkways

Just as potholes, uneven pavement, and visual obstructions irritate automobile drivers, these do the same to pedestrians. Current sidewalks should be free of cracks, dead-ends, or uneven alignment. All sidewalk/roadway intersections should include curb cuts, ramps, detectable warnings and landing areas that comply with ADA. Funding should be set aside for maintenance of worn sidewalks and consideration should be given as to which material to use to maximize the sidewalks' lives. An annual budget of \$100,000 should be set aside for small spot improvement projects. The Town should apply for any available state or federal funding to correct any gaps in its existing sidewalk network and to retrofit ADA specific accommodations.

Currently, a limited sidewalk inventory exists for the Town of Marshville. It is recommended that the Town conduct a comprehensive inventory, including notes on where these sidewalks need maintenance or ADA upgrades. A means should also be established by which the Town can annually determine where new maintenance issues occur, and continually receive alerts from the public on sidewalk maintenance concerns. Once an initial list of necessary repairs and upgrades is compiled, each particular maintenance project can be ranked according to the criteria set in Section 7.2 (Table 2 on page 7-4). These maintenance projects should be ranked separately from the projects outlined in Appendix G, and be continuously updated as additional maintenance needs arise.

Additionally, small gaps in the sidewalk may occur when separate public or private projects do not completely connect. A serious effort must be made to connect these sections of walkways, and future policy must be created and enforced that ensures that these connections are always created in future projects (see Section 8).



Maintenance issues such as worn sidewalks and retrofitting opportunities such as curb cuts and ramps are very important.

6.2. EDUCATION PROGRAMS

School Safety Patrol Programs



School Safety Patrol Programs across the United States have been responsible for decreased pedestrian/vehicle collisions. The American Automobile Association (AAA), municipalities, and schools have sponsored these important safety programs in the past, and should be continued by Marshville's schools. AAA Carolinas' contact phone number is 704-569-7883. They can provide pertinent information in reference to ordering supplies and starting up the program at Marshville's schools.

North Carolina School Crossing Guard Training Program

As traffic continues to increase on North Carolina's streets and highways, concern has grown over the safety of children as they walk to and from school. At the same time, health agencies, alarmed at the increase in obesity and inactivity among children, are encouraging parents and communities to get their children walking and biking to school. In response, the Division of Bicycle and Pedestrian Transportation decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. According to the office of the North Carolina Attorney General, school crossing guards may be considered traffic control officers when proper training is provided as specified in GS 20-114.1.

Law enforcement agencies interested in participating in the School Crossing Guard Training Program should contact the Division of Bicycle and Pedestrian Transportation by phone at (919) 807-0777 or visit http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/crossing.html

Safety Signs on Pedestrian Routes

Pedestrian walkways should have certain amenities to make them comfortable such as benches, water fountains, shelters, waste and recycle cans, restrooms, landscaping, interpretation signs, lockers, boardwalks, bridges, etc. Safety messages could be placed on any of the aforementioned amenities in a location where users could clearly read it, and quite possibly abide by its message. Using riddles, rhymes, or stories to make the point increases the public's interest. A local business or family could sponsor each structure and its corresponding safety sign.

Public Perception Marketing

Although an increase in pedestrian facilities is far more popular than many transportation projects, it is highly recommended that a positive marketing campaign start as soon as possible. Shared-use paths, sidewalks, bikeways, and intersection improvements cost tax dollars, require right-of-way, and sometimes create friction between the



Greenways corridors are showing to be popular neighbors

impatient driver and the pedestrian. In addition, recent political concerns over the acquisition of right-of-way in North Carolina have created some public uneasiness with sidewalk and other projects that might require land easements.

In reality, shared-use paths such as greenways have shown through studies to increase property re-sale values, have no increase or actually could decrease neighborhood crime, and result in more positive ecological effects than negative. Once greenways are successfully on the ground in communities, the residents know first hand of their benefits and welcome more. However, communities are sometimes wary as to how these trails might negatively affect them, and false information and negative perceptions may allow for a public relations issue before the walkways are in place.

Plus, designing a community where transportation choices exist has been shown to place communities at an economic advantage over communities that rely solely on the automobile. Tax dollars spent to improve or create pedestrian facilities are tax dollars that place a return on the investment for the community.

The Town should first act to create a positive image for future greenways, sidewalks, zoning changes, intersection improvements, traffic calming and other pedestrian expenditures before any opposition occurs. Circulate the facts concerning these facilities and show the positive benefits.

Driver Education



Targeting the young generation with this plan is very important. Children aged 5-15 are not yet old enough to drive, are young enough to have the energy and ability to learn new skills and habits, and sometimes have no choice but to walk. Once these children turn sixteen, it should be expected that the majority of these youth are drawn to the automobile. The car is a status symbol, a mode of independence, and a sign that they are becoming an adult.

At the same time young drivers are very impressionable and this provides excellent opportunities to educate the driving population. Pedestrian safety, as well as how to safely maneuver an automobile while in the presence of pedestrians and bicycles can be an instrumental part of any driver's education program in Marshville. This training will allow this new generation to be more aware of the simple fact that motorized vehicles do not have sole right to the transportation network, and it is everyone's responsibility to be careful when in the roadways.

Pedestrian Education

Many pedestrian crashes occur because the pedestrian disobeyed traffic laws. Crossing signalized intersections on the red phase, walking on the roadway in the same direction as traffic, and darting across traffic lanes are not only dangerous, they are illegal.

Indeed, much of the reasoning why a pedestrian breaks the law is because of conditions unknown to the motorist such as the scarcity of proper crossing locations or the absence of walkways out of the roadway. But unfortunately, many pedestrians do take unnecessary risks. Much of the time, they may not know that any traffic laws apply to them, but it would be fair to say that many pedestrians choose not to follow the law. In addition to creating safe walking areas for pedestrians, walkers must be taught to respect the laws for their own safety. Pedestrian Education courses should be offered at schools, libraries, or on informational web sites.



6.3. ENCOURAGEMENT AND PROMOTIONAL PROGRAMS

Safe Routes to Schools



The Safe Routes to School Program was established in August 2005 as part of the most recent federal transportation re-authorization legislation, SAFETEA-LU. This law provides multi-year funding for the surface transportation programs that guide spending of federal gas tax revenue. Section 1404 of this legislation provides funding (for the first time) for State Departments of Transportation to create and administer these programs which allow communities to compete for funding for local projects. Visit the Federal Highway Administration's web address for Safe Routes to School at <http://safety.fhwa.dot.gov/saferoutes/>

The steps below provide a framework for a Safe Routes to School (SRTS) program based on what has worked in other communities according to the website <http://www.saferoutesinfo.org>.

- Identify and contact the people who want to make walking and bicycling to school safe and appealing for children.
- Hold a kick off meeting and set a vision: A goal of the first meeting is to create a vision and generate next steps for the group members.
- Gather information and identify issues: Collecting information can help to identify needed program elements and provide a means to measure the impact of the program later.
- Identify solutions: Solutions to identified issues will include a combination of education, encouragement, engineering and enforcement strategies. Safety is the first consideration.
- Make a plan: It does not need to be lengthy. Include encouragement, enforcement, education and engineering strategies. Create a time schedule for the plan.
- Get the plan and people moving: Hold a kick off event starting with a fun activity. Participate in International Walk to School Day or celebrate a Walking Wednesday.

- Evaluate, adjust and keep moving: To sustain the program, consider building additional program champions and letting people know about your successes.

Visit the North Carolina Safe Routes to School Program at:

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

Downtown Business Organization Map

Downtowns across the United States have suffered the loss of retail and other business activities to sites in regional shopping centers and commercial strips. The economic hardship brought on by fierce retail competition can be lessened or reversed with a renewed interest in the appearance, practicality, and accessibility of downtown Marshville. A printed and on-line map of Downtown Marshville and its business and social attractions would help encourage its use and attendance.

Walk to Work, Shop, School and Play Days

Designate a day, or preferably even a week or month where people walk to their destinations. This can coincide with *International Walk to School Week*, or with Bike to Work Week, or with another common “Hike, Bike, and Bus” week that some municipalities sponsor. Advertise these events, have some fun events along common pedestrian routes, and offer prizes and recognition for shining participants. *International Walk to School Week* typically falls on the first week of October, and their web site with good information can be found at <http://www.walktoschool.org/>. Walk to School events can be as simple as a few kids and parents meeting to walk to school or can be very elaborate celebrations. Event logistics range from a central walking location to people walking from their homes. Successful events have the support and participation of the principal, police and parents, and programs such as this give public agencies and representatives the opportunity to publicly support health, environment and safety initiatives.



Walking School Bus

A walking school bus is a group of children walking to school with one or more adults. It can be as informal as two families taking turns walking their children to school to as structured as a route with meeting points, a timetable and a regularly rotated schedule of trained volunteers. More information can be found at <http://www.walkingschoolbus.org/>.

Walk a Child to School in North Carolina

Thanks to the national initiative and support from the NC Governor’s Highway Safety Program, Walk a Child to School Programs have gained a foothold in North Carolina and are growing each year. To date more than 5,000 students in 12 communities in the state have participated.

Access International Walk to School’s website at www.walktoschool.org to let them know about what the Town of Marshville is doing today to encourage children to walk (or bike) to school.

Walking Challenge



Have a web page set up where residents can enroll to receive a pedometer (at no cost or at a cost determined by the Town) and a map of Marshville's pedestrian routes. Participants record on the web site how much they walk each month, and have the opportunity to win recognition, awards, or collector patches. It is amazing how recording the results from a pedometer can addict users to walking.

As one such regional example, the Cleveland County Health Department, the Alliance for Health and the Cleveland Regional Medical Center teamed together to sponsor a walking event of this nature for Cleveland County. The event is entitled "Take the Step One Challenge," and is a community-wide approach to increasing physical activity and supporting obesity prevention strategies among Cleveland County residents.

Walkers' Discounts

Americans end 90-99 percent of their car trips in deceptively "free" parking spaces. With the average parking space costing \$1,000, fifty percent of this cost is paid by employers, the businesses drivers patronize, and by taxpayers. Another 40 percent is paid through rent and mortgages for off-street parking at home. This means that only about 1-10 percent of the nation's parking costs are at pay-per-use at meters, lots, or garages. Pay parking is rare because outdated provisions in zoning and tax codes - along with expansive street designs - produce an abundance of available parking. Businesses where "free" parking exists in designated Pedestrian Oriented Development District centers could join with the Town to offer discounts to patrons who walk to these businesses (using the honor system). Perhaps the market may then favor some businesses to develop parking lot land for denser infill development that supports pedestrian travel. This program can be tried first during special events downtown.

Spot Trot

A volunteer dog walking joint program between the Town and the Humane Society could be established. These animals would always benefit from a walk and nearby residents would also benefit from walking the dogs.



“Walk for Prevention”



The Susan G. Komen Breast Cancer Foundation Race for the Cure is a highly successful organized event whose proceeds go toward finding a cure for breast cancer. Some studies suggest that non-active lifestyles, poor diets, environmental cigarette smoke, and other lifestyle choices contribute to breast cancer risks and other health issues. The Town’s Park and Recreation Department or the County Health Department could sponsor a 5K and/or 1 mile run/walk whose proceeds might go to Marshville’s pedestrian facilities, healthy school lunch foods, and tobacco education programs. The event would also educate the community about healthy lifestyle choices (especially walking) and the effects of unhealthy living.

Greenway Events and Street Closings

Once many of the recommended projects are constructed, it would create a perfect opportunity for regular special events. A festival could be set up downtown, at a park, or on a greenway spurring a new and desired shopping experience that may draw more business than a typical Saturday.



A event street closure in Shelby, NC

An international trend is to turn major Town roads into “Sunday Parkways.” This concept takes long strips of roadways (linear or in a looping pattern) and converts one or both directions of traffic to pedestrian malls or for bicycle rides during a portion of every Sunday and holiday. This encourages people to get out and walk or bicycle, increases the amount of public space, and motivates people to walk more often throughout the rest of the week.

Twilight Walks

This library or senior center volunteer program would be for both elderly residents and younger residents. The two will get together on a predetermined regular schedule and walk to a destination (such as the grocery store or restaurant). This walk will give the senior time to talk to a young person and also give the younger participant an opportunity to hear stories of the past and understand their Town’s history. The two will benefit from walking and from learning to become less dependent on their automobiles, and the senior who already depends on walking will have some security against possible (or the perceived dangers of) crime attacks.

6.4. ENFORCEMENT PROGRAMS

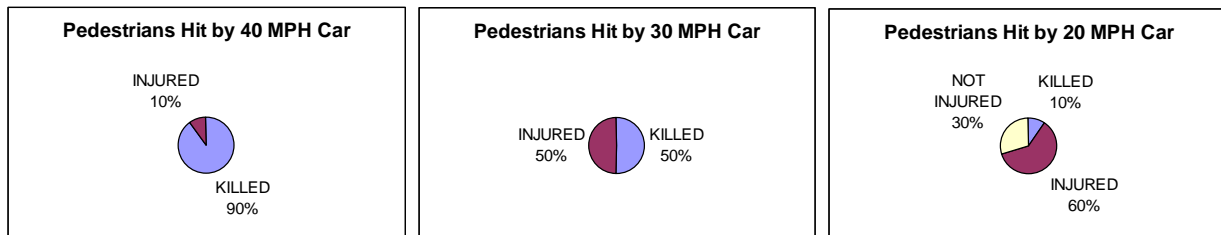
Enforce the Laws

Continued police enforcement of traffic laws is always necessary to protect pedestrians. Marshville’s Police Department should be particularly encouraged to ticket violators in residential and other popular pedestrian areas. Pedestrians must also be encouraged to follow

the law for their own safety, with pedestrian violators also being educated as to the correct behaviors.

Twenty's Plenty

There is always a need to reduce automobile speeds to accommodate for increased pedestrian traffic. Creating an awareness program that encourages drivers to drive no more than 20 MPH in certain areas of town will make it more comfortable for the pedestrian to venture out on foot. As illustrated with national data in the graphs below, the severity of pedestrian / automobile incidents drastically decreases with lower automobile speeds. The name, "Twenty's Plenty" has been used with success in other communities.



Foot Patrol

The Marshville Police Department should assign pedestrian officers to be visible and personal presence, particularly downtown. These officers will therefore get to know business owners, residents, and frequent visitors well, as they would be more reachable to the people of these communities.

6.5. ALTERNATIVE TRANSPORTATION OPTIONS THAT COMPLIMENT WALKING

Future Local Bus Transit



Transit gives pedestrians options. Marshville has an express bus into Charlotte, but no local bus service.

Currently, Marshville has no local bus transit, and may not have this need for some time. Encouraging pedestrian amenities and mixed-use land use policies now will make future transit routes more efficient and affordable. In turn, the option of using transit as an occasional alternative to walking makes it easier to depend on walking as a main mode of transportation. Marshville does have a short term contract with Charlotte Area Transit System for an express bus into the City. With US Highway 74 slicing through downtown Marshville, it is a convenient place to meet a Charlotte-bound bus. A future park and ride parking lot within a short walking distance of the stores might help to revitalize downtown's businesses before commuters arrive in the morning and before they go home in the afternoon. The many Marshville residents living near downtown without access to an automobile would also have more employment opportunities if an express bus to Charlotte was within walking distance of their home.

Bicycle Accommodations and Loaner Programs

Providing bicycle parking throughout Marshville will give pedestrians an option of using a bicycle for slightly further or quicker trips. In addition, bicycle loaner programs may be an option in areas where pedestrian and bicycle trips might be more common. Although this program is more typical of larger municipalities, Marshville may be able to customize a version of this program to suit its needs and realities, say, for those who might want to bike from the library to the park. Some operational difficulties with this program could be mitigated by issuing any interested person a “Bicycle Loan Card” from the public library for a small fee or no fee.



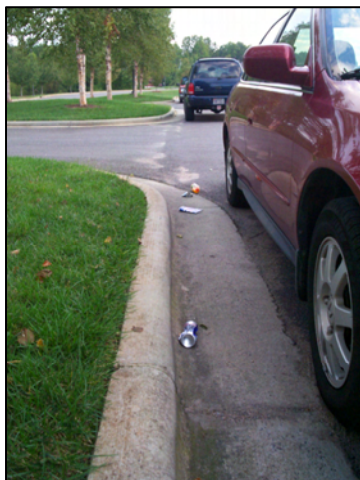
Bicycle programs give options to pedestrians

Car Sharing Programs

Densely developed pedestrian-friendly communities are good candidates for car-sharing opportunities to take root. Car-share programs primarily allow families to own fewer cars while still giving them the convenience of “renting” a car by the hour for local tasks. While this concept is not a realistic option for Marshville at this time, it may be feasible in the near future for public employees who work and live downtown. The Town of Marshville may own vehicles that are designated as shared cars for employees who might walk or carpool to work and who might need a car to run simple errands during the day. Employees who live downtown may also have access to these vehicles after work hours as an employee benefit, creating an incentive to live and work in downtown Marshville. Having the option not needing to own a car also creates the incentive to walk more often.

6.6. ANTI-LITTER PROGRAMS

Provide Trash Receptacles and Enforce Litter Laws



Pedestrians are sensitive to trash – its existence may determine whether people walk there or not

Automobile traffic, by nature of its speed and relative isolation from the outside world, is less sensitive to litter than pedestrian traffic. Litter indicates a lack of social order, which is a deterrent to pedestrians. Automobile-generated litter tends to accumulate in places where drivers generally wait such as traffic lights. Pedestrians may tend to litter if there are limited waste receptacles along sidewalks or beside benches. Ample bins should be provided in these areas for the pedestrians, and there should be a known venture to enforce litter laws for both motorists and pedestrians.

NCDOT offers a statewide litter reporting hotline exists named the “Swat-A-Litterbug Program.” This program gives the user an opportunity to call, mail, or submit violation information online. The phone number of the Customer Service Office is 1-877-DOT-4YOU (1-877-368-4968).

The web address is:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/Beautification/litterbug/

Swat-A-Litterbug



Adopt a Road / Adopt a Sidewalk Programs

Adopt a Road programs are common, enabling members of the community to sponsor and help to clean a road of litter. The Town of Marshville can begin a similar program for its sidewalks and (future) shared use paths. This program could also be used as a means for the community to alert the Town when there is a maintenance issue with a sidewalk, or as a means for a sidewalk to get special attention, funding, and improvements because of the dedication of its community sponsor. In the end, if the number of pedestrians in the Town increases, the awareness and sense of pride and ownership should eventually create a cleaner streetscape.



Adopt a road – or even adopt a walkway programs can be made possible by public involvement

Neighborhood and Comprehensive Route Systems



Signage on road routes and shared-use paths can reassure pedestrians about their whereabouts.

An ideal Town transportation system might have neighborhood roads that take residents from their homes to densely developed satellite shopping, employment, and interior schools. Marshville's roads get less grid-like and more complicated to navigate the further out you get from downtown, and the quickest and most assessable route is seldom easily apparent. Realistically, changing the future development patterns is a far more effective planning strategy than most infrastructure additions, but sometimes simple and affordable solutions need to be implemented to enhance existing conditions. Pedestrian mapping or signing projects are one such tool.

Pedestrian routes have been identified in this plan, and missing gaps in the connections should be built immediately to ensure that the proposed routes are functional. Once a route is physically connected with pedestrian walkways, it should be signed and mapped. Maps should be printed and distributed, with occasional updates added. The pedestrian structures, waste cans, or sidewalks themselves should have the route name posted on it without the need for additional signage. These marked routes



Way-finding signs help pedestrians find their way easily

would eventually serve to make the walker less unsure of connection problems. Once a policy-driven street connection system is developed, there will be no need for additional mapped local routes.

6.8. OTHER INFORMATION

Resources



- The North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation has a wealth of information on their web site: http://www.ncdot.org/transit/bicycle/safety/safety_programs.html This web site includes information on programs such as the *Basics of Bicycling Curriculum*, *Bicycle Helmet*

Initiatives, *Bike Repair*, the *North Carolina School Crossing Guard Training Program*, the *Share the Road Initiative*, the *Safe Routes to School Program* and the *Walk a Child to School Initiative*. The web site is also a good source of resources and materials.

- <http://www.walkinginfo.org> also has a great amount of information and program ideas, including design and engineering guidelines, programs, facts, news, outreach and solutions to problems.



- <http://safety.fhwa.dot.gov/> offers ideas for a variety of pedestrian-safety focused curricula.

Ancillary programs and practices are an important part of establishing a pedestrian-friendly community without necessarily being incorporated with any on-the-ground projects. Facility design, maintenance, traffic calming, education programs, law enforcement, promotion, and offering transportation choices are all necessary to create a community that is walkable. Some of these recommendations could be implemented immediately, while others may need the basic land-use and infrastructure to be incorporated into the defined Pedestrian Oriented Development Districts to be effective.

This page intentionally left blank

Section 7 Projects

7.1. IDENTIFICATION OF PROJECTS

Map 4 provides an overall view of proposed projects, and more detailed maps are presented in **Appendix F**. **Appendix G** shows each of these project descriptions in a table, ranked according to a prioritization method described below, and sorted as being a High Priority Project, an Upcoming Project, or a project on-hold. Their specific locations, dimensions, and costs were also tabulated.

7.2. PRIORITIZATION OF PROJECTS

While all the pedestrian facility projects presented in this plan have some benefit, a ranking system was developed to identify projects that, if implemented in the short-term, would make significant improvements to the pedestrian environment in the near future. The prioritization methodology is designed to isolate the projects that best address connectivity and safety needs but at a reasonable cost and with strong potential for public and financial support. It provides an objective basis for comparison and is suitable for the Town to use in the future to reassess priorities, consider new projects, or allocate additional funding.

Prioritization Methodology

To compare the merits of each proposed facility, a scoring system is used to assign “points” to each project. Points are awarded based on ten criteria grouped across three broad categories: Connectivity, Safety, and Ease of Implementation. Projects are assigned points based on how well the project meets each criterion. A higher number of points indicates a “better” project.

For any single criterion, a project can receive between 0 and 10 points. The total number of points across all criteria represents the project’s final score. All criteria are weighted equally and the maximum score for any project is 100 points.

The individual evaluation criteria are presented below and the complete scoring methodology for each criterion is provided in **Table 2**.

Connectivity

1. The project provides access to major destinations such as shopping/business, schools/community centers, homes, public/social services, or recreation/entertainment (10 points maximum)
2. The project provides obvious access to children, low-income residents, the disabled, and seniors (10 points maximum)
3. The project is already used by the community as a social trail or connection (10 points maximum)
4. The project closes access gaps or connects to other existing walking corridors (10 points maximum)

Safety

5. The project improves safety near schools (10 points maximum)
6. The project calms motorized traffic or provides alternate walking routes (10 points maximum)
7. The project improves an intersection (10 points maximum)

Ease of Implementation

8. The project is most likely already in consideration and has significant amount of work completed such as easement acquisition or availability, private or public funding options available, a completed design, or completed application or environmental documents (10 points maximum)
9. The project is supported by officials or by the public (10 points maximum)
10. The project can be implemented at a reasonable cost compared to its assumed worth (10 points maximum)

In the event that two or more projects receive identical scores, the Town of Marshville can rank the projects based on which best fits needs and cost constraints.

Application of Methodology

Although this methodology is intended to objectively compare the qualities of individual projects, there is some inherent subjectivity in assigning the number of points in each category. The scoring methodology for each criterion is provided in **Table 2** and raw scores assigned to each project are detailed in Appendix G. Bold conditions in the table are tallied for a sum across the category to arrive at the score for that category. The Italicized condition is recorded as the highest possible score in a given category.

Marshville Comprehensive Pedestrian Plan

Table 2
Ranking Criteria for Projects
100 points Total

Bold conditions are individually tallied
Italicized condition is recorded as the total score

Provides Access to Major Destinations (10 pts.)	Shopping / Business (2)	Schools / Community Centers (2)	Residential (2)	Public / Social Services (2)	Recreation / Entertainment (2)
Provides obvious access to children, low-income residents, the disabled, and seniors (10 pts.)	Elementary School Aged Children (2)	Middle and High School Children (2)	Low Income Residents (2)	Disabled Residents (2)	Senior Residents (2)
Already used by the community as a social trail or connection (10 pts.)	<i>Definitely (10)</i>	<i>Significantly (8)</i>	<i>Potentially (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Connects Gaps Between Other Existing Walking Corridors (10 pts.)	<i>Definitely (10)</i>	<i>Significantly (8)</i>	<i>Potentially (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Improves Safety near Schools (10 pts.)	<i>Definitely (10)</i>	<i>Significantly (8)</i>	<i>Modestly (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Calms Motorized Traffic or Provides Alternate Walking Routes (10 pts.)	<i>Definitely (10)</i>	<i>Significantly (8)</i>	<i>Modestly (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Improves an Intersection (10 pts.)	<i>Definitely (10)</i>	<i>Significantly (8)</i>	<i>Modestly (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Readiness (10 pts.)	Right of Way/Easement Available (3)	Funding Source(s) Available (3)	Design Completed (2)	Permit Application Submitted (1)	Environmental Documents Completed (1)
Potential or Existing Political or Public Support for Project (10 pts.)	<i>Support from both Public & Town (10)</i>	<i>Support from Public or Town (8)</i>	<i>Assumed Modest Support (5)</i>	<i>Unknown (2)</i>	<i>No (0)</i>
Cost vs. Assumed Benefit (10 pts.)	<i>Desirable (10)</i>	<i>Standard (8)</i>	<i>Acceptable (5)</i>	<i>High (2)</i>	<i>Excessive (0)</i>

Grouping of Projects

The top twenty ranked projects are identified as “high priority.” Projects that ranked below the top 20 but received a score of 40 - 54 points are considered “upcoming” projects. These projects can potentially rank as high priority in the future if existing conditions change or as projects in the top 20 are implemented. Projects with minimal chance of implementation in the near future are categorized as “on-hold” and also may rank higher in the future. However, any project may be implemented regardless of ranking if policies require its construction as part of adjoining developments or roadways.

Reconsideration of Priorities

The projects included in this plan have been prioritized based on current conditions. However, conditions affecting these proposed projects can change over time—new projects may be proposed, currently proposed projects may no longer be feasible, and completion of some projects may impact the viability of others. For these reasons, it is recommended that the Town of Marshville, through a proposed bicycle / pedestrian advisory committee, update the prioritized project list every two years to reflect changing conditions. Projects may be added to or deleted from the overall list, and the prioritization of specific projects can be altered based on such factors as new developments, a change in public support, and construction of connecting facilities or new destinations. Funding opportunities for these projects are listed in **Appendix H**.

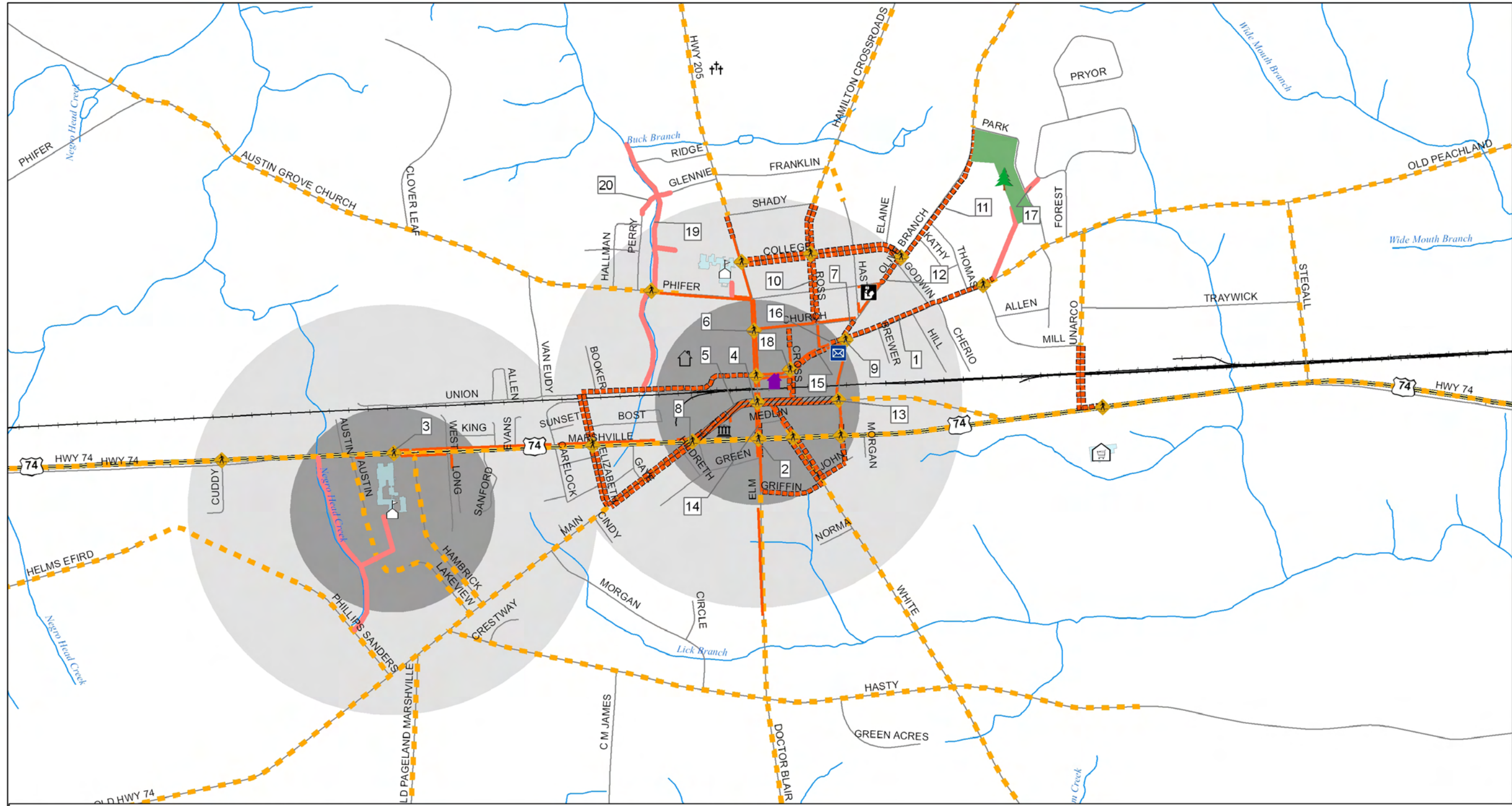
7.3. PROPOSED HIGH PRIORITY PROJECTS

Table 3 below ranks the 20 projects identified as high priority. If two projects received tie scores, the ties were broken subjectively according to general overall pedestrian network value. The project number correlates to the number found on Map 4 and in Appendix G.

Table 3

Rank	Proj #	Description of Improvement	Roadway / Location
1	1	Sidewalk	E. Union St. from Olive Branch Rd. to Allen Dr.
2	28	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ Elm St.
3	25	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ E. Union Middle School
4	32	Crosswalks and Countdown Signals	Main Street @ Elm St.
5	50	Streetscape Project	Main Street from US Highway 74 to Olive Branch Rd.
6	38	Crosswalks at Intersection	N. Elm St. @ Church St.
7	6	Sidewalk	Olive Branch Rd. from E. Church St. to E. Union St.
8	27	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US Highway 74 @ Main St.
9	36	Crosswalks at Intersection	E. Union Street @ Olive Branch Rd.
10	7	Sidewalk	Ross St. from Shady Ln. to E. Church St.
11	4	Sidewalk	Olive Branch Rd. from Park Dr. to Godwin St.
12	5	Sidewalk	Olive Branch Rd. from College St. to E. Phifer St.
13	33	Crosswalks at Intersection	Main Street @ Olive Branch Rd.
14	9	Sidewalk	Elm St. from E. Medlin St. to Greene St.
15	3	Sidewalk	South side of E. Union St. from Fuller Street to P.O.
16	2	Sidewalk	N. side of E. Union St. from Ross to Olive Branch Rd.
17	47	Paved Upland Shared-Use Path	Private Property from Park Dr. to Forest Dr.
18	34	Crosswalks at Intersection	Union Street @ Elm St.
19	44	Paved Lowland Shared-Use Path	Buck Branch Creek from Ridge Run to W. Phifer St.
20	45	Paved Upland Shared-Use Path with Bridge	Connector from Perry Ln. to Glennie St.

Marshville Comprehensive Pedestrian Plan



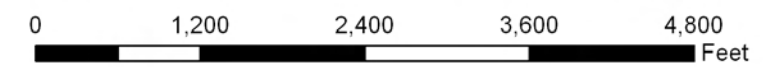
Town of Marshville Existing Facilities

- | | | | | | |
|--|------------------|--|---------------|--|--------------------|
| | Town Hall | | School | | Existing Sidewalks |
| | Park | | Library | | Highway 74 |
| | Community Center | | Grocery Store | | Roads |
| | Autumn Care | | Cemetery | | Railroads |
| | Post Office | | Park Boundary | | Streams |

Proposed Facilities

- | | | | |
|--|----------------------|--|-------------------------------|
| | Crosswalks | | Proposed Streetscape Corridor |
| | Pedestrian Districts | | Sidewalk By Policy |
| | Quarter Mile Radius | | Retrofit 5' Sidewalks |
| | Half Mile Radius | | Shared Use Path |
| | | | Top 20 Proposed Projects |

MAP 4 - Recommended Projects



This page intentionally left blank

Priority 1. Create a Walkway on East Union Street from Olive Branch Road to Marshville Municipal Park (Project Number 1 and Number 48 in Appendix G)



Numerous walkers use this route to and from the park each day, and there were many public comments that requested a sidewalk to the park from the library. Because of the potential for this project to connect downtown, residences, and the park with little need for additional right-of-way acquisition, this project scored 75 out of 100 possible points to rank as priority number one. The existing pavement width of East Union Street can sufficiently fit two vehicle lanes of 12 feet, an eight foot-wide planting strip, and a five foot-wide sidewalk without the need for any additional right-of-way. Five-foot sidewalks are sufficient to allow two people to walk side by side, while an eight-foot planting strip is best for trees and the proper ADA slope requirements at intersections and driveways. Currently, the lane widths are over 18 feet each with on-street parking restricted here by Town ordinance. This current road width, however, ends near the intersection of East Union Street and Allen Drive, where additional right of way may need to be acquired to complete the walkway to the park. An alternative would be to acquire land or an easement along a drainage ditch that connects Union Street with Marshville Municipal Park.



In addition to the sidewalk proposed on East Union Street, a rear connection to the park can be created along this drainage ditch.

Priority 2. Create a Crosswalk and Pedestrian Safety Island at the Intersection of US 74 and Elm Street (Project Number 28 in Appendix G)

The connectivity-creating, safety-minded, and comparable ease of implementation aspects of this project have helped to rank it as one of this plan's top projects with 73 out of 100 total points. Because this part of US 74 directly traverses downtown Marshville, enabling safe crossings is vital. The lane widths of 13 to 14 feet and the lack of pedestrian features such as planting strips, sidewalks, and significant landscaping allow drivers to feel more comfortable at speeds in excess of 45 miles per hour instead of the posted speed limit of 35 miles per hour. Countdown pedestrian signals with appropriate high-visibility marked crosswalks should be the minimum feature incorporated into every signalized intersection along US 74 inside of the Town of Marshville to provide for pedestrian access.

To enable safe crossing for US 74, it is recommended that the Town of Marshville coordinate with NCDOT to reduce lane widths. Reducing the travel lane widths along this section of US 74 from 13.5 feet wide to 12 feet wide for all four thru lanes and 13 feet wide for its turn lane would both slow traffic to the 35 mile per hour speed limit and allow for the minimum width six foot wide pedestrian safety islands to be retrofit into the median at each intersection. These islands, along with the marked crosswalks and countdown pedestrian signal would greatly improve the safety and comfort of these intersections. The Town can also encourage NCDOT to install landscaped medians along Highway 74 in Marshville where left turn lanes are not necessary. This could provide motorists with an aesthetically pleasing drive through Marshville at a slower rate of speed.

If lane width reduction cannot be agreed upon, other options include:

- Giving crossing priority to pedestrians at the intersection by restricting all turns across the walkers' path while they have the "walk" signal.
- Prohibit left turns at the westbound US 74 intersection with South Elm Street and replacing the lane with a pedestrian safety island. In addition to the added safety of the crosswalk with the safety island, the fact that one-fourth of the left turns at this intersection would be restricted greatly increases the overall safety at this location. However, more extensive studies of the result of this recommendation to traffic flow would be advised before making this change.

Future plans for repaving or other construction along US 74 through Marshville should include sidewalks, planting strips, medians, and better crossing opportunities. The Town of Marshville should make it a top priority to work with NCDOT to create a safer and more aesthetically pleasing drive through the Town along US 74.

Marshville Comprehensive Pedestrian Plan



Priority 3. Convert Unnecessary Turn Lane on US 74 at East Union Middle School into a Pedestrian Safety Island with a Signalized Crosswalk (Project Number 25 in Appendix G)

The existing crosswalk at East Union Middle School can be greatly improved by converting the unnecessary left-turn lane on eastbound US 74 into a landscaped pedestrian safety island. The relative ease with which this substantial safety feature can be fit into existing space allowed it to rank very highly. The existing crosswalk, although a good start, still leaves users (particularly children) vulnerable to high speed traffic from both directions while crossing. In addition, this crosswalk should be joined with a signal that stops oncoming traffic for the crossing pedestrian during school hours or when activated by a push button. The Town of Marshville can also petition NCDOT to reduce speed limits, create landscaped medians, and to provide sidewalks and planting strips on both sides of US 74.



This turn lane is unnecessary since there is no roadway perpendicular to this intersection and could be converted into a landscaped pedestrian safety island.

Priority 4. Create Improved Crosswalks and Countdown Signals at the intersection of Main Street and Elm Street (Project Number 32 in Appendix G)



The character of Main Street can be enhanced by slight improvements to the crosswalks and signals at its main intersection.

The lower volume and lower speed traffic at the intersection of Main Street and Elm Street is more pedestrian friendly than the commercial district along US 74, but this location could benefit from the installation of countdown pedestrian signals and “piano” style crosswalks to begin the transition of Downtown Marshville into a pedestrian friendly community. This intersection is also included in the “gateway” into and out of Marshville along Main Street described in this section (Priority 5), but ranks strongly as an independent project because it is at a highly visible downtown intersection where such a treatment may help jump-start walkability in the Town’s core.

Priority 5. Create Various Streetscape Improvements along Main Street from US 74 to Olive Branch Road (Project Number 50 in Appendix G)

Some of the most important features of a walkable community include the density and connectivity that are present in most historical downtowns. Without using the full potential of Marshville's existing urban core, the most practical pedestrian opportunities may be lost. The value of this streetscape project to the functionality and safety of Marshville's citizens entitled it to a high ranking, despite its potentially high cost. The Town may benefit from the creation of "Gateways" into and out of Marshville to serve the pedestrian with wide sidewalks, marked midblock crosswalks every 300-500 feet, pedestrian refuge islands, appropriate lighting, ADA compliant improvements, signage, and landscaping. These amenities could create a pedestrian corridor that may attract a desired market of restaurants, entertainment, shopping, and residential units.



Improving the look of Main Street through Marshville will also improve pedestrian safety and possibly improve business.

Priority 6. Create Crosswalks at Intersection of N. Elm Street and Church Street (Project Number 38 in Appendix G)

North Elm Street, according to citizen surveys, is in need of traffic calming to slow traffic speeds. The presence of features such as sidewalks, crosswalks, and signs that caution motorists to watch for pedestrians have been found to mitigate speeding issues in some communities. Placing clearly marked "piano" style crosswalks and signage at key intersections (similar to the crosswalk at N. Elm Street and College Street) primarily provides safer crossing opportunities for pedestrians along this roadway (particularly students) traveling to and from Marshville Elementary School, but may ultimately help to slow traffic speeds. This project is one of several along the North Elm Street corridor that helps to address traffic calming from US 74 to the elementary school, and may be more effective in slowing traffic speeds as the other crosswalk projects recommended are implemented.

Priority 7. Connect the Sidewalk on Olive Branch Road from East Church Street to East Union Street (Project Number 6 in Appendix G)



Connecting missing sidewalks links is a top priority.

Connecting short gaps in the sidewalk network is important to maximize the value in existing sidewalks. Major improvements to connectivity with minimal investment helped to rank this project highly. Currently, sidewalks exist on portions of E. Union Street near the Post Office and on Olive Branch Road adjacent to the library. A five foot wide sidewalk, along with an adequate planting strip, should be provided on the short portion Olive Branch Road in between E. Union Street and E. Church Street that does not currently have a sidewalk.

Priority 8. Create a Crosswalk and Pedestrian Safety Island at intersection of US 74 and Main Street. (Project Number 27 in Appendix G)

This project is similar to the other crosswalks recommended to be provided across US 74, but it had connectivity potential great enough to warrant ranking it in the top ten independent projects.

To enable safe crossing of US 74, it is recommended that the Town of Marshville coordinate with NCDOT to reduce lane widths. Reducing the lane widths along this section of US 74 from 13.5 feet to 12 feet for all four thru lanes and 13 feet wide for its turn lane would both help to slow traffic to the 35 mile per hour speed limit and allow for pedestrian safety islands to be retrofit into the median at each intersection. Pedestrian safety islands should be a minimum of 6 foot in width. These islands, along with the marked crosswalks and countdown pedestrian signal would greatly improve the safety and comfort of these intersections. The Town can also encourage NCDOT to install landscaped medians along Highway 74 in Marshville where left turn lanes are not necessary. This could provide motorists with an aesthetically pleasing and safer drive through Marshville.



Crossing opportunities at US 74 are vital.

Future plans for repaving or other construction along US 74 through Marshville should include sidewalks, planting strips, and medians, and better crossing opportunities. The Town of Marshville must make it a top priority to work with NCDOT to create a safer and more aesthetic US 74. This particular intersection crosses the proposed entrance into the Main Street "Gateway" proposed as Priority 5 in this plan.

Priority 9. Create Crosswalks at the Intersection of E. Union Street and Olive Branch Road (Project Number 36 in Appendix G)

This intersection includes the library, the Post Office and is the gateway to Marshville Municipal Park. Several public comments collected for this plan suggested safer crossing opportunities at this intersection, allowing for this project to be ranked in the top ten. At a minimum, a piano style crosswalk plus appropriate signage is recommended. In the future, more intersection improvements will greatly help to create a safer intersection, such as a traffic circle or traffic/pedestrian signals.

Priority 10. Create a Sidewalk on Ross Street from Shady Lane to E. Church Street (Project Number 7 in Appendix G)

Similar to project number 1, the existing pavement width of Ross Street can sufficiently fit two vehicle lanes of twelve feet wide, an eight foot-wide planting strip, and a five foot-wide sidewalk without the need to acquire more right-of-way. Often, the acquisition of right-of-way is a top deterrent to the development of sidewalks, but the fact that current wide road width can accommodate both vehicle lanes and a sidewalk helped to rank this important north/south walking corridor highly. In addition to providing a sidewalk, this project can effectively calm traffic speeds through this residential area by reducing the travel lane widths.

Priority 11 and 12. Create a Sidewalk on Olive Branch Road from Park Drive to Godwin Street (Project Number 4 in Appendix G) and from College Street to E. Phifer Street (Project Number 5 in Appendix G)



Olive Branch Road is a popular pedestrian route to Marshville Municipal Park.

Olive Branch Road is widely used by pedestrians as the primary route to Marshville Municipal Park. Right-of-way should be acquired, and a 5 foot-wide sidewalk and an appropriate planting strip should be created to safely bring pedestrians to Marshville's park from the library along Olive Branch Road. This project was one of the most requested sidewalks in the survey, and scored in the top projects because of this support from the public and because of its connectivity potential from residential areas to the park. The need to acquire additional right-of-way brings some uncertainties about landowner and political support and may increase costs, allowing it to be ranked lower than the sidewalk proposed to the park along East Union Street (Priority Number 1).

Priority 13. Create Crosswalks at the Intersection of Main Street and Olive Branch Road (Project Number 33 in Appendix G)

The “gateway” into and out of Marshville along Main Street described in this section for Priority Number 5 includes marked midblock crosswalks every 300-500 feet, pedestrian refuge islands, appropriate lighting, ADA compliant improvements, signage, and landscaping. This intersection is included in that project, but its connectivity potential between the pharmacy and the Post Office/library allowed it to independently rank in the top projects. A simple piano style interim crosswalk and appropriate signage should be considered here for pedestrian safety and visibility until a more comprehensive facelift to Main Street can be accomplished for the gateway project.

Priority 14. Sidewalk Improvements are needed on Elm Street from Existing Sidewalk on North Elm Street to US 74 (Project Number 9 in Appendix G)

Elm Street has a spotty system of sidewalks through downtown and across US 74, and is missing a key piece at the intersection of N. Elm Street and US 74. In addition, the sidewalk on S. Elm Street at US 74 is not accessible for many users because of utility poles, wires, and fire hydrants. Small gaps in connectivity can cancel out the benefits of nearby pedestrian accommodations, therefore highly ranking this recommendation to improve sidewalks on Elm Street from E. Medlin Street to Greene Street.



There are missing gaps or obstructions in the sidewalks near US 74.

Priority 15 and 16. Create a Sidewalk on the South Side of E. Union Street from Fuller Street to the Post Office and on the North Side of E. Union Street from Ross Street to Olive Branch Road. (Project Numbers 3 and 2 in Appendix G).

Sidewalk continuity through this part of downtown is spotty from key destinations such as the community center, Post Office, and the library. E. Union Street is currently 30 - 33 feet wide from curb to curb for a lane of vehicular traffic in each direction. Building setbacks are minimal. Extending the curb on the south side of E. Union Street can provide an additional five feet of sidewalk space, plus one to four feet for a buffer/utility strip while still maintaining 12 foot wide vehicular lanes. Additional width for sidewalks and/or a planting strip can be achieved by narrowing the vehicular lane widths to ten feet on this low speed urban roadway.



E. Union St. can be modified to accommodate additional sidewalks and utility zones while still maintaining adequate vehicular lane widths.

Priority 17. Create a Paved Upland Shared-Use Path on Private Property from Park Drive to Forest Drive (Project Number 47 in Appendix G)

A dirt path currently exists from the neighborhood on Forest Drive to Marshville Municipal Park through a wooded lot. This presents an opportunity for the Town of Marshville to formally connect its park with the surrounding neighborhoods by acquiring this property or an easement to create a paved or gravel path. This will offer the residents of this community formal access to the park and possibly add value to the park and to nearby residences. The informal path, as it is now, offers this connectivity without the sense of safety, security, and aesthetics that a formal route would offer.



This wooded path could be a great boardwalk or paved walkway to the park.

Priority 18. Create Crosswalks at the Intersection of Union Street and Elm Street (Project Number 34 in Appendix G)



This intersection at Union and Elm needs appropriate crosswalks.

Placing clearly marked “piano” style crosswalks and signage at key intersections (similar to the crosswalk at N. Elm Street and College Street) provides safer crossing opportunities for pedestrians. This intersection is a particularly good candidate for crosswalks because of the commercial nature of the block and high probability of pedestrians.

North Elm Street, according to citizen surveys, is in need of traffic calming. The presence of features such as sidewalks, crosswalks, and signs that caution motorists to watch for pedestrians have been found to mitigate speeding issues in some

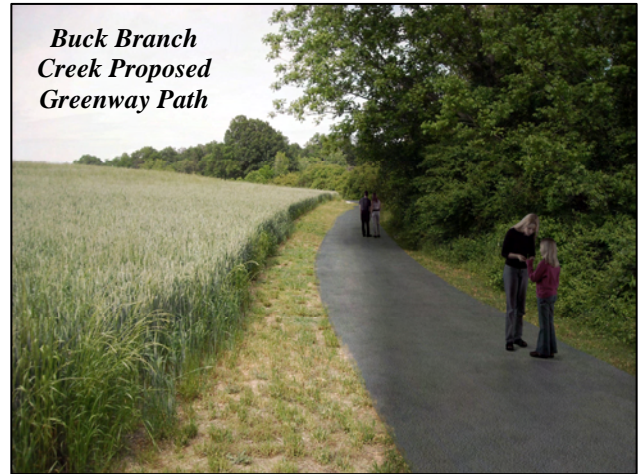
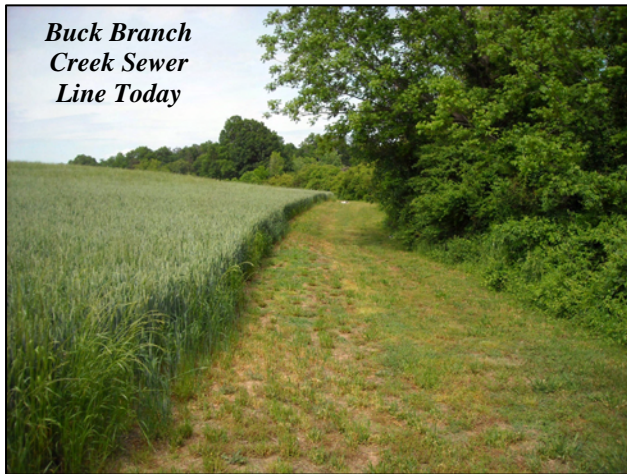
communities. This project is one of several along the North Elm Street corridor that helps to address traffic calming from US 74 to Marshville Elementary School, and may be more effective in slowing traffic speeds as the other crosswalk projects recommended are implemented.

Priority 19 and 20. Create a Paved Lowland Shared-Use Path along Buck Branch Creek from Ridge Run to West Phifer Street (Project Number 44 in Appendix G) and a Paved Upland Shared-Use Path with a Bridge Connector from Perry Lane to Glennie Street (Project Number 45 in Appendix G)



This sewer easement could be a walking path

A ten foot-wide paved pedestrian path is recommended along Buck Branch Creek from W. Phifer Street to Ridge Run to provide residents and students with a walking path to Marshville Elementary School. Connectivity between the Autumn facility, the elementary school, and residential units, along with the overall popularity and functionality of this type of path helped to rank this project in the top 20. The illustration below shows the section of the sewer line near East Union Street near Autumn Assisted Living Home.



The shared use path along Buck Branch Creek can be greatly improved upon by adding a connecting spur and pedestrian bridge over the creek from Perry Lane to Glennie Street. This project ranks highly because it can provide residents of automobile accessible-only streets with a walking route to the school and to the other neighborhoods of Marshville. It can also offer valuable recreation opportunities and aesthetic value to their communities.

This page intentionally left blank

Section 8
Recommended Policies and
Ordinances

8.1. OVERALL POLICY GOALS

Land use policies and regulations of the last half of the 20th Century have probably done more to discourage pedestrian-friendly development than any other single force. When the Town of Marshville updates its zoning and subdivision ordinances, the policies and regulatory provisions recommended in this plan should be considered by the Town as part of its comprehensive ordinance update. The recommendations provided in this section are intended to create a more pedestrian-friendly environment in the Town's planning area.

Emphasis on Pedestrian Travel

The provision of transit, bicycle and pedestrian facilities should be embraced by policy as a primary element in accommodating travel demand and relieving congestion before street widening projects are undertaken. All transportation projects shall include provisions for pedestrians.

Locations of New Public Facilities

By policy, locations of new public facilities should first take into consideration pedestrian access.

- A policy statement should be made that the preferred method of transportation of children to Marshville's schools is non-motorized (walking, bicycling, skating, etc.). For the development of new schools, finding a school location inside of a developed or future residential development is preferred. If this is not feasible, design the school so that its main entrance faces away from thoroughfares or collectors and toward future or existing residential areas. Schools should encourage children to get themselves to school without the use of cars or buses.
- The locations of Post Offices, health providers, public offices, parks, libraries, police stations, abuse care centers, courts, DMV offices and other civic facilities should be in a location where pedestrian access is top priority. Simply placing these facilities near a sidewalk is not adequate, but placing these facilities on a sidewalk within a short walk to neighboring residents is ideal. Many of the users of these facilities are not able to or cannot afford to drive. In cases such as government offices where there is typically one branch office, a central location is best. The Town should have a policy to work with Union County, the state, and the federal governments to make this possible.
- Plans for new roadway construction must not compromise projects and concepts brought forth in the Marshville Comprehensive Pedestrian Plan. A new roadway should never sever a planned shared-use path corridor and a road widening project must always leave room for sidewalks. A copy of NCDOT's policy that provides protection for local municipalities' greenway plans regarding new state road construction is found in **Appendix I** and can be found at:

http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html

8.2. GENERAL POLICY RECOMMENDATIONS

Use of Pedestrian Oriented Development Districts as a Planning Tool

The concept of the “Pedestrian Oriented Development District” is emphasized throughout this Plan. As stated earlier, these districts are not intended to designate the only places where pedestrian infrastructure projects can occur (many projects are recommended outside of these districts as well); rather, these districts are intended to identify areas in which a strong emphasis should be placed on enabling pedestrian-friendly development patterns as growth occurs.

The Pedestrian Oriented Development Districts can be applied as an “overlay” district. As a planning tool, the Pedestrian Oriented Development District should be used to guide the location of pedestrian-oriented developments (such as shopping, high-density residential and public services). These types of developments should be strongly encouraged within Pedestrian Oriented Development Districts and strongly discouraged outside of Pedestrian Oriented Development Districts. Likewise, development types that are not pedestrian-friendly by nature (such as most industrial sites, distribution centers, big-box retailers, and very low-density residential uses) should not be allowed to locate within the designated districts. A list of “compatible” uses for the Pedestrian Oriented Development Districts should be compiled. If a proposed use is not compatible with the pedestrian orientation of the district, it should not be allowed within the designated districts. Likewise, “pedestrian compatible” uses should be strongly encouraged to occur within the designated districts only. Growth confined, more-or-less, to these districts will help to curb sprawl in Marshville. In the same sense, mixed-use zoning should be more widely incorporated in the zoning ordinance both inside and out of these Pedestrian Oriented Development Districts to discourage large parcels of single-use commercial or residential development that require car trips from one area to another.

Zoning in Pedestrian Oriented Development Districts should enable mixed commercial/residential development. Zoning outside of Pedestrian Districts should be modified so that urban sprawl and strip mall development is not encouraged, but so that new growth is guided toward the Pedestrian District. “Sprawl” is the term used for the pattern of development that is generally dependent on the use of the automobile. The nearby Towns of Huntersville, Cornelius, and Davidson recently changed their Land Use Ordinances to reverse this trend, and have defined sprawl as possessing a number of unwanted qualities:

- Development that requires extensive areas of land further from a town center;
- Loss of farmland and other open spaces that define the character of a community;
- Zoning codes that mandate rigid separation of land uses;
- Expensive reliance on the automobile as the only viable transportation option and reducing an individuals’ right to have options;
- Minimal pedestrian amenities;
- Expensive extensions of tax requirements for water, sewer and road systems to serve far-flung development;
- Houses arranged around cul-de-sacs rather than interconnected streets;
- Strip malls with extensive parking lots as opposed to traditional village centers; and
- Urban traffic volumes in non-urban settings as suburb-to-suburb commutes become more prevalent.

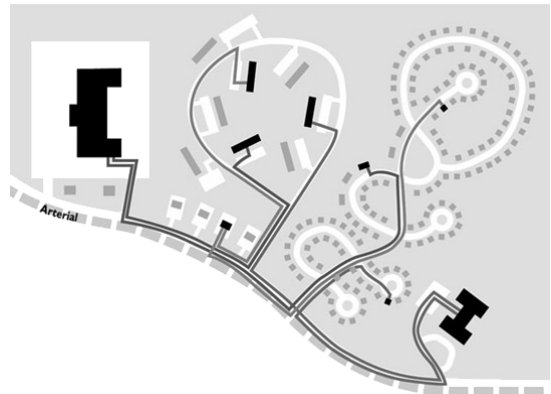
Zoning in Pedestrian Oriented Development Districts should enable mixed commercial/residential development. Zoning outside of pedestrian districts should be modified so that urban sprawl and strip mall development is not encouraged, but so that new growth is guided toward the pedestrian district. The Town should ensure that land use zoning changes comply with pedestrian district mixed-use standards. Without a mix of residential and retail land uses, the entire concept of this pedestrian plan *will not work*. The businesses must be sure of a constant stream of pedestrian traffic from the local residents in order to make up for the lack of apparent vehicular access that might accompany a higher density shopping area with less land devoted to parking. Likewise, without proper retail within walking distance of housing, residents will not walk.

Water resource protection must always be taken into consideration when designating high density areas inside these districts. In some cases, high density development alongside a waterway is not environmentally safe, and should be discouraged or mitigated. Furthermore, new infill developments should seek to create more pedestrian-friendly environments in areas currently occupied by low-density, automobile-oriented development. An example of such development would be the reduction in size of large, mostly unoccupied strip mall parking lots to provide ground space for new businesses.

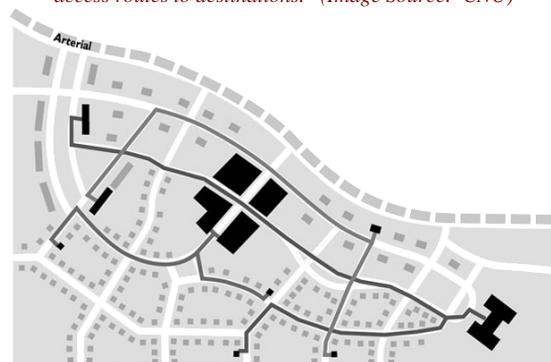
Requirements for Infrastructure Associated with New Developments

Requirements for new pedestrian infrastructure should be consistent throughout the Town's planning jurisdiction, not just in the designated Pedestrian Oriented Development Districts. These requirements should be strengthened for all areas of the planning area. Suggested guidelines are as follows (these requirements should apply to all new development):

- New commercial development must be oriented to the pedestrian and include pedestrian walkways connecting the development to the external sidewalk network in the public right-of-way.
- New residential development of two dwelling units per acre or greater must have a grid-like or interconnected curvilinear street pattern with block lengths no more than 660 feet in distance. These block separations may be streets or 10-12 foot wide paths for pedestrian and bicycle users.
- Cul-de-sacs will not be permitted unless geographic or other natural barriers exist that make connections unrealistic. A developer



The development style above has a complete lack of connectivity and forces all trips onto the arterial road versus the development style below, which allows multiple access routes to destinations. (Image Source: CNU)



may create a cul-de-sac or a *close* if an acceptable bicycle and pedestrian connection is created with a 10-12 foot wide paved path that is built to standards set forth in this plan for shared-use paths.

- New developments must connect to neighboring developments. Commercial areas must create a vehicular and/or pedestrian connection to adjacent residential communities and provide a future connection option for future developments. New residential communities must connect to existing residential and commercial developments, as well as provide connection possibilities to future adjacent developments. Exemptions may apply if there is a substantial natural or geographical barrier, or if there is an environmental concern with such a connection. New developments should be required to provide pedestrian connections across natural barriers if they are listed as projects in this plan. The Town may also determine that a connection across a natural barrier is necessary and worth the higher costs to developers.
- All new commercial, residential, and mixed-use developments should provide sidewalks on both sides of the street, provide buffering from auto traffic and off-street parking lots, and provide trees that will shade sidewalks. Any frontage road to the development that has no current sidewalk must also receive sidewalks. These sidewalks should also be of adequate width according to the standards set in this plan for future levels of pedestrian usage. Trees, utility poles, and street furniture shall not be placed where they may hinder the view from pedestrian crosswalks and intersections. In some cases, developments offer suitable walkway connections or traffic calming without the need to necessarily include sidewalks on both sides of the roadway within the neighborhood or along frontage roads and thoroughfares. If the Town feels that suitable pedestrian linkages exist so that sidewalks along both sides of these roads are unnecessary or when residential densities are less than four dwelling units per acre this requirement may be waived in favor of facilities such as a common off-road path, retail frontage zones and walkways, or sidewalks on only one side of the roadway.
- Any new development where there is a pedestrian project mapped from the Comprehensive Pedestrian Plan must include that project to a functioning level according to guidelines. In most cases, exact alignment of the projects is not definite.
- New developments should include public green/open space. These features add vital necessities and aesthetics to Marshville that will make the pedestrian trips enjoyable. Shared-use paths that serve to connect key destinations may be developed as part of the open space requirement.
- When an existing sidewalk or path is closed for construction or maintenance reasons on the walkway itself or on adjacent property, an adequate detour route should be established. Consider closing on-street parking or a lane of traffic as a temporary pedestrian route or establishing a temporary crosswalk to a walkway on the other side of the street.
- All local, state, and federal road and bridge project planning and construction projects must include reasonable non-motorized accommodation for both pedestrians and bicycles. According to NCDOT policy, 5'-6' sidewalks shall be included on new bridges,

and a determination on providing sidewalks on one or both sides of new bridges will be made during the planning process according to the NCDOT Pedestrian Policy Guidelines. NCDOT shall fund all or part of the cost of sidewalks when they are mapped and recommended as part of a transportation plan. Map 4 in Section 7 shows sidewalks on most state and federal roadways in Marshville and labels them as *Complete Streets* because they completely include safe facilities for automobiles, bicyclists, and pedestrians. **Appendix I** includes NCDOT's Pedestrian Policy Guidelines and can be found at http://www.ncdot.org/transit/bicycle/laws/ped_guide.pdf.

- All walkways must be ADA accessible. See Section 5.4 for more information.

8.3. SPECIFIC LOCAL ORDINANCE CRITIQUE AND RECOMMENDATIONS

Land Use Ordinance

There are a number of development standards in the Town's current Land Use Ordinance that should be modified to allow for more pedestrian-oriented development. For more information on planning guidelines and techniques, the Town of Marshville can review North Carolina Department of Transportation's July 2000 publication; *Traditional Neighborhood Development Street Design Guidelines*.

1. *Article IX, Section 136; "Commercial Districts Established" should be revised to allow for more mixed-use development.*

Residential and non-residential uses should be allowed to mix for convenient pedestrian access. Only the HC (Highway Corridor Mixed Use) zoning district and the B2 and B3 Zoning Districts allow for a mix of commercial and residential use. The B1 (Central Business) District does not allow for residential development. In this intentionally pedestrian-oriented area, developed in the pre-automobile era, residents near the town center were able to access goods and services within a short distance of their homes. In order to promote walkability, more people need to live within walking or comfortable biking distance of shopping, employment, recreation, and/or civic destinations. The normal order of density progression is to concentrate people and activities closer together at the core and in mixed-use nodes to provide efficient service and encourage healthy, vibrant, pedestrian environments. Youth under the driving age, those of limited means, the elderly and those of limited physical capacities generally make up 30% or more of a local population. The most efficient way for the Town to provide for these residents is to allow for housing to be developed in conjunction with or adjacent to businesses that provide for residents' retail and employment needs. A good pedestrian plan would allow for mix use development in this Central Business District and increase the density of residential units in the adjoining business districts (B2, Community Business District & B3, and Office Residential District). Likewise, exclusively zoned residential districts might also benefit from some mixed use allowances.

2. *Article IX, Section 137; "Manufacturing Districts Established" should be revised to allow for some mixed-use development opportunities.*

Although certain industrial centers should not be mixed with residential neighborhoods because of health or safety issues, some industry types and their employees may safely and mutually

benefit from sharing a close community. Businesses may benefit from having nearby residential units by attracting a workforce that might find value in close housing, while industrial workers would benefit by not needing to budget for the extra transportation costs and inconveniences necessary for otherwise high commuting expenses.

3. *Article XII, Section 183; "Minimum Lot Widths" should be revised to reduce minimum lot widths or to use density-based standards.*

This report recommends the use of density versus lot size in all residential developments. This approach is already allowed for in the Cluster Residential Development regulations (Section 187). There are two problems with the practice of requiring minimum lot sizes. First, it limits creativity in neighborhood design and creates "cookie cutter" subdivisions based on the minimum lot size. Second, it limits the preservation of open space by encouraging developers to plat every possible portion of a site. The current minimum lot width of 60 – 120 feet makes for relatively wide lots. Smaller, more compact lots put more residents within walking distance of destinations such as parks, schools, and commerce. If lot size is to be used, consider allowing single-family lots as narrow as 35 to 45 feet on streets that are served by public water and sewer.

The application of base density requirements for new development can aid in neighborhood design by allowing (but not necessarily requiring) a variety of lot sizes within close proximity while regulating the actual number of units that impact surrounding infrastructure. Such a requirement also helps to protect natural features and open space by allowing flexibility in developing sites that are not flat. Detached single family homes can actually be developed to a density of 12-16 units per acre before a fire-rated wall, such as those used in town homes, is required. To that end, the Town should consider maximum density for zoning districts instead of minimum lot sizes.

4. *Article XII, Section 184; "Building Setback Requirements" should be revised to reduce building setback lines.*

The current minimum building setback of 25-40 feet from the front property line can yield an effective setback of over 50 feet from the street when the right-of-way width is included. As noted above, this dimension may be appropriate on higher speed, higher volume collector and arterial streets, but is not appropriate for pedestrian-oriented neighborhood streets and mixed use commercial streets. Consider reducing front setbacks to as little as 10-15 feet on local and collector streets.

The zoning code mandates building setbacks based exclusively on the zoning district. This is an inappropriate relationship. Building setbacks, especially front setbacks, are more appropriately related to the type of street, the use of the building, and the surrounding development context than the size of the lot. For example, buildings on large, busy thoroughfares should rightfully be set back. However, buildings on pedestrian friendly streets, especially neighborhood streets, can easily and appropriately be built close to the street to promote pedestrian appeal and safety.

More importantly, this limited approach to setbacks, in general, provides little room for the preservation of natural features within the prescribed building envelope, eliminates the

opportunity for staggered facades, and organizes the garage on the site in close proximity to the front facade. In truth, the front yard is the least used portion of a typical single family house lot. Deep setbacks also tend to be less attractive for pedestrians since they remove the feeling of enclosure and proximity to human activity that people desire for interest and feeling of security.

The current setback requirements, while necessary to protect the house from noise and vibration if located on thoroughfares, is not appropriate within most neighborhoods. By permitting a reduction in front and rear setbacks to 10 or 15 feet, house lots can increase the private, usable space of the rear yard as well as the building envelope. Such a change also increases the pedestrian-friendliness of the street by bringing front doors closer to the sidewalk, where people walking by can interact with people in the semi-public spaces of front porches and front yards.

The setback requirements in the CBD (no building setbacks required, meaning that buildings can be built up to the right-of-way line) allow for the continuation of pedestrian friendly development that was the early pattern of the downtown's development. However, nowhere else in the Town could such development be replicated under the current development standards. Unfortunately, the replication of the very pedestrian-oriented urban design standards of the Town's more historic streets would hardly be allowed in any new development in the Town.

5. *Article XIII, Section 196; "Dedication of Land" is comprehensive on its own, additional options are presented here.*

This ordinance is comprehensive and is a good tool for acquiring land needed for walkways. As the Town seeks to create sidewalk and greenway connections in areas that are already developed, the availability of right-of-way inevitably will be an obstacle. The Town should take steps to add to this policy regarding the construction of sidewalks or other pedestrian projects outside of the public right-of-way. Ideally, the Town should identify opportunities to reach agreements with property owners to provide a sidewalk or shared-use path easement as necessary for new projects without acquiring property.

Easements for public access should be a standard addition for any new or re-contracted utility easements. For example, any standard 10 to 20 foot wide utility rights of way should be modified to a 30 foot utility and public access shared easement for any walkways. In addition, an effort should be made to ensure that conservation easements purchased by developers should not restrict environmentally mindful construction of a shared-use path or public access for such a path.

There are several means by which pedestrian facilities can acquire the financial and land resources needed to be completed, some of which the Town of Marshville already utilizes according to Article XIII, "Recreational Facilities and Open Space, Dedication of Land for and/or Fees in Lieu of Park, Recreation, and Open Space Purposes." These include *Reservations, Dedications, Payment-in-Lieu, Impact Fees, and the Transfer of Development Rights*. These methods are defined below. It is important to note that if Federal Highway funds are sought or used, the land owner must be offered fair market value for any land acquired.

Reservation:

Residential developments impacting a public facility (school, park, shared-use path) are required to set aside land for a certain period of time so public agencies can purchase a specified area.

Dedication:

These are usually found in zoning or subdivision ordinances, whereby a piece of land from a development is given fee-simple to the public for a particular use, such as a park or shared-use path. Dedication requirements are almost always attached to residential development, but can be extended to commercial development as well. Local governments can require a dedication based on the need to provide more public recreation facilities due to the needs of the new residents coming with the development. If a planned residential or commercial development is located on a planned pedestrian project, an easement must be dedicated for the future shared-use path. The regulation should also clearly state the standards for size, topography, and accessibility. This information helps with consistency and legality of the dedication process. If the new development is not on a planned route, the developer shall make a payment-in-lieu of a dedication.

Payment-in-Lieu:

These payments are tied to dedication regulations. The developer pays a fee that represents the value of the site or the improvement that would have been dedicated or provided. Donations are required when affected by a planned park or shared-use path route, but those developments not affected still bear similar expenses. Payment-in-lieu fees are typically earmarked by its purpose, geographic area, and have a specific time limit. These fees can be used to pay the development costs of nearby pedestrian shared-use paths.

Impact Fees:

This is a one time fee imposed on new development. The intent of an impact fee is to shift the cost of providing public facilities (roads, sewers, parks, etc.) needed to serve new growth from the general tax base to the new development generating the demand for the new facilities. Tied to numbers of people (dwelling units, bedrooms) rather than land use, impact fees require state-granted enabling legislation to enact.

Transfer of Development Rights:

This is an arrangement that allows landowners to sell/transfer potential density of development of their property (sending area) to another location better suited to accommodate additional development (receiving area). Sending areas are typically those areas preferred to be protected and conserved such as open space, forests, watersheds, wetlands, and historic landmarks. Receiving areas are places that have capacity to accommodate new development, such as pedestrian and transit oriented development, infill, etc.

Incentives:

There are a range of incentives that can be used to acquire and protect open spaces, like Density Bonuses, tax incentives, Conservation Subdivision Ordinances, Cluster Development, etc.

An example ordinance that uses some of these methods is found in **Appendix J**, and there is an example of an easement agreement document in **Appendix K**.

6. *Article XIV, Section 216; "Street Width, Sidewalk, and Drainage Requirements for Public Streets" should be revised to require 5 foot wide sidewalks of cross slopes of less than 2% on both sides of all commercial streets and residential streets with more than four dwelling units per acre to be constructed with any new or improved developments.*

The current ordinance reads:

- (a) *Street rights-of-way are designed and developed to serve several functions: (i) to carry motor vehicle traffic, and in some cases, allow on-street parking; (ii) to provide a safe and convenient passageway for pedestrian traffic; and (iii) to serve as an important link in the county's drainage systems. In order to fulfill these objectives, all public streets shall be constructed to meet the standards set forth in this section.*
- (b) *Local streets may be constructed either with or without curb and gutter but in either case shall be constructed in accordance with D.O.T. standards. In addition, whenever a developer constructs a new local street with curb and gutter within an R-10, R-8, or R-6 district or within any commercial district (See Section 136), a sidewalk shall be installed along one side of the street unless*
- i. the street (in a residential district) serves fewer than twenty-five dwelling units, or*
 - ii. the street (in a residential district) serves single-family detached residences on lots 90% of which are at least four acres in size, or*
 - iii. the permit issuing authority determines that, given the likely use of the sidewalk, its cost is utterly disproportionate to its value to the public.*
- (e) *The sidewalks required by this section shall be at least four feet in width and constructed according to the specifications set forth in (the design and construction standards promulgated by the N.C. Department of Transportation, Division of Highways).*

This ordinance should clearly state and require the five foot wide sidewalk width requirement that NCDOT and ADA recommends. NC Department of Transportation, Division of Highways requires sidewalks standards no less than what is required by the American with Disabilities Act (ADA), which require widths of a minimum of three feet for a maximum of 200 feet in length, where level areas of five feet by five feet must be available for wheelchairs to be able to pass and reverse direction. ADA standards also restrict cross slopes of more than 2%. For these reasons, NCDOT's Division of Bicycle and Pedestrian Planning has its own Design and Construction Standards (*Section 6.3.1. - Sidewalks*) that recommends five feet minimum in width and planting strips in between the curb and the sidewalk to prevent excessive cross slopes that would otherwise occur where a driveway meets a sidewalk that is adjacent to the curb.

Also, context-based requirements are needed for when sidewalks should be provided on one or both sides of a street. For example, sidewalks can be required on one or both sides based on street type (arterial, collectors, and sub-collectors should have sidewalks on both sides) or density (the FHWA suggests that developments of over 4 dwelling units per acre should have sidewalks on both sides, while developments of lesser density can be served with a sidewalk on one side).

Sidewalks for non-residential developments and mixed-use development should be at least 6 feet in width and preferably 12-15' feet in width where there is ground floor retail, and on-street parking. (The current requirement is only 4 feet.)

7. *Article XIX, Section 307; “Streetscape Landscaping” requires an eight foot area planted in trees from the curb. This is an extremely positive ordinance for pedestrians but should more clearly define a planting strip as being the area in between the curb and the sidewalk.*

The two existing policies above provide reasonable requirements for sidewalk and planting strips (4 and 8 feet respectively); however, clarity is needed on what the Town considers to be an appropriate planting strip and where widths of five foot for sidewalks are necessary.

The planting strip requirement is very pedestrian-friendly since it provides a buffer between the pedestrian zone and the vehicle zone of the street, and provides the width necessary for adequate ADA ramp slopes from the street to the sidewalk. An 8 foot-wide planting strip, provides space for most street tree varieties to be planted, which provide shade for pedestrians and additional buffer from moving vehicles. The Town should consider requiring that shade trees be planted in these planting strips in all new developments since street trees not only benefit pedestrians, but can help reduce stormwater runoff, increase the life of pavement, and increase property values, among many other benefits.

8. *Article XIV, Section 217; “General Layout of Streets” should be revised to modify cul-de-sac requirements.*

Cul-de-sacs create a very safe environment within their confines, but create inhospitable pedestrian environments because they result in fewer route choices and thus longer distances from destinations. The current maximum length for cul-de-sacs, 600 feet, is better than some communities’ requirements in the region. However, it should be reduced to as little as 250 feet.

Furthermore, the Town should specify conditions for when cul-de-sacs are allowed. They should be allowed to be used only as a condition of last resort when street connections are not possible due to topographic, environmental conditions, or lack of street stubs on adjacent properties. When cul-de-sacs are used, they should be required to provide pedestrian connections through the end of the cul-de-sac to other near by streets or destinations.

Additionally, ideally sized pedestrian-oriented blocks are 200-400 feet wide. The Town’s maximum block lengths should be set by policy based on a variety of factors, including the density of the development and the zoning district and the development context of the development (urban versus rural) from 200 feet up to a maximum of 800 to 1,000 feet. Consider requiring blocks longer than 800 feet to provide a pedestrian crossing through the block. These 15-20 foot easements and pedestrian paths should be at least 10 feet wide and of pavement or a crushed gravel surface.

9. *Article XVIII, Section 291; “Number of Parking Spaces Required” should be revised to let the market determine the number of parking spaces needed.*

In his book *The High Cost of Free Parking*, renowned Economist Donald Shoup shows that minimum parking requirements are the source of many urban ills, including impeding the use of walking and bicycling. He compares the requirement for and provision of “free” parking at almost every location in America to a rental apartment where the utilities are required to be included in the rent thus giving the tenants no incentive to curtail their use of electricity or water.

In fact, the tenants have an incentive to use as much of these commodities as possible since they will incur no additional cost to do so. The same is true for motor vehicle parking. Since almost everywhere that we take our car will have a free place for us to keep it at our destination, we have little incentive to consider other options for getting there. Shoup recommends that municipalities let developers decide how many parking spaces they require. However, to further reduce the impact of automobile parking on the pedestrian environment, the Town should consider including the following measures in its development regulations:

Establish Parking Maximums

Consider surface parking maximum thresholds. This will limit the overbuilding of surface parking lots. Parking maximums can encourage additional development since more land can be used for building instead of parking and existing buildings with little existing parking can be reused.

Encourage Shared Parking

Shared parking for uses that have different operating hours (such as night clubs, churches and offices) makes efficient use of space, reduces the size of parking lots, and increases the amount of land on a parcel that may be devoted to buildings versus parking. Marshville already accommodates some shared parking by reducing the parking requirements for facilities that can easily share parking lots.

Encourage On-Street Parking

On-street parking should be encouraged to be included with any off-street parking. On-street parking is one of the most efficient ways to provide and share parking. It also benefits the pedestrian environment by buffering pedestrians from motor vehicle traffic and slowing the speed of cars on the roadway.

Require Bicycle Parking

Just as the provision of motor vehicle parking has been shown to induce driving, the provision of safe and convenient parking for bicycles can have the same effect on bicycling, and therefore offer the pedestrian a convenient alternate form of transportation. Bicycle parking can be provided at a fraction of the cost of automobile parking and in a fraction of the space. Ten to twelve bicycles can be parked in the area of one car parking space at a cost of tens of dollars per bicycle space versus hundreds or thousands of dollars per motor vehicle space. The Town should consider requiring bicycle parking for multifamily and all non-residential development. Different standards of bicycle parking are needed for short term visitors and customers and for longer term users like employees, residents and students. Typically, 1 bicycle space per 20 motor vehicle spaces is sufficient to provide for visitor parking demand.

Code of Ordinances

1. *Chapter D, Article 1, Section 3; "Street Repair" should add a requirement to provide continuous and safe passage for pedestrians by construction projects.*

Add a stipulation that any construction project that interferes with the safe passage of a walkway should either make efforts to improve the accessibility of the walkway to a functional level or

offer a suitable and realistic detour to the walkway with either another walkway or a section of pavement used for other purposes to use as a temporary walkway.

2. *Chapter D, Article III, Section 4; “Bicycles, Skateboards, and Similar Devices Regulated” should be modified to allow bicyclists to use sidewalks that are located on high volume or speed roadways or that are not heavily used.*

A Town-wide ordinance that prohibits riding a bicycle on the sidewalk when the Town’s streets do not all provide adequate or safe bicycling access for all users may deter an alternate transportation mode to using an automobile. While riding a bicycle on a sidewalk is not necessarily safer than riding on the street, and sometimes may be more hazardous, sidewalks provide places for new bicyclists to learn, for timid bicyclists to become comfortable, and separated places to ride along high speed or high volume roadways that are not suitable for many skill levels of bicyclists. This plan recommends that this ordinance be revised to prohibit bicycle riding only on sidewalks on roadways with high pedestrian usage, low vehicular volumes and low vehicular speeds.

3. *Chapter D, Article V, Section 14; Article VII, and Article VIII; “Speed Limits and “Truck Traffic” is a good ordinance that should lead to further ordinances dealing with roadway design for safe speeds.*



These ordinances provide safe and reasonable speed limits on many of Marshville’s roadways and restrict truck traffic on some residential streets. Previous sections to this plan show that five times the number of people die when hit by a car going 30 miles per hour versus a car going 20 miles per hour. Future land use ordinances should discuss roadway design in regards to speed control. Streets are designed for a specific speed, and simply changing the speed limit does not always alter driving habits unless there is significant enforcement. As new streets are constructed, or as existing streets are improved,

the opportunity exists to create an environment where the driver would rather drive at a speed that is safer near pedestrian activity areas. Consider creating a policy that includes incorporating low speed design into residential and high density commercial street design. As Marshville develops the proposed Pedestrian Oriented Development Districts, streets should change to accommodate the pedestrian. Narrow lane widths, curvy alignments, alternating on-street parking, landscaping, short building setbacks, bicycle lanes, sidewalks, and other added features could eventually naturally decrease the comfortable driving speed. Lower posted speed limits on roads with higher design speeds, some traffic calming measures, and increased law enforcement would be necessary to deter speeding, particularly where pedestrians must share the roadway with cars. Residential streets with no sidewalks will become much safer and thus much more attractive to the pedestrian if the speed limit were to be reduced to 20 miles per hour or less.

4. *Chapter G, Article II, Section 3; “Garbage Required to be in Containers” should also include requirements to limit litter caused from the garbage collection process.*

This ordinance helps to protect Marshville from the unsightliness of litter and thus provides a better pedestrian environment by allowing for a more appealing and calming walking environment. Consider requiring trash to be bagged, trash collectors to be adequately trained, or for garbage trucks to be covered to prevent even more litter from reaching the streets. A University of Florida study in 2000 found that the amount of litter substantially increased after automated garbage and recycling trucks made their rounds on garbage pickup day. On some weeks, the amount of loose paper, packaging, bags, cups and other litter more than doubled after the trucks came through, the study found. The major conclusions found that the blame can be placed on citizens for not bagging loose and especially light material, automated trucks that frequently spill container contents, and uncovered load compartments on trucks. Any truck that transports trash through Marshville should be required by ordinance to keep all access bays fully shut and all rooftops covered when it does not interfere with actively collecting garbage. All non-recyclable trash placed in outside bins should be bagged to accommodate for newer automated trash collection trucks.

This page intentionally left blank

Section 9 Implementation

9.1. IMPLEMENTATION OF PROPOSED INFRASTRUCTURE PROJECTS

The implementation of new and expanded pedestrian infrastructure projects is an important component of Marshville's Pedestrian Plan. Infrastructure projects are classified as either *incidental projects* or *independent projects*.

Incidental projects are pedestrian enhancements that are implemented in conjunction with roadway and new development projects. Because the list of upcoming roadway improvements is subject to change, all of these possible projects are not mentioned specifically in this plan or illustrated individually on a map. However, the Town of Marshville Planning staff should review all plans for upcoming roadway and bridge improvements (constructed by the Town or by NCDOT) to ensure that pedestrian (and bicycle) accommodations are included to the full extent possible as part of these projects. In many cases, pedestrian accommodations can be constructed as part of the overall roadway project cost, avoiding the need for a separate pedestrian project later to retrofit the roadway facility. To ensure that no opportunities “fall through the cracks”, the Town should implement a mechanism to ensure that pedestrian and bicycle considerations and associated traffic calming (as described in Section 5) are made as part of all pending roadway expansion and maintenance projects, as well as all new development projects. Map 4 illustrates where a policy on most NCDOT arterials in Marshville would require all new road and road improvement projects to include accommodations for pedestrian as well as motorized traffic. These incidental projects are labeled as “Sidewalks by Policy” and indicate where sidewalks that are not specifically recommended and ranked as part of this plan should be constructed along with any roadway projects on those streets.

Independent projects are pedestrian improvements that are implemented as separate projects, not in conjunction with any roadway improvements. These projects are intended to provide new or enhanced facilities in existing roadway corridors or along new rights-of-way (for off-road paths). The proposed *high priority* infrastructure projects outlined in Section 7 are indicative of projects that will most likely be implemented as independent projects, while the *upcoming* and *on-hold* projects tabled in Appendix G may be more efficiently completed as incidental projects, but not necessarily in all cases.

Funding Opportunities

A combination of funding sources will be needed to construct the infrastructure projects summarized in Appendix G. The Town of Marshville should seek all viable funding opportunities for project implementation, including Federal and State monies where available (i.e. inclusion on the State TIP). Special funding programs for specific types of projects (e.g. Safe Routes to School) should also be pursued. Private foundations should be thoroughly researched to identify possible funding options.

Although many funding sources can potentially provide revenues for project implementation, it is likely that local government funding will be a primary component (for matching federal / state funds and for implementation where other revenue streams are not available). Therefore, it is recommended that the Town establish a set-aside amount in the annual Public Works budget for pedestrian infrastructure project implementation. An annual set-aside would ensure that progress is made every year on constructing the specified projects, and would illustrate a

commitment from the Town to improve walkability. Appendix H shows more detail on potential funding sources.

9.2. ADOPTION OF POLICY AND ORDINANCE REVISIONS

The recommended policy and ordinance revisions discussed in Section 8 should be fully considered as the Town of Marshville updates its existing zoning ordinances. Incorporating the policy recommendations described in Section 8 in the Town's updated planning and zoning tool kit will play a major role in defining the future pedestrian environment of Marshville.

9.3. PRIORITIZATION AND IMPLEMENTATION OF ANCILLARY PROGRAMS

A variety of possible ancillary programs are described in Section 6. Some of these programs should be implemented in the near-term, while others should not be implemented without a more developed pedestrian facility network. Specific comments for each of the types of programs discussed in Section 6 are offered below.

Spot Improvement and Maintenance Programs

A Spot Improvement Program to inventory, repair, maintain, and enhance sidewalks, crosswalks, and other pedestrian facilities should be implemented as soon as possible. Many municipalities set aside a set level of funding for a Spot Improvement Program every year. It is suggested that Marshville adopt a similar approach, including a set amount of funding in the Public Works budget every year for minor repairs and enhancements. Specific projects can be decided by suggestions received from the public. An annual budget of \$25,000 - \$50,000 for spot improvements would provide a starting point for enabling minor improvements around the Town.

Education Programs

Education programs such as crossing guard programs or driver's education programs should be pursued in the near-term, working especially with the Union County school system to identify opportunities for new programs within the schools. Safety programs are beneficial regardless of the extent of the pedestrian infrastructure network.

Encouragement and Promotional Programs

Various encouragement and promotion programs are described in Section 6. These programs should be phased in over time. It is important that encouragement and promotional activities are on-going, rather than one-time efforts. Some programs are more appropriate after a more extensive pedestrian network has been developed, such as the Walker's Challenge and the downtown business map, while other programs can be implemented immediately such as the Walking School Bus.

Enforcement Programs

The Town should strongly consider reductions in speed limits on residential roads in the near-term, because the safety benefits of reduced speeds are significant. The Foot Patrol program can be phased in as needed in the designated Pedestrian Oriented Development Districts, and an increase in the enforcement of existing laws would be an immediate improvement.

Alternate Transportation Options

Many of the policies and projects recommended in this plan also create a strong framework for a viable multimodal transportation system. Transportation options such as transit, bicycle facilities, and car sharing programs help to create more choices for pedestrians.

Anti-Litter Programs

Programs to clean litter, such as Adopt-a-Sidewalk, should be implemented immediately to maintain the attractiveness of Marshville's sidewalks. This program would be especially beneficial in areas with higher levels of pedestrian traffic, such as Marshville's downtown. These programs can be expanded as the pedestrian network grows.

Mapping and Signing Projects

Pedestrian route mapping and signing projects should be implemented in conjunction with the completion of new pedestrian facilities that comprise a route connecting major origins and destinations. It is inappropriate to develop maps and / or signage until the routes to be mapped and / or signed are developed to the extent that a route is fully usable and accessible.

High Priority Programs

Many of these programs depend on a strong pedestrian infrastructure to be in place to be successful, but some can be implemented immediately. These high priority programs include inventorying Marshville's sidewalks and crosswalks and developing a spot maintenance program, all school safety and walk-to-school encouragement programs, the litter reduction programs, the reduction of speed limits on residential roads, active increase in enforcement of existing traffic laws. The Town should also begin aggressive marketing strategies and campaigns to educate the community on the importance and value in the pedestrian projects and ideas mentioned in this plan.

9.4. ORGANIZATION OF A PEDESTRIAN COMMITTEE



In addition to assigning a staff member with responsibility for this plan, a committee should be created immediately that will oversee the implementation of this plan. The committee should be made up of stakeholders who will have the interest, knowledge, and ability to become familiar with the details of this plan. This committee should ensure that the proper steps are taken to find funding, change or create public policy, re-rank projects as necessary, and encourage the community to embrace foot travel. This committee may be combined with the implementation of future bicycle and greenway plans if necessary. Marshville's Planning Department, Public Works Department, Police Department, Parks and Recreation Department and Union County Schools should all make an effort to become familiar with and make decisions based on this plan. Citizens groups, organizations, and businesses are also encouraged to get involved with the implementation of this plan.



This page intentionally left blank

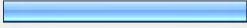


Appendices

Marshville Comprehensive Pedestrian Plan



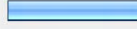
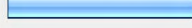
Town of Marshville Pedestrian Plan



1. I live:			Response Percent	Response Count
In the Town of Marshville or in the Marshville area			49.2%	32
Outside of the Marshville area			50.8%	33
<i>answered question</i>				65
<i>skipped question</i>				0

2. Do you work in Marshville, go to school in Marshville, do any business in Marshville, or regularly visit or pass through Marshville, NC?			Response Percent	Response Count
YES			93.9%	31
NO			6.1%	2
<i>answered question</i>				33
<i>skipped question</i>				32

3. I walk for pleasure, recreation or exercise:			Response Percent	Response Count
Often			44.3%	27
Occasionally			45.9%	28
Never			9.8%	6
<i>answered question</i>				61
<i>skipped question</i>				4



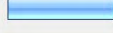
Marshville Comprehensive Pedestrian Plan

4. I walk as my transportation mode to get around my community:				
			Response Percent	Response Count
Always			0.0%	0
Often			9.8%	6
Occasionally			27.9%	17
Rarely			26.2%	16
Never			36.1%	22
<i>answered question</i>				61
<i>skipped question</i>				4

5. I usually walk for transportation:				
			Response Percent	Response Count
Because I want to			87.2%	34
Because I have to			12.8%	5
<i>answered question</i>				39
<i>skipped question</i>				26

Marshville Comprehensive Pedestrian Plan

6. What conditions in Marshville have made it the MOST difficult for you to walk to where you want to go? (check any of these that MOST apply)			
		Response Percent	Response Count
There are a lack of sidewalks or paths		75.4%	43
I have traffic concerns		50.9%	29
Bad weather		7.0%	4
There are intimidating intersections or lack of crosswalks		36.8%	21
I have a concern of crime		19.3%	11
My destinations are too far away		28.1%	16
There is poor access or bad maintenance on walkways		28.1%	16
Nothing stops me from walking where I need to go		3.5%	2
	Other (please specify)		3
	answered question		57
	skipped question		8

7. If most of the items that you checked above were corrected, would you walk for transportation around Marshville more often?			
		Response Percent	Response Count
Yes		66.7%	36
No		13.0%	7
Maybe		20.4%	11
	answered question		54
	skipped question		11

Marshville Comprehensive Pedestrian Plan

8. Please list any locations or roadways where you would like to see better walking access.

		Response Percent	Response Count
1		100.0%	34
2		38.2%	13
3		14.7%	5
<i>answered question</i>			34
<i>skipped question</i>			31





9. Do you believe that Marshville has adequate walking accommodations?

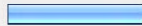

		Response Percent	Response Count
Yes		12.3%	7
No		70.2%	40
I Don't Know		17.5%	10
<i>answered question</i>			57
<i>skipped question</i>			8

10. Do you believe that Marshville will benefit from having better walking accommodations?


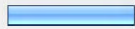

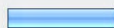


		Response Percent	Response Count
Yes		82.5%	47
No		1.8%	1
Maybe		12.3%	7
I Don't Know		3.5%	2
<i>answered question</i>			57
<i>skipped question</i>			8





11. Would you support public development policies that encourage better walking accommodations?			
		Response Percent	Response Count
Yes		80.7%	46
No		3.5%	2
Maybe		12.3%	7
I Don't Know		3.5%	2
<i>answered question</i>			57
<i>skipped question</i>			8

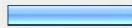

12. Would you support public funding for better walking accommodations?			
		Response Percent	Response Count
Yes		59.6%	34
No		8.8%	5
Maybe		28.1%	16
I Don't Know		3.5%	2
<i>answered question</i>			57
<i>skipped question</i>			8

13. What is your sex?			
		Response Percent	Response Count
Male		26.3%	15
Female		73.7%	42
<i>answered question</i>			57
<i>skipped question</i>			8

Marshville Comprehensive Pedestrian Plan

14. What is your age?			Response Percent	Response Count
16-25			3.5%	2
26-35			24.6%	14
36-45			19.3%	11
46-55			21.1%	12
56-65			26.3%	15
Over 65			5.3%	3
<i>answered question</i>				57
<i>skipped question</i>				8

15. What is your family's annual income?			Response Percent	Response Count
\$0 - \$40,000			12.5%	7
> \$40,000 - \$100,000			66.1%	37
Over \$100,000			8.9%	5
Prefer Not to Answer			12.5%	7
<i>answered question</i>				56
<i>skipped question</i>				9

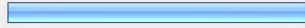

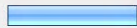



16. Do you have any children less than 16 years of age living in Marshville?			Response Percent	Response Count
Yes			24.1%	14
No			75.9%	44
<i>answered question</i>				58
<i>skipped question</i>				7

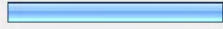


Marshville Comprehensive Pedestrian Plan

17. What is (are) your child(ren)'s age(s)? (check all that apply)			Response Percent	Response Count
1	<input type="checkbox"/>		14.3%	2
2	<input type="checkbox"/>		14.3%	2
3	<input type="checkbox"/>		0.0%	0
4	<input type="checkbox"/>		21.4%	3
5	<input type="checkbox"/>		0.0%	0
6	<input type="checkbox"/>		7.1%	1
7	<input type="checkbox"/>		7.1%	1
8	<input type="checkbox"/>		14.3%	2
9	<input type="checkbox"/>		14.3%	2
10	<input type="checkbox"/>		14.3%	2
11	<input type="checkbox"/>		14.3%	2
12	<input type="checkbox"/>		0.0%	0
13	<input type="checkbox"/>		14.3%	2
14	<input type="checkbox"/>		21.4%	3
15	<input type="checkbox"/>		21.4%	3
			<i>answered question</i>	14
			<i>skipped question</i>	51

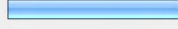
18. Are ALL of your school-aged children able to walk to school safely?			Response Percent	Response Count
Yes	<input type="checkbox"/>		14.3%	2
No	<input type="checkbox"/>		85.7%	12
			<i>answered question</i>	14
			<i>skipped question</i>	51

Marshville Comprehensive Pedestrian Plan

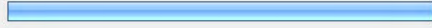

19. What are the TOP reasons why your child may not walk to school? (check any of these that MOST apply)			
		Response Percent	Response Count
There are a lack of sidewalks or paths		58.3%	7
I have traffic concerns		33.3%	4
Bad weather		0.0%	0
There are intimidating intersections or lack of crosswalks		25.0%	3
I have a concern of crime		16.7%	2
The school(s) is/are too far away		66.7%	8
There is poor access or bad maintenance on walkways		8.3%	1
	Other (please specify)		0
<i>answered question</i>			12
<i>skipped question</i>			53

20. Would your child(ren) be more likely to walk to school if traffic was calmer in your community and near your school?			
		Response Percent	Response Count
Yes		41.7%	5
No		41.7%	5
I Don't Know		16.7%	2
<i>answered question</i>			12
<i>skipped question</i>			53



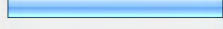
21. Would your child(ren) be more likely to walk to school if there were good sidewalks or walkways from your community to your school?

		Response Percent	Response Count
Yes		41.7%	5
No		33.3%	4
I Don't Know		25.0%	3
<i>answered question</i>			12
<i>skipped question</i>			53

22. Would your child(ren) be more likely to walk to school if the school was inside or next to your neighborhood?

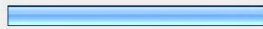


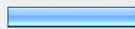

		Response Percent	Response Count
Yes		83.3%	10
No		0.0%	0
I Don't Know		16.7%	2
<i>answered question</i>			12
<i>skipped question</i>			53

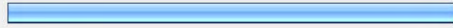

23. Would you like for your child(ren) to be able to walk to school?

		Response Percent	Response Count
Yes		41.7%	5
No		16.7%	2
I Don't Know		41.7%	5
<i>answered question</i>			12
<i>skipped question</i>			53

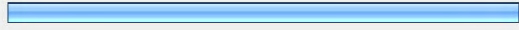
Marshville Comprehensive Pedestrian Plan

24. Do you feel that your children can walk safely around your neighborhood?				
			Response Percent	Response Count
Yes			42.9%	6
No			50.0%	7
I Don't Know			7.1%	1
			<i>answered question</i>	14
			<i>skipped question</i>	51

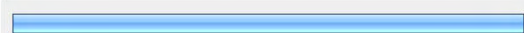
25. What are the TOP reasons why your child might not be able to walk safely around your neighborhood? (check any of these that MOST apply)				
			Response Percent	Response Count
There are a lack of sidewalks or paths			87.5%	7
I have traffic concerns			50.0%	4
There are intimidating intersections or lack of crosswalks			25.0%	2
I have a concern of crime			37.5%	3
My child's destinations are too far away			25.0%	2
There is poor access or bad maintenance on walkways			12.5%	1
			Other (please specify)	1
			<i>answered question</i>	8
			<i>skipped question</i>	57

26. Would your child(ren) be more likely to walk safely in your neighborhood if traffic was calmer in your community?			Response Percent	Response Count
Yes			87.5%	7
No			12.5%	1
I Don't Know			0.0%	0
<i>answered question</i>				8
<i>skipped question</i>				57

27. Would your child(ren) be more likely to walk safely in your neighborhood if there were good sidewalks or walkways in your community?			Response Percent	Response Count
Yes			100.0%	8
No			0.0%	0
I Don't Know			0.0%	0
<i>answered question</i>				8
<i>skipped question</i>				57

28. Would your child(ren) be likely to walk more often if the places they need to go were located within your neighborhood?			Response Percent	Response Count
Yes			100.0%	8
No			0.0%	0
I Don't Know			0.0%	0
<i>answered question</i>				8
<i>skipped question</i>				57

Marshville Comprehensive Pedestrian Plan

29. Would you like for your child(ren) to be able to walk to more of the places they need to go in your neighborhood?			
		Response Percent	Response Count
Yes		100.0%	8
No		0.0%	0
I Don't Know		0.0%	0
<i>answered question</i>			8
<i>skipped question</i>			57

30. If you have any comments, suggestions, or concerns please write them here.		Response Count
		8
<i>answered question</i>		8
<i>skipped question</i>		57

Open ended responses from the survey and from public meetings:

1. My child would have been able to walk home from school when he went to East Union; however the traffic and lack of sidewalks made it difficult for him. Therefore I would not allow him to do so. I would like to think that I will be living here to see me grandchildren go up here. If that would be the case, I would definitely want better sidewalks and traffic conditions. Since that should be some 15 years down the road, maybe that will give Marshville enough time to get off of their tails and do some good around here. The noise level around some of the neighborhoods is bad enough but we never see anything done about that! 1:00, 2:00, and 3:00 AM is ridiculous for radios to be blaring!!!!
2. Marshville needs more activity geared for adults. Sidewalks would give better walking area not just at the park and getting hit with softball.
3. What does it cost to build 100 feet of sidewalk? Without cost info, or a comparison of alternative uses of funds, how could anyone give meaningful responses to this survey? Since the town has trouble maintaining existing streets and sidewalks, how can we afford new ones?
4. The Mayor and the Town Board need to start doing more citizen surveys in order to be forced into listening what the citizens want and need. There are three members of the board that only put forth their own personal agenda to the detriment of good of the people. There should be a survey on town beautification, future planning, and economic development. There should be coordinated study between the town board, and the chamber to develop a town beautification plan that will work!!! For example other towns have programs that financially benefit business owners who improve their property's appearance. That is one small example of what is done when people drop their old animosities and strive to improve. Get with the program people; you are failing the people you have taken an oath to serve.
5. I have a problem with the speed of cars along the section of Hwy 74 near the Middle School I feel it is a dangerous situation especially when you have students walking along that area.
6. (I) would love to see a greenway in Marshville.
7. It would be very helpful if there was a sidewalk on olive branch street all the way to the park for (the) safety for those who go to the park and (for) those who have to check their mailbox since vehicles speed and pedestrians like to walk on the road (and) not in the grass.
8. We need sidewalks on East Main Street and a speed hump. Thank you.
9. North Elm Street is a problem with speeders. Enforcement is needed and we tried to get a speed hump.
10. We need sidewalks on both sides of US 74.
11. The crosswalk in front of E. Union Middle School is not perceived as safe.
12. East Union Street and Olive Branch has lots of kids walking on them to the post office and library area.
13. Traffic entering East Main Street from US 74 needs to be slowed down.
14. Main Street and Olive Branch intersection needs crosswalk.
15. School zone light should change for student walkers.

This page intentionally left blank

Marshville Comprehensive Pedestrian Plan

Meeting: Steering Committee Meeting # 1
April 4, 2009
10:00 AM – 12:00 PM
Marshville Town Hall

Attendees:
Carl Webber, Town of Marshville Administrator
Bill Clark, URS Corporation
Kathy Dennis, URS Corporation
Kathy Appenzeller, DSS
Marc McCann, Pilgrim's Pride Plant Manager
Rev. Alex L. Martin, First Baptist Church
Frank Deese, Mayor, Town of Marshville
Angie Hall Riggins, Marshville Elementary School
Baxter Jordan, Fire Department
Rusty Johnson, Marshville Planning Board
Shelley Maness, Town of Marshville Clerk/Finance Officer

The meeting began with introductions from each steering committee member and a general introduction of the program by Carl Webber of the Town of Marshville

Kathy Dennis and Bill Clark with URS Corporation then led the committee to brainstorm some ideas for goals for the pedestrian plan. The group agreed on the importance of almost twenty topics in six different main categories. These categories are:

1. Facilities, Amenities, Access, and Connectivity
2. Safety
3. Education, Outreach, and Promotion
4. Policies, Funding, and Maintenance
5. Health and Environment
6. Economic Development

The ideas presented at this meeting will be next incorporated into a draft goal list, which the committee can edit and approve via email communication before the goals are shared with the public.

The committee commented on other specific issues that the planning team can begin to look at while gathering information for the plan. This first month of the planning process is crucial for discovering what the ground conditions are in Marshville, and the steering committee is encouraged to send along any thoughts or recommendations to Bill at william_clark@urscorp.com. Photos of Marshville Pedestrian facilities or issues are also appreciated.

Comments included:

- Comfort perceptions vary. Some may walk where others find intimidating.
- Olive Branch Road (and other roads) is/are very busy – perhaps Union Street is good alternative to Olive Branch and there are alternatives to other busy roadways for walking routes? Union Street can be a good corridor to get to the park, and the route can continue to Food Lion.
- Legacy Park might need to be considered.
- Recreation should be considered.

Marshville Comprehensive Pedestrian Plan

- Perhaps some signage routes to guide walkers?
- Farmers Markets, walker discount day, other economic incentives/programs are needed.
- 74 will change as new bypass brings more traffic. 74 splitting the Town in two is big concern. Crossing points on 74 at Food Lion, Elm Street, and the apartments near Pilgrim's Pride are where accidents happen.
- The railroad is also a big connectivity/safety issue.

The next steps in the planning process are for the planning team to prepare for public comment on a survey and at a public meeting. The committee reviewed draft versions of both an internet survey and paper surveys for distribution around the Town. There were no major revisions requested, but there was some discussion as to how to ask if participants live within the Marshville area or not.

Carl Webber was going to check to see if the link to the on-line survey could be placed on the Town's home web site. This link should be distributed as widely as possible to get maximum participation. Ideas include; email group lists for those interested in Town affairs, the PTO, school newsletters, other newsletters, Town utility bills, Girl Scout/Boy Scout group lists, and the local newspaper/website.

Paper surveys can also be available at places where the general public can easily see them. Options include; schools (for the parents to complete), retail stores, the Library, The Post Office, and Town Hall. Steering Committee members can help with distributing and collecting surveys from these locations.

The overall favorite event for a public information booth was at the annual "Day at the Park" on May 2nd from 4PM to 8PM. We will have a display booth set up on that day, along with comment cards, maps, and surveys to collect public comments.

An email will be sent to the group soon with the minutes to this meeting, the final surveys and a draft list of goals.

The meeting ended at approximately 12:00 PM.

Marshville Comprehensive Pedestrian Plan

Meeting: Pedestrian Plan Steering Committee Meeting # 2
July 28, 2009
3:00 PM – 4:45 PM
Marshville Community Center (The Old Library)
118 E. Union Street

Attendees:

Bill Clark, URS Corporation
Frank Deese, Mayor, Town of Marshville
Kathy Dennis, URS Corporation
John Munn, Interim Town of Marshville Manager
Rev. Alex L. Martin, First Baptist Church
Shelley Maness, Town of Marshville Clerk/Finance Officer
Dana Stoogenke, Rocky River RPO

The meeting opened with a discussion of the impact of the Monroe Bypass to this pedestrian plan. This bypass is tentatively scheduled to open in 2013, and although its footprint will not reach Marshville's Town limits, the increased traffic volumes on US 74 could be dramatic. As of this time, no plans are in place for changes to US 74 through the Town of Marshville, but the change to some sort of limited access highway is possible. The impact to the region's potential nonattainment for ozone pollution levels is a concern that has the best chance of delaying or stopping this project.

Kathy Dennis then discussed the finalized goals for the pedestrian plan and asked for comments. The goals were emailed to each member of the steering committee after the first meeting with no comments. These goals are shown below:

1. Connect important destinations with walkways and crosswalks to increase accessibility to key destinations in Marshville by foot.
2. Improve safety and comfort for walkers with facility improvements, pedestrian amenities, policies, law enforcement, and education.
3. Provide education and encouragement programs for policy makers, the business community, and the general public to promote awareness of the wide-ranging benefits of walking.
4. Develop sustainable policies and programs pertaining to land use, automobile parking, development, funding, facility design and maintenance that support walking.
5. Include pedestrian travel as part of the overall strategies to improve environmental conditions, health and quality of life for Marshville's citizens.
6. Encourage economic and social vitality by creating market, social interaction, and healthcare cost-saving opportunities.

Bill Clark then presented results from the on-line survey. Complete results are available to review at:

http://www.surveymonkey.com/sr.aspx?sm=nF4FyyYOu0tGaCdLB3qmImF_2byeH5iHtXUwRRw0OogSs_3d

Marshville Comprehensive Pedestrian Plan

Although participation in the survey was relatively low, the results were similar to survey results to other regional municipalities with higher participation rates. In general, respondents do not believe that Marshville has adequate walking accommodations, do believe that Marshville will benefit from better walking accommodations, and would support town policies and funding to improve walking accommodations. Respondents were also not currently comfortable with currently allowing their children to walk to school, and were divided about being comfortable with their children walking in their neighborhood. Most respondents replied that having the school closer to or in their neighborhood will increase their comfort level with allowing their children to walk to school, while sidewalks in their neighborhoods would unanimously give greater comfort to parents.

Bill then described the premise of the plan being based on providing pedestrians with shorter and direct routes to the places they need to walk, safe walking areas, and pleasurable routes. Much of this can be done through the Town's land use policy. This pedestrian plan identifies a half mile radius around downtown as being the primary existing pedestrian district and the area immediately surrounding East Union Middle School as being a candidate for a future pedestrian-friendly district once policy guides future development toward better connectivity and higher density in that area.

Several of the infrastructure projects were then summarized, with the top projects being independent crosswalk projects at US 74 and at East Union Middle School (with a recommendation for a grander-scale roadway redevelopment project when possible), a sidewalk from the post office to the park using the existing right of way on super-wide East Union Street, streetscape improvements along Main Street to act as a "gateway" into Marshville, a sidewalk along Olive Branch Road to the park, and a shared-use path along the sewer easement parallel to N. Elm Street. There was general excitement shown at the meeting about the possibilities for a sidewalk and planting strip being possible using existing right-of-way along E. Union Street. Mayor Deese showed interest in a future illustration to show what streetscape improvements can do for Main Street, similar to the illustration done for E. Union Street. This illustration, he believes, may help to get political and public support for such a project. Some hesitance was shown by the committee for the prioritization of the crosswalk at US 74 and Elm Street in favor of other projects not highly ranked. These projects' rankings may be re-evaluated based off of comments from this committee.

In closing, members of the steering committee were asked to review the projects and give feedback as soon as possible. URS will set up a meeting with NCDOT to discuss projects that affect their roadways (particularly the proposal to narrow travel lanes on US 74) and will then discuss possible dates for a public meeting with Town staff. We anticipate an early evening/late afternoon public meeting in mid-September, followed by a brief meeting that same night with this steering committee to discuss final changes to the draft plan.

The meeting ended at approximately 4:35 PM.

Marshville Comprehensive Pedestrian Plan

Meeting: Pedestrian Plan Steering Committee Meeting # 3
September 29, 2009
5:30 PM – 6:00 PM
Marshville Community Center (The Old Library)
118 E. Union Street

Attendees:
Tom Appenzeller, Wingate University
Bill Clark, URS Corporation
Frank Deese, Mayor, Town of Marshville
John Munn, Interim Town of Marshville Manager
Rev. Alex L. Martin, First Baptist Church

This meeting was held just before the public presentation of the draft plan. Members received an update from the last meeting on how projects have been changed or re-ranked from how they looked at the previous meeting. There were some general questions about land use policies and the impact of the proposed Monroe Bypass, but no other major concerns with this planning effort.

The Steering Committee meeting ended at approximately 6:00 PM. The public meeting followed. Three members of the public were present, plus two children. URS showed a 15 minute Power Point presentation highlighting the current conditions of Marshville and proposals in the draft pedestrian plan. Besides some clarification questions and some specific requests for improved facilities, there were no major concerns with the draft plan.

Marshville Comprehensive Pedestrian Plan

Meeting: Pedestrian Plan Steering Committee Meeting # 4
April 19, 2010
6:15 – 6:30 PM
Marshville Town Hall

Attendees: Bill Clark, URS
Rusty Johnson, Marshville Planning Board
Radford Thomas, Town of Marshville Town Administrator

Distributed final draft summaries and CDs.

Marshville Comprehensive Pedestrian Plan

Printed in the *Monroe Enquirer Journal* and *The Home News* in September 2009:

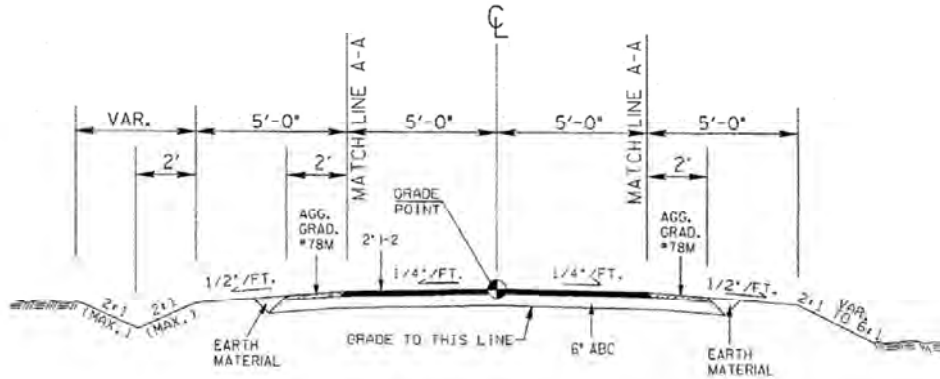
The Town of Marshville is in the final stages of developing a Comprehensive Pedestrian Plan. The plan recommends enhancements such as new walkways, new policies for future improvements, and programs to encourage walking in the community.

A public meeting will be held to present the Draft Marshville Comprehensive Pedestrian Plan on Tuesday, September 29 at 6:00 PM in the Marshville Community Center (The Old Library) at 118 E. Union Street. Town Council members are invited and may attend.

For more information, please contact the Town of Marshville's Administrator at 704-624-2515 extension 25 or marshvilletownhall@windstream.net.

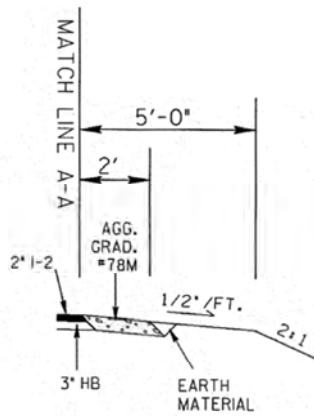
This page intentionally left blank

**RECOMMENDED TYPICAL SECTION OF 10-FT ASPHALT PATHWAY
With 2-Ft Crushed Stone Shoulder**

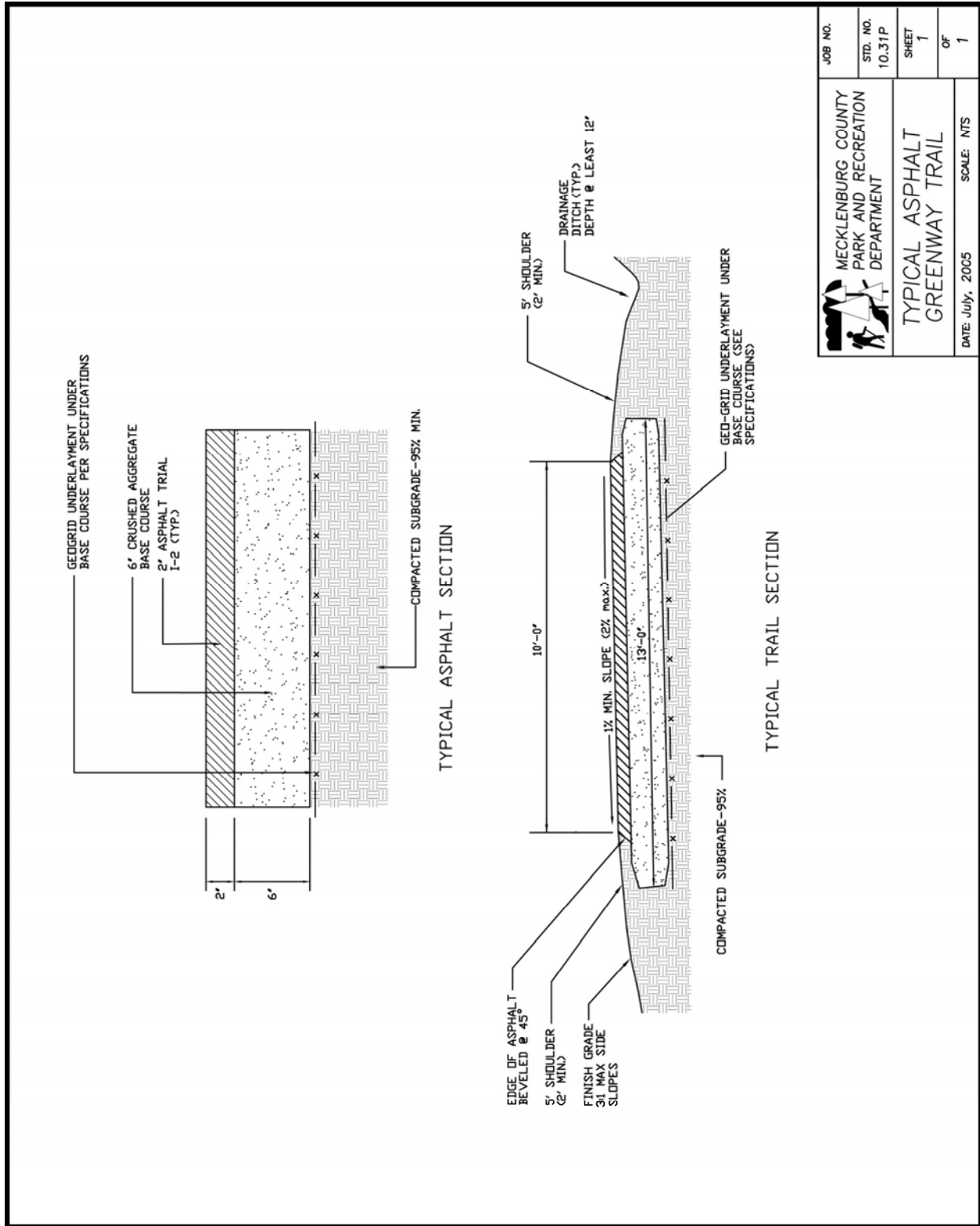


RECOMMENDED PAVEMENT DESIGN

NOTE : PROJECTS WITH POOR SOILS
MAY SUBSTITUTE 6" OF ABC
WITH 3" OF HB.



NCDOT – Bicycle Facilities Guide: Types of Bicycle Accommodations



		JOB NO.
MECKLENBURG COUNTY PARK AND RECREATION DEPARTMENT		10.31P
TYPICAL ASPHALT GREENWAY TRAIL		SHEET 1 OF 1
DATE: July, 2005 SCALE: NTS		

SAMPLE COST ESTIMATES

Below are approximate unit costs for the types of pedestrian projects proposed in this plan, based on some example project costs that have been recently implemented, along with costs of other pedestrian projects. Project cost estimations in Appendix G are based on these figures, and do not necessarily include extra costs involved in the project such as advanced grading issues, land acquisition, land clearing, etc.

Sidewalks

- \$15 per foot for curb and gutter (plus 10% for design and administration)
- \$30 per square yard sidewalk (plus 10% for design and administration)
- 5' sidewalk – The nearby Town of Mooresville is spending \$119 - \$200 per linear foot (\$629,000 - \$1,056,000 per mile) for recent sidewalk projects. This figure includes all necessary costs design & administration, curb & gutter, various retrofitting costs, etc.

Shared-Use Paths

- Floodplain paths, such as creek or sewer paths may require more site preparation. Floodplain costs usually involve drainage issues (i.e., need for culverts and bridges, or geotextiles), permitting issues, and boardwalk. Mecklenburg County Park and Recreation's greenways are typically constructed on creek corridors or sewer easements, and whose greenways therefore provide good cost examples for many of Marshville's recommended shared-use paths.
- Rail Trails and sidepaths that have the advantage of being on a relatively cleared alignment with some existing grading and base work already complete can be constructed more economically.

Typical Costs Associated with Floodplain Shared - Use Paths on Waterways or Sewer Lines

- \$120 per linear asphalt foot (installation including grading, clearing, construction, and a subbase with 18" on either side of asphalt for shoulder stabilization) 633,600 per mile + 10% administration and design = approximately \$700,000 per mile = \$132 per linear foot
- 10' Concrete walkway: \$300,000 - \$500,000 per mile (with design and administration – add 10%)
- 10' wide prefabricated "Steadfast" type Pedestrian Bridge: \$1,200 per linear foot with design, engineering, installation and administration costs. An 8' wide clearance can reduce this cost.
- 10' paved asphalt path (with two-foot margins and associated improvements): \$100 - \$125 per foot (\$528,000 - \$660,000 per mile.) Add 10% for design and administration.
- Boardwalk: Historically \$200 / linear foot (\$1,056,000 / mile), lately has increased to \$225 - \$250 per linear foot. Unit prices on bids can see boardwalks come in anywhere from \$150 - 350/LF. Boardwalk is 8' clear.
- Converted Culverts and Underpasses: \$60,000 - \$100,000. Varies according to width, lighting needs, if stream restoration is involved, and other circumstances.
- Mecklenburg County Park and Recreation's designers typically estimate \$120 per linear foot for construction of path (clearing, grading, subbase -- 14' wide, asphalt trail 10' wide).
- Mecklenburg County Park and Recreation routinely estimates \$1,000,000/mile for the design and construction of greenway paths in Mecklenburg County (10' wide asphalt

trail). This cost takes into account various factors including need for culverts, drainage and flood studies.

- Mecklenburg County Parks and Recreation recently spent \$615,000 for 1.6 miles of a new portion of Mallard Creek Greenway. Other recent construction costs: 1.9 miles (Four Mile Creek Greenway) Design: \$241,102 Construction: \$1,663,255. Irwin Creek Greenway (1.0 miles) Design: \$107,000, Construction: \$428,088. These costs do not include any funds for contingency (typically around 5% for construction and 10-15% for FFE -- i.e., signage, benches, trashcans, bike racks, water fountains, etc.)
- Mecklenburg County Park and Recreation recently paid \$128,000 for an 80' span on Briar Creek (included concrete approaches) and \$142,000 for an 80' span on Little Sugar Creek (approaches and railing included in costs) both bridges are 10' clear. Cost includes design, engineering and installation.
- Mecklenburg County Park and Recreation recently paid \$60,000 for a simple bridge underpass conversion for a greenway under Remount Road along Irwin Creek, \$150,000 for an underpass conversion on Toby Creek with a major stream restoration project included in the cost, and \$170,000 for NCDOT to design and install a Con-Span under a pre-existing bridge to build a greenway path.

Costs Typical with Upland Multi-Use Paths on Rail Beds, Road Corridors, Gas, or Electric Lines.

- Construction is less expensive in upland areas, especially where grading is already complete or where a subbase is not needed.
- Rail Trail construction can be estimated at \$510,000 per mile, based on other North Carolina Rail Trail projects plus an additional 10% for design and administration. This plan uses \$106 per linear foot to calculate all costs estimations for paths built on roadway and other upland corridors.
- The American Tobacco Trail (a rail trail in the Raleigh-Durham area) cost \$330,000 per mile for construction costs in 2002. The City of Durham notes that they have seen a 10 – 11% increase in construction costs in later years, with a more moderate climb earlier. This cost included hauling away ballast and ties (not rails), filling in areas of bad soil, upfitting 12" and 18" drain pipes to 24" and 36" to meet new code requirements, grading, and paving.
- 10' Crushed Rock walkway: \$80,000 - \$120,000 per mile (with design and administration – add 10%). These greenways have high maintenance costs.
- Mecklenburg County Park and Recreation's most recent construction cost for a stand alone asphalt parking lot (34 spaces) at Four Mile Creek/Johnston Rd was \$173,000.
- Parking lot: \$18 per square yard. (Parking lots for greenways can typically be shared with shopping areas, parks, or other public destinations and more typically are not needed at all because they are neighborhood access points.)

Intersections

- Crosswalk/Countdown signal: \$5,000 per intersection (this includes installation and an additional installed post). This cost can be up to \$15,000 per intersection if a retrofit is done with APS devices.
- Curb extensions: \$5,000 - \$25,000
- Simple neighborhood crosswalks with signs and markings: \$500 - \$1,500
- Enhanced crosswalk with special stencils, raised platforms, or special signage: \$5,000
- Raised crosswalks: \$2,000 – \$15,000
- Refuge island: \$10,000 – \$40,000
- In pavement illumination: \$25,000 – \$40,000 per crossing

- Pedestrian only traffic signal: \$40,000 - \$75,000
- Hawk signal: \$40,000
- Mid Block Flashing Crosswalk: \$20,000 for equipment and \$20,000 to install

Lane Marking

- Bicycle or vehicle lane striping (thermoplastic): \$15,000/mile with design and administration for both sides of the road.
 - \$1.20 per linear foot of thermoplastic for line striping
 - \$350.00 for each set of performed thermoplastic bike symbols with arrows

Lighting, Landscaping, and Signage

- Lighting: Varies widely depending on type of light and location. Lighting an underpass could be \$2,000 - \$5,000 for 3 to 4 lights. Mecklenburg County Park and Recreation recently paid approximately \$11,000 for the wiring and installation of 2 underpasses (8-12 lights under each).
- Landscaping: Contractor installed foliage costs around \$400 - \$500 per tree and \$25 - \$50 per shrub.
- Marking a route with signs: \$2,000 per mile with design and administration
- Signs: \$250 – \$350 each

Streetscape Projects

- The City of Charlotte recently completed these streetscape projects:
 - Tuckaseegee Rd. Streetscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, 2 bicycle lanes, a turn lane, improved ADA curb cuts and crosswalks with safety islands.
 - Length = 1.3 Miles, Final Cost = \$2,500,000 (\$365 per linear foot)
 - East Blvd. Pedscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, 2 bicycle lanes, a turn lane, improved ADA curb cuts and crosswalks with safety islands.
 - Length = ½ Mile, Final Cost = \$1,050,000 (\$398 per linear foot)
 - Morehead Avenue Streetscape including repaving for a road diet from 4 motor vehicle lanes to 2 motor vehicle lanes, a turn lane, paved shoulders, wide sidewalks, planting strips, pedestrian lighting, improved ADA intersections and crosswalks with safety islands.
 - Length = ½ Mile, Final Cost = \$3,000,000 (\$1,137 per linear foot)
- For simplicity, the cost of \$425.00 per linear foot is used for estimating streetscape project costs outlined in this report. This cost estimates only the basic cost for sidewalk and crosswalk infrastructure and not any roadway repaving or conflicting utility or drainage costs. Every project is very different, and a complete study would be necessary before it would be possible to adequately estimate the complete cost for any streetscape project.

Marshville Comprehensive Pedestrian Plan

Some general cost estimates and other notes are included below from the United States Department of Transportation for traffic calming facilities:

Measure	Reduces Traffic	Noise	Loss of Parking	Restrict Access	Emergency Entrance	Maintenance	Cost
Traffic Education Campaign	Maybe	No change	None	None	None	No	Varies
Speed Display	Yes	No change	None	None	None	No	\$250/day
Neighborhood Sign	Maybe	No change	None	None	None	No	\$200/sign
High Visibility Crosswalks	Maybe	No change	None	None	None	Yes	\$1K-\$5K
Police Enforcement	Yes	No change	None	None	None	No	\$75/hour
Narrowing Lanes	Yes	No change	None	None	None	Yes	\$1K-\$3K
Speed Limit Signing	Maybe	No change	None	None	None	No	\$200/sign
Stop Signs	Maybe	Increase	None	None	None	No	\$200/sign
Signing Restrictions	No	No change	None	Yes	None	No	\$200/sign

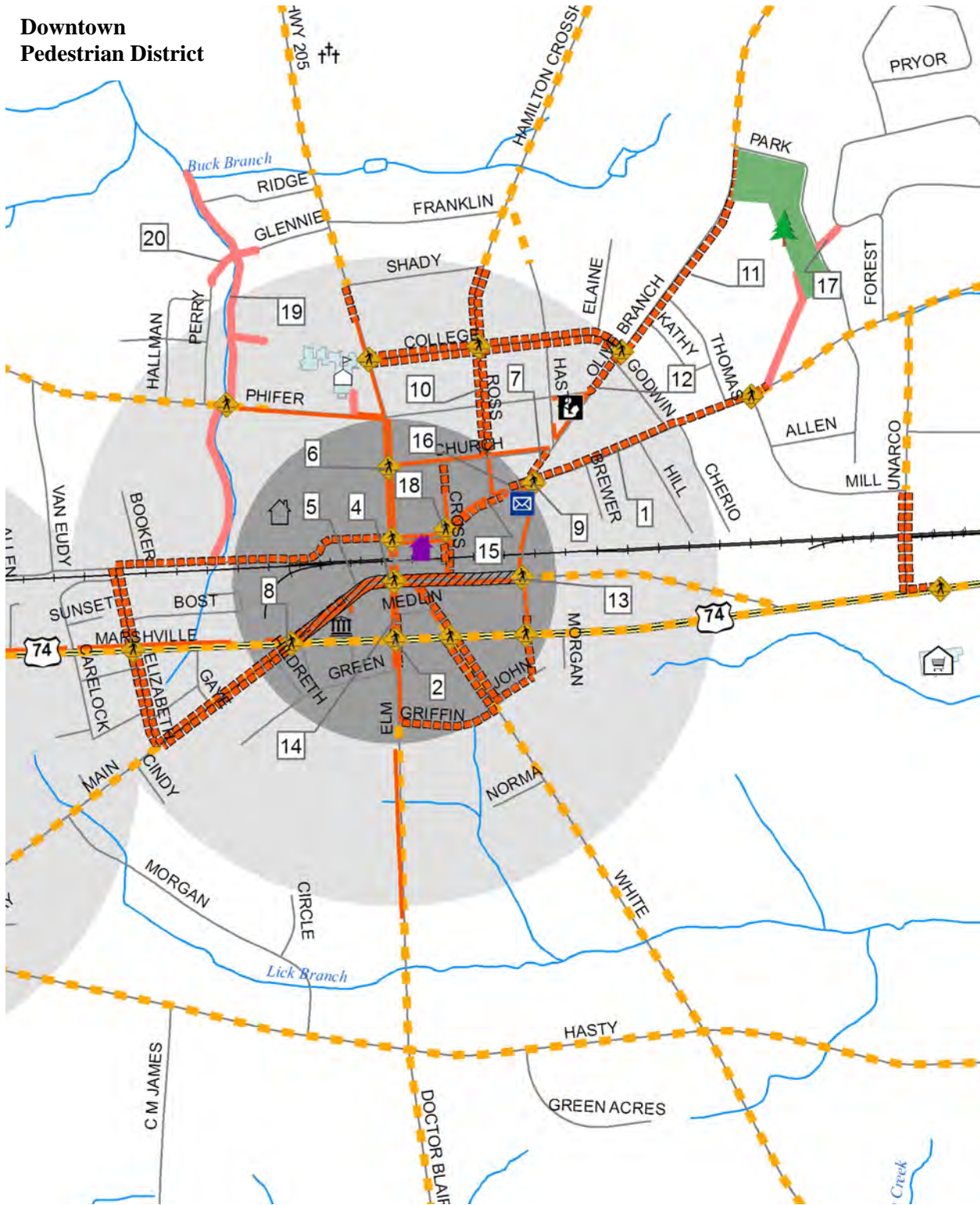
Marshville Comprehensive Pedestrian Plan

Measure	Reduces Traffic	Noise	Loss of Parking	Restrict Access	Emergency Entrance	Maintenance	Cost
Bike Lane	Maybe	No change	Maybe	No	None	Yes	\$25K-\$75K/mile
Sidewalk	No	No change	Maybe	No	None	Yes	\$20-\$30/foot
Median Island	Maybe	Decrease	Maybe	Yes	Yes	No	\$10K-\$75K
Gateway	Yes	Decrease	Maybe	Yes	None	No	\$10K-\$20K
Curb Extension	Maybe	No change	Yes	None	Some	Yes	\$10K-\$20K
Choker	Yes	No change	Yes	None	Some	No	\$15K
Speed Hump	Yes	Increase	Maybe	None	Yes	Yes	\$5K
Raised Crosswalk	Yes	Increase	Yes	None	Some	Yes	\$5-\$10K
Raised Intersection	Yes	Increase	Yes	None	Yes	Yes	\$25K-\$50K
Traffic Circle	Yes	No change	Maybe	None	Some	Maybe	\$15-\$25K
Intersection Channelizing	Yes	No change	Yes	None	None	Maybe	\$15-\$20K
Chicane	Yes	Maybe	Yes	None	Yes	Maybe	\$20K-\$40K
Entrance Barrier	Maybe	No change	Maybe	Yes	Maybe	No	\$15-\$20K
One-way Streets	No	No change	None	Yes	Yes	No	\$5K

This page intentionally left blank

Marshville Comprehensive Pedestrian Plan

Downtown Pedestrian District



Town of Marshville Existing Facilities

- Town Hall
- Park
- Community Center
- Autumn Care
- Post Office
- School
- Library
- Grocery Store
- Cemetery
- Park Boundary

- Existing Sidewalks
- Highway 74
- Roads
- Railroads
- Streams

Proposed Facilities

- Crosswalks
- Pedestrian Districts
- Quarter Mile Radius
- Half Mile Radius
- Proposed Streetscape Corridor
- Sidewalk By Policy
- Retrofit 5' Sidewalks
- Shared Use Path
- Top 20 Proposed Projects

Marshville Comprehensive Pedestrian Plan

Proj. #	Description of Retrofitted Project	Roadway / Location	From (west and north) or intersection	To (east and south)	Distance in Linear Feet or # of Items	Unit Cost	Estimated Project Cost	Project Evaluation (Total of 100 Points)										Total Points	Ranking	Priority Level
								Connectivity				Safety			Ability to Implement					
								Provides Access to Major Destinations (10 pts.)	Provides obvious access to children, low-income residents, the disabled, and seniors (10 pts.)	Already used by the community as a social trail or connection (10 pts.)	Connects Gaps Between Other Existing or Potential Walking Corridors (10 pts.)	Improves Safety near Schools (10 pts.)	Calms Motorized Traffic or Provides Alternate Walking Routes (10 pts.)	Improves an Intersection (10 pts.)	Readiness (10 pts.)	Potential or Existing Political or Public Support for Project (10 pts.)	Cost vs. Assumed Benefit (10 pts.)			
1	Sidewalk	E. Union St.	Olive Branch Rd.	East of Allen Dr.	1,900	\$150	\$285,000	10	10	10	10	0	10	2	3	10	10	75	1	High Priority
2	Sidewalk	E. Union St.	Existing Sidewalk	Olive Branch Rd.	160	\$150	\$24,000	6	6	10	10	0	10	5	0	5	8	60	16	High Priority
3	Sidewalk	E. Union St.	Fuller St.	Post Office	550	\$150	\$82,500	6	6	10	10	0	10	5	0	5	8	60	15	High Priority
4	Sidewalk	Olive Branch Rd.	Park Dr.	Godwin St.	2,050	\$150	\$307,500	8	10	10	10	0	8	0	0	8	8	62	11	High Priority
5	Sidewalk	Olive Branch Rd.	College St.	E. Phifer St.	400	\$150	\$60,000	8	10	10	10	0	8	0	0	8	8	62	12	High Priority
6	Sidewalk	Olive Branch Rd.	E. Church St.	E. Union St.	300	\$150	\$45,000	8	10	10	10	0	8	5	0	8	8	67	7	High Priority
7	Sidewalk	Ross St.	Shady Ln.	E. Church St.	1,550	\$150	\$232,500	8	6	8	5	5	10	0	3	8	10	63	10	High Priority
8	Sidewalk	N. Elm St.	Shady Ln.	Elementary School	300	\$150	\$45,000	4	4	8	5	10	8	0	0	5	8	52		Upcoming
9	Sidewalk	Elm St.	E. Medlin St.	Greene St.	200	\$150	\$30,000	4	4	10	10	0	8	5	0	8	10	59	14	High Priority
10	Sidewalk	College St.	N. Elm St.	Olive Branch Rd.	2,140	\$150	\$321,000	6	4	8	8	10	8	0	0	5	5	54		Upcoming
11	Sidewalk	N. Cross St.	E. Church St.	Existing Sidewalk	250	\$150	\$37,500	4	2	8	10	0	5	0	0	5	8	42		Upcoming
12	Sidewalk	Fuller St.	E. Union St.	E. Main St.	280	\$150	\$42,000	4	2	8	10	0	8	0	0	5	8	45		Upcoming
13	Sidewalk	W. Main St.	US 74	Raleigh St.	460	\$150	\$69,000	4	6	8	10	0	5	5	0	8	8	54		Upcoming
14	Sidewalk	W. Main St.	Elizabeth Ave.	US 74	1,370	\$150	\$205,500	6	4	5	0	0	8	0	0	2	5	30		On-Hold
15	Sidewalk	Belk St.	Existing Sidewalk	John Street	480	\$150	\$72,000	6	4	2	5	0	5	5	0	2	5	34		On-Hold
16	Sidewalk	John St.	S. White St.	Belk St.	370	\$150	\$55,500	2	2	2	0	0	5	0	0	2	5	18		On-Hold
17	Sidewalk	Griffin Ln.	S. Elm St.	S. White St.	800	\$150	\$120,000	4	2	2	5	0	5	0	0	2	5	25		On-Hold
18	Sidewalk	N. White St.	E. Main St.	US 74	500	\$150	\$75,000	6	4	5	8	0	5	5	0	2	5	40		Upcoming
19	Sidewalk	S. White St.	US 74	Griffin Ln.	720	\$150	\$108,000	6	2	8	5	0	5	5	0	5	5	41		Upcoming
20	Sidewalk	Unarco Rd.	Mill St.	US 74	820	\$150	\$123,000	4	2	5	0	0	8	0	0	2	5	26		On-Hold
21	Sidewalk	US 74	Unarco Rd.	Food Lion Traffic Light	250	\$150	\$37,500	4	2	5	0	0	8	5	0	2	5	31		On-Hold
22	Sidewalk	W. Union St.	N. Elm St.	Elizabeth Ave.	2,300	\$150	\$345,000	4	4	2	0	0	8	0	0	2	5	25		On-Hold
23	Sidewalk	Elizabeth Ave.	W. Union St.	W. Main St.	1,500	\$150	\$225,000	2	2	2	0	0	5	5	0	2	5	23		On-Hold
24	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Pilgrim's Pride		1	\$50,000	\$50,000	2	2	8	0	0	8	10	3	5	8	46		Upcoming
25	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	E. Union Middle School		1	\$50,000	\$50,000	4	4	10	8	10	8	10	3	8	8	73	3	High Priority
26	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Elizabeth Ave.		1	\$30,000	\$30,000	2	2	8	0	0	8	10	3	5	8	46		Upcoming
27	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Main St.		1	\$30,000	\$30,000	8	6	8	8	0	8	10	3	5	8	64	8	High Priority
28	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Elm St.		1	\$40,000	\$40,000	8	6	10	8	0	10	10	3	8	10	73	2	High Priority
29	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	White St.		1	\$30,000	\$30,000	6	4	5	0	0	8	10	3	5	8	49		Upcoming
30	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Belk St.		1	\$30,000	\$30,000	4	4	5	8	0	8	10	3	5	8	55		Upcoming
31	Crosswalks, Pedestrian Refuge Island, Countdown Signals	US 74	Food Lion Shopping Center		1	\$30,000	\$30,000	4	4	8	0	0	8	10	3	5	8	50		Upcoming
32	Crosswalks and Countdown Signals	Main Street	Elm St.		1	\$5,000	\$5,000	8	6	10	10	0	5	10	3	10	10	72	4	High Priority
33	Crosswalks at Intersection	Main Street	Olive Branch Rd.		1	\$1,500	\$1,500	8	4	5	10	0	8	10	3	5	8	61	13	High Priority
34	Crosswalks at Intersection	Union Street	Elm St.		1	\$1,500	\$1,500	4	4	8	8	0	8	10	3	5	8	58	18	High Priority
35	Crosswalks at Intersection	E. Union Street	N. Cross St		1	\$1,500	\$1,500	4	4	5	8	0	8	10	3	5	8	55		Upcoming
36	Crosswalks at Intersection	Olive Branch Rd.	E. Union Street		1	\$1,500	\$1,500	6	6	8	10	0	8	10	3	5	8	64	9	High Priority
37	Crosswalks at Intersection	E. Union Street	Allen Dr.		1	\$1,500	\$1,500	4	2	2	0	0	8	10	3	5	8	42		Upcoming
38	Crosswalks at Intersection	N. Elm St.	Church St.		1	\$1,500	\$1,500	4	4	8	10	8	8	10	3	5	8	68	6	High Priority
39	Improved Crosswalks at Intersection	N. Elm St.	College St.		1	\$5,000	\$5,000	4	4	8	5	8	8	5	3	2	5	52		Upcoming
40	Safety Features at Intersection	College St.	Ross St.		1	\$1,500	\$1,500	4	4	8	0	8	8	5	3	5	8	53		Upcoming
41	Crosswalks at Intersection	College St.	Olive Branch Rd.		1	\$1,500	\$1,500	4	4	8	0	0	8	10	3	5	8	50		Upcoming
42	Midblock Crosswalk	W. Phifer St.	Buck Branch Creek		1	\$1,500	\$1,500	0	0	0	0	8	8	10	3	5	5	39		On-Hold
43	Paved Lowland Shared-Use Path	Buck Branch Creek	W. Phifer St.	W. Union St.	1,700	\$132	\$224,400	6	8	0	5	5	8	0	3	5	5	45		Upcoming
44	Paved Lowland Shared-Use Path	Buck Branch Creek	Creek Tributary/Ridge Run	W. Phifer St.	2,030	\$132	\$267,960	6	8	2	8	8	8	0	3	5	10	58	19	High Priority
45	Paved Upland Shared-Use Path with Bridge	Connector	Perry Ln.	Glennie St.	500	\$106+\$50,000	\$103,000	6	8	2	10	8	8	0	0	5	10	57	20	High Priority
46	Paved Upland Shared-Use Path	School Property	Elementary School	W. Phifer St.	160	\$106	\$16,960	4	4	2	8	10	10	0	3	2	10	53		Upcoming
47	Paved Upland Shared-Use Path	Private Property	Park Dr.	Forest Dr.	200	\$106	\$21,200	4	10	10	10	0	10	0	0	5	10	59	17	High Priority
48	Paved Lowland Shared-Use Path	Drainage Ditch / Private Property	E. Union St.	Marshville Mun. Park	970	\$132	\$128,040	4	10	0	10	0	10	0	0	2	5	41	*1	* w/proj. # 1
49	Paved Lowland Shared-Use Path	Salem Creek	US 74	Philips Sanders Rd.	2,420	\$132	\$319,440	6	6	2	5	10	10	0	0	2	5	46		Upcoming
50	Streetscape/sidewalks/landscaping/crosswalks	Main Street	US 74	Olive Branch Rd.	2,050	\$425	\$871,250	8	6	10	10	0	10	10	3	5	8	70	5	High Priority

FUNDING OPPORTUNITIES

A variety of funding sources are available for implementing the projects and programs recommended as part of this plan. Many sources have eligibility restrictions that limit their use to specific types of projects, but other sources can be used for a variety of projects. Brief descriptions of potential funding sources, along with the types of projects that are applicable, are provided below. Funding opportunities are categorized as follows:

- Federal Government Sources;
- State Government Sources;
- Local Government Sources;
- Private Sector Sources;
- Local Fundraising; and
- Foundations.

Federal Government Sources

Although most federal / state governmental funding sources are competitive in nature, these sources represent an important opportunity for funding large-scale projects. For more information on these funding programs as enabled under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), please refer to the SAFETEA-LU website at <http://www.fhwa.dot.gov/safetealu>.

- Federal Aid Construction Funds – Several categories of federal aid construction funds — National Highway System (NHS) and Surface Transportation Program (STP) — or Congestion Mitigation and Air Quality (CMAQ) funds provide for the construction of pedestrian and bicycle transportation facilities. The primary source of funding for bicycle and pedestrian projects is STP Enhancement Funding (source: NCDOT Division of Bicycle and Pedestrian Transportation). These Federal funds typically require a 20% local match.

Appropriate Projects: Sidewalk construction, pedestrian path / greenway construction

- Recreational Trails Program – The Recreational Trails Program provides funds to States to develop and maintain trails, including trails for non-motorized uses as well as motorized uses. These Federal funds typically require a 20% local match.

Appropriate Projects: Pedestrian path / greenway development (easement acquisition, construction, and maintenance); trail safety and environmental protection programs

- Safe Routes to School Program – This program is intended to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Funds are to be administered by State departments of transportation to provide financial assistance to State, local, and regional agencies, including non-profit organizations, that

demonstrate the ability to meet the requirements of the program. The allocation for North Carolina is approximately \$15 million over a five year period.

Appropriate Projects: Eligible activities include the planning, design, and construction of projects that will substantially improve the ability of students to walk and bicycle to school. These include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, secure bike parking, and traffic diversion improvements in the vicinity of schools (within approximately 2 miles). Such projects may be carried out on any public road or any bicycle or pedestrian pathway or trail in the vicinity of schools.

The North Carolina contact for the Safe Routes to School program is as follows:

Safe Routes to Schools
NC Dept of Transportation, Division of Bicycle and Pedestrian Transportation
1552 Mail Service Center
Raleigh, NC 27699-1552
Phone: 919-807-0777
http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/Safe_Routes.html

- Community Transformation Grants – The 2010 Health Care Bill makes local governments and nonprofit groups eligible for funding through the Center for Disease Control towards projects that support public health, including "activities to prevent chronic diseases" and "the infrastructure to support active living." In practice, that could result in new funding available for pedestrian and bicycle improvements or programs that encourage safe transportation for young students. There is an unknown start date for this program.

State Government Sources

- State Construction Funds – State roadway construction funds (not including the Highway Trust Fund for Urban Loops and Interchanges) may be used for the construction of sidewalks and bicycle accommodations that are a part of roadway improvement projects (source: NCDOT Division of Bicycle and Pedestrian Transportation).

Appropriate Projects: Sidewalk / pedestrian path construction

- Governor's Highway Safety Program (GHSP) – GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of pedestrian and bicycle safety initiatives. Amounts of GHSP funds vary from year to year, according to the specific amounts requested (source: NCDOT Division of Bicycle and Pedestrian Transportation).

Appropriate Projects: Sidewalk / pedestrian path construction; safety programs

- NCDOT Transportation Improvement Program (TIP) – Six million dollars are annually set aside for the construction of bicycle improvements that are independent of scheduled highway projects in communities throughout the state. For independent pedestrian and

greenway projects to be added to the TIP, they will follow essentially the same TIP process as do highway projects. See the DBPT web site for more information on the TIP process -

http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html

For incidental projects, many times a cost-sharing approach will be used to fund pedestrian facilities. Based on the Town of Marshville's population, 30 percent of local contributions are required, while NCDOT will provide 70% of the costs. See the DBPT web site for DOT's Pedestrian Policy Guidelines –

http://www.ncdot.org/transit/bicycle/laws/laws_pedpolicy.html

For more information on how to receive these state funds, contact the regional NCDOT office.

The NCDOT Division 10 Office currently receives \$200,000 annually for small pedestrian projects, i.e. sidewalk links. Contact info: <http://www.ncdot.org/doh/operations/division10/>

North Carolina Department of Transportation
Division 10
716 West Main Street
Albemarle, NC 28001
Phone: (704) 982-0101
Fax: (704) 982-3146

Local Government Sources

Local governments participate in funding pedestrian projects through dedicated funding sources as well as annual set-asides of departmental budgets. In the future, Marshville should strive to identify a set amount of funding every year for pedestrian infrastructure improvements. This amount can be included as a line item in the Town's budget, to be applied toward projects identified in this plan. Additionally, communities are generally supportive of local bond options for pedestrian improvements and recreational trails. Bonds could be Marshville's most crucial local funding source. Taxes levied on utilities, gas, vehicle registrations, or retail goods can also apply toward pedestrian infrastructure. Powell Bill funds may also be used.

Private Sector Sources

Perhaps the most important funding source for improvements to Marshville's pedestrian infrastructure is private sector sources. Ensuring that pedestrian facilities are implemented in conjunction with future developments is important so that the Town does not have to go back and retrofit facilities later using government funding. In addition, local companies may be interested in financially supporting pedestrian projects and programs. Major local employers may support projects as part of their community giving programs or employee health programs. Recognition for contributions could be prominently displayed on signage along the sidewalk or path that was supported by private funds.

Local Fundraising

Local matching monies could be raised for projects by seeking private donations for specific projects. Several examples of these efforts are given below (information taken from the Pedestrian and Bicycle Information Center at <http://www.walkinginfo.org>).

- *In Ashtabula, Ohio the local trail organization raised one-third of the money they needed to buy the land for the trail, by forming a "300 Club." Three hundred acres were needed for the trail and they set a goal of finding 300 folks who would finance one acre each. The land price was \$400 an acre and they found just over 100 people to buy an honorary acre, raising over \$40,000.*
- *In Jackson County, Oregon a "Yard Sale" was held. The Bear Creek Greenway Foundation sold symbolic "yards" of the trail and placed donor's names on permanent markers that are located at each trailhead. At \$40 a yard, they raised enough in private cash donations to help match their \$690,000 Transportation Enhancements program award for the 18-mile Bear Creek trail linking Medford, Talent, Phoenix and Ashland.*
- *Selling bricks for local sidewalk projects, especially those in historic areas or on downtown Main Streets is increasingly common. Donor names are engraved in each brick, and a tremendous amount of publicity and community support is purchased along with basic construction materials. Portland, Oregon's downtown Pioneer Square is a good example of such a project.*
- *In Colorado Springs, the Rock Island Rail-Trail is being partly funded by the Rustic Hills Improvement Association, a group of local home-owners living adjacent to the trail. Also, 10 miles of the trail was cleared of railroad ties by a local Boy Scout troop.*
- *A pivotal 40-acre section of the Ice Age Trail between the cities of Madison and Verona, Wisconsin, was acquired with the help of the Madison Area Youth Soccer Association. The soccer association agreed to a fifty year lease of 30 acres of the parcel for a soccer complex, providing a substantial part of the \$600,000 acquisition price.*

Foundations

A number of charitable foundations have provided funds for pedestrian projects, including infrastructure projects as well as safety programs. One of the largest of these foundations is the Robert Wood Johnson Foundation, which has a strong focus on projects that have a positive benefit on public health, such as walking. The Foundation Center (www.fdncenter.org) is an online resource that catalogs numerous foundations.

NCDOT Greenway Administrative Process

In 1994 the NCDOT adopted administrative guidelines to consider greenways and greenway crossings during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction. Following are the text for the Greenway Policy and Guidelines for implementing it.

Administrative Action to Include Local Adopted Greenways Plans in the NCDOT Highway Planning Process

January, 1994

In concurrence with the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Board of Transportation's Bicycle Policy of 1978 (updated in 1991) and Pedestrian Policy of 1993, the North Carolina Department of Transportation recognizes the importance of incorporating local greenways plans into its planning process for the development and improvement of highways throughout North Carolina.

NCDOT Responsibilities:

The Department will incorporate locally adopted plans for greenways into the ongoing planning processes within the Statewide Planning (thoroughfare plans) and the Planning and Environmental (project plans) Branches of the Division of Highways. This incorporation of greenway plans will be consistent throughout the department. Consideration will be given to including the greenway access as a part of the highway improvement.

Where possible, within the policies of the Department, within the guidelines set forth in provisions for greenway crossings, or other greenway elements, will be made as a part of the highway project or undertaken as an allowable local expenditure.

Local Responsibilities:

Localities must show the same commitment to building their adopted greenway plans as they are requesting when they ask the state to commit to providing for a certain segment of that plan. It is the responsibility of each locality to notify the Department of greenway planning activity and adopted greenway plans and to update the Department with all adopted additions and changes in existing plans.

It is also the responsibility of each locality to consider the adopted transportation plan in their greenways planning and include its adopted greenways planning activities within their local transportation planning process. Localities should place in priority their greenways construction activities and justify the transportation nature of each greenway segment. When there are several planned greenway crossings of a proposed highway improvement, the locality must provide justification of each and place the list of crossings in priority order. Where crossings are planned, transportation rights of way should be designated or acquired separately to avoid jeopardizing the future transportation improvements.

Guidelines for NCDOT to Comply With Administrative Decision to Incorporate Local Greenways into Highway Planning Process

Thoroughfare plans will address the existence of greenways planning activity, which has been submitted by local areas. Documentation of mutually agreed upon interface points between the thoroughfare plan and a greenway plan will be kept, and this information will become a part of project files.

Project Planning Reports will address the existence of locally adopted greenways segment plans, which may affect the corridor being planned for a highway improvement. It is, however, the responsibility of the locality to notify the Department of the adopted greenways plans (or changes to its previous plans) through its current local transportation plan, as well as its implementation programs.

Where local greenways plans have not been formally adopted or certain portions of the greenways plans have not been adopted, the Department may note this greenway planning activity but is not required to incorporate this information into its planning reports.

Where the locality has included adopted greenways plans as a part of its local transportation plan and a segment (or segments) of these greenways fall within the corridor of new highway construction or a highway improvement project, the feasibility study and/or project planning report for this highway improvement will consider the effects of the proposed highway improvement upon the greenway in the same manner as it considers other planning characteristics of the project corridor, such as archeological features or land use.

Where the locality has justified the transportation versus the leisure use importance of a greenway segment and there is no greenway alternative of equal importance nearby, the project planning report will suggest inclusion of the greenway crossing, or appropriate greenway element, as an incidental part of the highway expenditure.

Where the locality has not justified the transportation importance of a greenway segment, the greenway crossing, or appropriate greenway element, may be included as a part of the highway improvement plan if the local government covers the cost.

A locality may add any appropriate/acceptable greenway crossing or greenway element at their own expense to any highway improvement project as long as it meets the design standards of the NCDOT.

The NCDOT will consider funding for greenway crossings, and other appropriate greenway elements only if the localities guarantee the construction of and/or connection with other greenway segments. This guarantee should be in the form of inclusion in the local capital improvements program or NCDOT/municipal agreement.

If the state pays for the construction of a greenway incidental to a highway improvement and the locality either removes the connecting greenway segments from its adopted greenways plans or decides not to construct its agreed upon greenway segment, the locality will reimburse the state for the cost of the greenway incidental feature. These details will be handled through a municipal agreement. Locality must accept maintenance responsibilities for state-built greenways, or portions thereof. Details will be handled through a municipal agreement.

06/01/05

**DEPARTMENT OF TRANSPORTATION
PEDESTRIAN POLICY GUIDELINES
EFFECTIVE OCTOBER 1, 2000**

These guidelines provide an updated procedure for implementing the Pedestrian Policy adopted by the Board of Transportation August 1993 and the Board of Transportation Resolution September 8, 2000. The resolution reaffirms the Department's commitment to improving conditions for bicycling and walking, and recognizes non-motorized modes of transportation as critical elements of the local, regional, and national transportation system. The resolution encourages North Carolina cities and towns to make bicycling and pedestrian improvements an integral part of their transportation planning and programming.

REQUIREMENTS FOR DOT FUNDING:

REPLACEMENT OF EXISTING SIDEWALKS:

The Department will pay 100% of the cost to replace an existing sidewalk that is removed to facilitate the widening of a road.

TIP INCIDENTAL PROJECTS:

DEFINED: Incidental pedestrian projects are defined as TIP projects where pedestrian facilities are included as part of the roadway project.

REQUIREMENTS:

1. The municipality and/or county notifies the Department in writing of its desire for the Department to incorporate pedestrian facilities into project planning and design. Notification states the party's commitment to participate in the cost of the facility as well as being responsible for all maintenance and liability. Responsibilities are defined by agreement. Execution is required prior to contract let. The municipality is responsible for evaluating the need for the facility (ie: generators, safety, continuity, integration, existing or projected traffic) and public involvement.
2. Written notification must be received by the Project Final Field Inspection (FFI) date. Notification should be sent to the Deputy Highway Administrator - Preconstruction with a copy to the Project Engineer and the Agreements Section of the Program Development Branch. Requests received after the project FFI date will be incorporated into the TIP project, if feasible, and only if the requesting party commits by agreement to pay 100% of the cost of the facility.
3. The Department will review the feasibility of including the facility in our project and will try to accommodate all requests where the Department has acquired appropriate right of way on curb and gutter sections and the facility can be installed in the current project berm width. The standard project section is a 10-ft berm (3.0-meter) that accommodates a 5-ft sidewalk. In accordance with AASHTO standards, the Department will construct 5-ft sidewalks with wheelchair ramps. Betterment cost (ie: decorative pavers) will be a Municipal responsibility.

Marshville Comprehensive Pedestrian Plan

4. If the facility is not contained within the project berm width, the Municipality is responsible for providing the right of way and/or construction easements as well as utility relocations, at no cost to the Department. This provision is applicable to all pedestrian facilities including multi-use trails and greenways.

5. A cost sharing approach is used to demonstrate the Department's and the municipality's/county's commitment to pedestrian transportation (sidewalks, multi-use trails and greenways). The matching share is a sliding scale based on population as follows:

MUNICIPAL POPULATION	DOT PARTICIPATION	LOCAL PARTICIPATION
> 100,000	50%	50%
50,000 to 100,000	60%	40%
10,000 to 50,000	70%	30%
< 10,000	80%	20%

Note: The cost of bridges will not be included in the shared cost of the pedestrian installation if the Department is funding the installation under provision 6 - pedestrian facilities on bridges.

6. For bridges on streets with curb and gutter approaches, the Department will fund and construct sidewalks on both sides of the bridge facility if the bridge is less than 200 feet in length. If the bridge is greater than 200 feet in length, the Department will fund and construct a sidewalk on one side of the bridge structure. The bridge will also be studied to determine the costs and benefits of constructing sidewalks on both sides of the structure. If in the judgment of the Department sidewalks are justified, funding will be provided for installation. The above provision is also applicable to dual bridge structures. For dual bridges greater than 200 ft in length, a sidewalk will be constructed on the outside of one bridge structure. The bridges will also be studied to determine if sidewalks on the outside of both structures are justified.

7. FUNDING CAPS are no longer applicable.

8. This policy does not commit the Department to the installation of facilities in the Department's TIP projects where the pedestrian facility causes an unpractical design modification, is not in accordance with AASHTO standards, creates an unsafe situation, or in the judgment of the Department is not practical to program.

INDEPENDENT PROJECTS

DEFINED: The DOT has a separate category of funds for all independent pedestrian facility projects in North Carolina where installation is unrelated to a TIP roadway project. An independent pedestrian facility project will be administered in accordance with Enhancement Program Guidelines.

The following example is from Wake County's Subdivision Ordinance, which describes dedication requirements:

SECTION 3-4-14 CONTRIBUTION TO NEIGHBORHOOD RECREATION AREA

(A) **PURPOSE**

Residential development generates demands for recreation space and facilities, just as it generates demands for roads, utilities, and other community facilities. Whereas the County bears the responsibility for meeting most of the demand for regional recreation space and facilities, residential developments should themselves contribute something to providing at least the neighborhood recreation space their residents need. This Section is intended to ensure that each subdivision at least contributes toward providing recreation area that can be developed and used to meet the neighborhood recreational needs expected to be generated by the subdivision's future residents.

(B) **CONTRIBUTION REQUIRED; AMOUNT AND FORM**

A subdivision shall contribute to providing recreation area to meet the neighborhood recreational needs of its future residents. The minimum amount of recreation area deemed sufficient to meet the neighborhood recreational needs of a subdivision's residents, and thus required to meet this contribution requirement, shall be one thirty-fifth (1/35) acre of land per lot. A subdivider may meet this contribution requirement by (1) dedicating the required acreage of land for public recreational use, (2) reserving the required acreage of land for recreational use by subdivision residents, (3) paying the County funds equal to the value of the required acreage (to be used to acquire land for public recreational use), or (4) a combination of dedication, reservation, and payment - provided, however, that the form of contribution used shall be in accord with the requirements and limitations in Subsection (C) below. A potential subdivider is encouraged to use the pre-application conference with County staff to discuss and decide the appropriate form(s) of contribution to be used.

(C) **FORMS OF CONTRIBUTION - WHERE REQUIRED OR ALLOWED**

(1) **Dedication of Land**

Where the subdivision site contains land that could be used to establish, expand, or extend a public park, greenway, or other recreation area identified in an adopted County or municipal plan, the subdivision shall include dedication of such land for public recreational use, at least to the extent necessary to meet the minimum recreation area contribution requirement set forth in Subsection (B). Subdividers are encouraged to use Cluster or Open Space Subdivision regulations to dedicate any additional land on the site planned for public recreational use. Dedication of off-site land planned as public recreation area may also be used to meet the minimum contribution requirement, provided such land is located so as to be conveniently accessible to subdivision residents and has not been reserved to meet the recreation area contribution requirement for another subdivision. *[Added "Open Space" 1/18/05 (OA 04/11)]*

(2) Reservation of Land

To the extent that the minimum recreation area contribution requirement set forth in Subsection (B) will not be met through dedication of land in accord with Paragraph (1) above, a subdivision may meet the requirement, in whole or in part, by reserving land within the subdivision site for recreational use by subdivision residents - but only if, and to the extent that, the County determines that doing so would contribute more to meeting the neighborhood recreational needs of subdivision residents than the County's use of funds paid in accord with Paragraph (3) below. Such determination shall be based on the following factors:

- (a) What types of recreation facilities subdivision residents will need, considered in the context of what public recreation areas and facilities exist or are planned in the vicinity;
- (b) Whether there is a planned or existing public recreation area in the vicinity that could be established, expanded, or extended so as to provide a site for the types of recreation facilities needed by subdivision residents;
- (c) How conveniently accessible any such planned or existing public recreation areas are to the subdivision;
- (d) Whether the proposed reserved recreation area would be suitable (in size, shape, and physical characteristics) as a site for the types of recreation facilities needed by subdivision residents; and
- (e) The extent to which the subdivision proposes to improve the proposed reserved recreation area with the types of recreation facilities needed by subdivision residents.

(3) Payment of Funds to County

To the extent that the minimum recreation area contribution requirement set forth in Subsection (B) will not be met through required dedication of land per Paragraph (1) above, a subdivision may meet the requirement, in whole or in part, by paying funds to the County for its use in acquiring public recreation area that can meet the neighborhood recreational needs of subdivision residents. The amount of the payment shall be equal to the value of the portion of required acreage (as set forth in Subsection (B)) that is proposed to be contributed via a payment, based on the average per-acre assessed land value of the parcel being subdivided (from the County tax rolls). The subdivider shall make the payment before approval of a record plat for the subdivision, provided, however, that payments may be phased in accord with the approved phasing of the subdivision.

(D) OWNERSHIP AND MAINTENANCE OF DEDICATED OR RESERVED RECREATION AREA

- (1) Land required to be dedicated as recreation area shall be conveyed to the County or other public agency or nonprofit organization that is organized for, capable of, and willing to accept responsibility for managing the recreation area to serve the neighborhood recreational needs of residents of the subdivision and other developments in the immediate area. Land required to be reserved as recreation area shall be conveyed to such organizations as listed above, or to a homeowners association, property owners association, or similar legal entity meeting the provisions of Section 3-3-17, or to any agency, organization, person, or other legal entity that is organized for, capable of, and willing to accept responsibility for managing the recreation area to serve the neighborhood recreational needs of residents of the subdivision - provided such conveyance is restricted to ensure continued recreational use and maintenance.
- (2) The owner of the recreation area shall be responsible for maintaining the recreation area so that it continues to effectively function to serve neighborhood recreational needs of residents of the subdivision and other developments in the immediate area, and any dedication or conveyance of an open space parcel shall provide for such responsibility. Where the recreation area is located within a Residential-40W, Residential-80W, Water Supply II Overlay, Watershed Critical Area Overlay, Watershed Management Area Overlay, Watershed Protected Area Overlay, or Watershed Protected Area Overlay-2 District, any undeveloped part of it shall be retained in a vegetated or natural state, and such retention shall be ensured by maintenance provisions filed with the Wake County Register of Deeds, either as part of recorded documentation providing for establishment of a homeowners association or similar legal entity that is to be responsible for maintenance and control of open space (as provided for in Section 3-3-17), or in a maintenance agreement recorded with the property deeds.
- (2) Each dedicated or reserved recreation area parcel shall be shown on all subdivision plans and on a record plat recorded with the Wake County Register of Deeds, with a notation of its area and its use to serve neighborhood recreational needs.

(E) COUNTY USE OF RECREATION AREA FUNDS

The County shall ensure that any funds a subdivision pays the County to meet the recreation area contribution requirement will be used only to acquire land for the establishment, expansion, or extension of public parks, greenways, or other recreation areas that will serve the neighborhood recreational needs of residents of the subdivision. It shall do so by assigning funds paid by a subdivision to an account that may be used only to acquire neighborhood recreation area in a defined geographic area that includes the subdivision and an area conveniently accessible to subdivision residents - that is, an area defined such that any subdividable parcel within it would generally be no more than approximately three (3) miles from any other parcel within it that could be developed as a public recreation area.

Marshville Comprehensive Pedestrian Plan

The County may transfer funds paid by one or more subdivisions to a municipality or make arrangements for the joint County/municipal expenditure of the funds where the County determines that such transfer or arrangements would better ensure the funds will be used to acquire public recreation area that will serve the neighborhood recreational needs of subdivision residents, as specified in the paragraph above.

[Section added 5/20/2002 (O-7-02)- effective 7/19/2002 except as to development pursuant to an application for preliminary plan, construction plat, record plat, or minor subdivision approval that was approved before 7/19/2002 or that was accepted as complete before 3/18/2002 and was still pending on 7/19/2002]

***THE FOLLOWING IS AN EXAMPLE EASEMENT AGREEMENT USED BY
MECKLENBURG COUNTY AND CHANGED TO BE UNION COUNTY***

STATE OF NORTH CAROLINA

COUNTY OF UNION

THIS EASEMENT AGREEMENT is made and entered into as of the _____ day of _____, 200__, by and among _____, “Grantor(s)”; and **THE TOWN OF MARSHVILLE, a political subdivision of the State of North Carolina**, “Grantee”;

WITNESSETH:

WHEREAS, Grantors are the owners of certain property located in Union County, North Carolina, which property is more particularly described on Exhibit A attached hereto (the “**Easement Area**”); and

WHEREAS, The Town of Marshville is developing a Town-wide plan for greenway, recreational, park and land preservation purposes along the various creeks, floodplains, and other areas in the Town, including the property which is described on Exhibit A; and

WHEREAS, Grantors desire to grant to Grantee a perpetual easement over said property for the uses set forth herein;

NOW, THEREFORE, for and in consideration of the premises and the sum of One Dollar (\$1.00) to it in hand paid, the receipt of which is hereby acknowledged, Grantors hereby give and grant unto Grantee a perpetual right and easement over the property described on Exhibit A attached hereto for public active or passive green space, greenway, park, recreational, watershed or land preservation purposes, including the right to maintain and make improvements to the bank and bed of _____ Creek. Grantee shall have the right to grant easements or rights-of-way across the Easement Area for underground utilities, roadways incident to the use of the Easement Area, or other public purposes consistent with the primary purposes set forth above. Grantee shall have the sole right to promulgate rules and regulations for the reasonable use of the property by the public, provided the property is used for the purposes stated herein. If reasonable access to the greenway property is otherwise unavailable, Grantors further grant unto the Grantee reasonable access from time to time to the Easement Area over any remaining

contiguous property owned by Grantors for the purpose of developing and maintaining the property (but not for public access) for the purposes set forth herein; provided, Grantee shall (a) to the extent possible, utilize existing roads for such purposes, (b) repair any damage resulting from such access, and (c) upon request of Grantors execute a supplemental instrument delineating an appropriate access route to provide the agreed access.

GRANTORS AND GRANTEE, for themselves and their heirs, successors and assigns, further agree as follows:

1. Grantee shall be responsible, at its expense, for maintaining the Easement Area in accordance with the purposes set forth herein, including construction and maintenance of a trail, removal of trash, waste and litter, and efforts to control vandalism and other crimes within the Easement Area. Grantors shall have the right, but not the obligation, to enter the Easement Area to plant flowers, remove litter, and beautify same in the event Grantee fails to perform such functions in a reasonable manner, subject to approval by Grantee, which approval will not be unreasonably withheld.

2. Grantors, for themselves and their successors and assigns, reserve the right to grant easements or rights-of-way for underground utilities within the Easement Area for the benefit of the Grantors' adjacent land, at such locations and in such manner as may be approved by Grantee in the exercise of its reasonable discretion, provided such easements do not interfere with the use of the Easement area as set forth herein and provided Grantors repair any damage to the Easement Area resulting from the implantation of such utilities.

3. To the full extent permitted by law, Grantee shall defend, indemnify and hold harmless Grantors, and their successors and assigns, from and against all claims, demands, loss and damage by third parties arising out of or relating to use of the property by the public, provided such claims do not result from the acts, negligence or willful misconduct of Grantors or their heirs, successors or assigns.

4. Grantors retain fee simple ownership of the title to the Easement Area, subject to the rights granted to Grantee herein, for the specific purpose of allowing the land burdened by the Easement Area to be included in the calculation of zoning density for building improvements permitted on Grantors' land abutting the Easement Area, as such density may be allowed under current or future zoning ordinances.

Marshville Comprehensive Pedestrian Plan

5. Grantors make no representations or warranties whatsoever, whether express or implied, with respect to the condition of or title to the property that is the subject of this Agreement, which property Grantee agrees to accept, AS IS, in its present legal and physical condition.

TO HAVE AND TO HOLD the aforesaid rights, privileges, and easement unto the Grantee, its successors and assigns, for so long as said property is utilized by Grantee, its successors and assigns, for the purposes set forth herein, and no longer.

IN WITNESS WHEREOF, the parties have executed this Easement Agreement the day and year first above written.

(Name of Grantor)

(Name of Grantor)

**STATE OF NORTH CAROLINA
TOWN OF MARSHVILLE**

I, _____, a Notary Public for THE TOWN OF MARSHVILLE, North Carolina, certify that _____ **and (Spouse)**, _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal this _____ day of _____, 200__.

[Stamp/Seal]

Notary Public
My Commission Expires: _____

Marshville Comprehensive Pedestrian Plan

IN WITNESS WHEREOF, the parties have executed this Easement Agreement the day and year first above written.

TOWN OF MARSHVILLE

By: _____,
_____, Chairman
MARSHVILLE TOWN COUNCIL

**STATE OF NORTH CAROLINA
TOWN OF MARSHVILLE**

This ____ day of _____, 200__, personally came before me _____, who, being first duly sworn, says that (s)he is the Chairman of the Marshville Town Council, and that said writing was signed by him on behalf of the Town of Marshville by its authority duly given. And the said _____ acknowledged the said writing to be the act and deed of the Town of Marshville.

[Stamp/Seal]

Notary Public
My Commission Expires:

EXHIBIT A

Lying and being in Union County, North Carolina, and being more particularly described as follows: