TOWN OF EDENTON

COMPREHENSIVE PEDESTRIAN PLAN

2009

TOWN OF EDENTON
PLANNING DEPARTMENT
EDENTON, NC

THE WOOTEN COMPANY
RALEIGH, NC

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION
RALEIGH, NC

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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THE WOOTEN COMPANY

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Section 1: Introduction

Edenton is considered "the prettiest town in the south"

Nestled in the upper reaches of Albermarle Sound lies Edenton, the "prettiest town in the South" according to the Chamber of Commerce. A haven for boaters, tourists, baby boomers and retirees, Edenton welcomes citizens and visitors to its colonial-era downtown. With the benefit of an intact grid street pattern in the historic city center and 318 years as a settled community, Edenton is putting its energy and creativity toward the future. There are 36 grid-type downtown blocks with a breadth (east-west) three-quarters of a mile across from Filberts Creek on the west to Queen Anne Creek on the east, and a length (north-south) three-quarters of a mile from the Broad Street dock north to Holmes High School. Downtown is walkable. Historic buildings, stores and shaded sidewalks beckon citizens and visitors to spend time (and money) downtown. Edenton has 22.58 miles of public streets, but of which 2.6 miles are identified in this plan with a recommended action to build a sidewalk on one side of the street. The town does not have a formal policy outlining the process for installing sidewalks in existing developed areas when requested by residents.

Edenton welcomes citizens and visitors to walk along historic colonial-era streets.

Adoption of the Edenton Pedestrian Plan by the Town Council (anticipated for consideration in Summer 2009) will give the Town the ability to leverage its resources and efforts to seek funding that will close missing gaps in the downtown sidewalk network, connect adjacent neighborhoods to downtown, and reach consensus on strategies to address walkability throughout the town.

As a major contributor of funds to secure professional consulting expertise, the North Carolina Department of Transportation Bicycle and Pedestrian Division and Transportation Planning Branch seek a continued

community dialogue to spark interest in the engineering, education, enforcement, and encouragement of sidewalks and pedestrian travel.

1.1 Vision Statement

Edenton envisions a comprehensive pedestrian transportation system to serve its citizens and the many tourists who visit each year. The Town envisions a continuous, interconnected system that provides a safe, accessible pedestrian route between and among neighborhoods and major community destinations including the downtown central business district, public institutions such as the county courthouse and administrative offices, municipal buildings, the post office and public library, and to shopping areas. To realize this vision, a Comprehensive Pedestrian Plan is presented that identifies deficiencies and provides priorities and solutions for an accessible pedestrian system.

For a number of years the town's vision statement has included development of a comprehensive network of sidewalks as a town goal. The vision of Edenton's future with regard to pedestrians is to improve existing pathways and intersections and extend paths to all citizens; to use engineering and enforcement techniques to promote safe passage and to encourage more citizens to walk regularly and routinely. The vision of Edenton's future, according to the Town Council in April 2007, is:

Town Council Vision

1. To develop a viable downtown business district supplemented by quality shopping centers and a diverse industrial mix in outlying areas that will translate into job opportunities and expanded tax base.

2. To develop and enhance water access and outdoor activities supplemented by a variety of recreational and cultural activities throughout the community for residents and tourists.

3. To have a sound, stable infrastructure that meets the needs of citizens, business and industry including sidewalks, streets, water, sewer, electricity, transportation, facilities, etc.

4. To be a municipal government that works collaboratively with citizens and other governments to plan for and respond to citizen needs and provide timely, efficient, effective, and customer friendly services.

5. To grow to a population of 7,000 providing a home for young families and retirees while maintaining a strong sense of small town values and citizen involvement. The town will preserve and promote its historic resources and unique downtown and focus on community attractiveness.

6. To be known as a desirable tourist destination offering a wide variety of historic exhibits, water activities, cultural offerings, lodging, dining, shopping, and other attractions, connected with safe and enjoyable walking paths.

7. To have a sound, stable fiscal reserve to meet unanticipated needs and emergencies.

All seven elements of the vision stated above relate to this Pedestrian Plan. The following strategies were adopted in April 2007 by the Edenton Town Council to further describe the Town's vision. These are listed with each of the seven vision statements, excerpted to focus only on those that relate to pedestrians, with additional text underlined to suggest how how each strategy may relate to pedestrians. Underlined text was added by the consultant.

1.2 Strategies to Realize the Vision

1. **Develop a viable downtown business district supplemented by quality shopping centers and a diverse industrial mix in outlying areas that will translate into job opportunities and expanded tax base.**

   Related Strategies:

   a. Explore the development of partnerships with organizations within the community interested in Green Power and Green initiatives including enhanced pedestrian access.

   b. Continue to collaborate and build strong ties with Chamber of Commerce, Edenton-Chowan Development Corporation, NC Department of Commerce, and Chowan County by adding pedestrian projects and activities to the joint work program.

   c. Recruit state, regional, federal office and operation centers to areas with existing or improved pedestrian infrastructure, continue to lobby State and Federal elected officials for opportunities.

   d. Work to expand the boundaries of the downtown retail district, for example, look at establishing an antique district, possibly on Oakum Street and East Church Street, with commensurate sidewalk and crosswalk improvements to facilitate pedestrian flow.

Sidewalks and Welcome signs are effective in keeping tourists' interest in Edenton

   e. Continue to support and be an active participant in the Main Street Program, including leveraging expertise implementing pedestrian-related improvements.

2. **Develop and enhance water access and water and outdoor activities supplemented by a variety of recreational and cultural activities throughout the community for residents and tourists of all ages.**

Related Strategies:

a. Continue to partner with the County, the Hospital and the School System to bring about a public swimming pool. Advocate for a Southern Community Center. Ensure safe pedestrian access is provided to the selected site.
b. Continue to encourage and support civic sponsored attractions such as dances, festivals, concerts, antique shows, business expos, restaurant expos (a taste of Edenton), and other entertainment. Select venues with good pedestrian access.
c. Encourage public water access for swimming and boating at locations that are accessible to pedestrians.
d. Explore open space/greenway acquisitions including connections to the existing sidewalk network.
e. Be more vigorous in marketing Edenton Harbor as a destination for boaters, with sidewalks and wayfinding signs encouraging visitors to explore Edenton on foot.
f. Pursue development of boardwalk/nature trail on Filbert's Creek including connections to the existing sidewalk network.

Boardwalk provides public water access.

3. **Have a sound, stable infrastructure that meets the needs of citizens, business and industry including streets, water, sewer, electricity, transportation, facilities, etc.**

Related Strategies:

a. Consider long term funding approaches for drainage system improvements and waterfront bulkhead/boardwalk. Pedestrians also benefit from efficient handling of stormwater runoff.
b. Continue to lobby NCDOT for TIP project for construction of Base Road extension North/South Connector. Advocate for the provision of sidewalks

that are incidental parts of larger NCDOT projects and, where feasible, include connections to the existing sidewalk network.

c. Improve maintenance and repair of streets, intersections, and sidewalks.

4. Develop stable, sound fiscal reserve.

Related Strategy:

a. Develop citizen support for stable, sustainable capital and maintenance investment levels that will accomplish specific pedestrian projects within a ten year timeframe, including a plan to eliminate ADA deficiencies, build greenways as per the adopted plan, and connect downtown with sidewalks to near neighborhoods in all directions.

5. Edenton municipal government works collaboratively with citizens and other governments to plan for and respond to citizen needs and provide timely, efficient, effective, and customer friendly services.

Related Strategies:

a. Continue to track and insure follow-through on citizen/Council requests including requests for sidewalk repair.

b. Continue to provide staff training & personal development, including sidewalk construction methods.

c. Work with County on expanding and upgrading recycling program, including bins conveniently located for general public use (and collected) within the downtown business district.

Connect downtown sidewalks to near neighbors.

d. Continue to train supervisors in skills to communicate organizational goals to employees, including personal health maintenance strategies that include walking daily.

e. Annually, request formal communication with Town boards and commissions including a report on progress toward meeting pedestrian facility goals.

f. Strive for all Town Employees to earn a living wage and encourage workforce housing that is within walking distance of all town offices.

g. Develop and implement wellness programs that provide resources and assistance to employees. Utilize data obtained from employee wellness screenings to target needs.

6. **To grow to a population of 7,000, providing a home for young families and retirees, while maintaining a strong sense of small town values and citizen involvement. The Town will preserve and promote its historic resources and unique downtown and focus on community attractiveness.**

Related Strategies:

a. Work to connect neighborhoods to downtown with construction of new sidewalks. Work to "fill in" gaps where sidewalk stops then starts up again. Connect!

b. Continue to support Planning and Inspections Department in the clean up of junk and rundown buildings around town.

Strive to "fill-in" gaps where sidewalks just end.

c. Continue to be supportive of Historic Preservation/T.D.A.

d. Support economic development efforts to create high-tech jobs that will help keep young people here. Include walkability measures in marketing materials.

e. Seek NCDOT funding for implementation of North Broad Street Streetscape Plan, per the recommendation of the Town's Corridor Overlay Plan.

f. Ask Planning Board to study and recommend action plan to implement rest of Greenway Plan.

g. Request Planning Board study possible extension of a second one-mile extra-territorial jurisdiction planning area. As development is reviewed within the ETJ, consider sidewalk requirements along the street frontage and on interior streets.

7. **Be known as desirable tourist destination offering a wide variety of historic exhibits, water activities, cultural offerings, lodging, dining, shopping, and other attractions.**

   Related Strategies:

   a. Continue to support Arts Council and civic organizations efforts to provide quality cultural events at venues accessible to pedestrians.
   b. Encourage more water, eco-tourism and heritage tourism opportunities and integrate walking into the visitor experience where appropriate.
   c. Support the Main Street Program for downtown.
   d. Explore funding options to transform Municipal Building into the "Edenton Meeting House. With its prime location, it will be accessible to pedestrians.

1.3 History

When people think of the Town of Edenton, they think of North Carolina history. Located in the northeastern portion of the state, Edenton was the first permanent settlement in North Carolina, was first incorporated in 1715, and became the colonial capital of NC in 1728. Edenton is a State Historic Site and a major tourist destination for North Carolinians and out-of-state visitors. The town's view across Edenton Bay and the Albemarle Sound from the foot of Broad Street is a favorite spot for pedestrians and boaters to enjoy the beautiful waterfront sights.

When people think of Edenton, they think of North Carolina history.

1.4 Goals and Objectives

The Town of Edenton and Chowan County considered pedestrian-oriented goals and objectives in 2003 with adoption of the *Joint Open Space and Greenways Master Plan*. At its October 2008 meeting, the Edenton Pedestrian Plan Steering Committee reviewed and confirmed these same goals and objectives. They are:

Goals for Edenton

- Improve pedestrian safety
- Provide greater connectivity between destinations
- Increase opportunities for recreation
- Enhance alternative transportation options
- Stimulate economic development
- Support urban infill growth management strategies

Objectives

- Repair existing sidewalks in “poor” condition to improve pedestrian safety and community aesthetics
- Build safer walking routes linking nearby neighborhoods with shopping, recreational, downtown, and waterfront destinations
- Establish safer intersection crossings by installing signage and redesigning them where appropriate
- Build sidewalk sections that eliminate gaps between sidewalks to achieve an intact, connected network of sidewalks
- Facilitate cost-effective growth on sites already served by urban infrastructure by closing sidewalk gaps and repairing sidewalk sections that are rated in “poor” condition
- While some residential subdivisions built in the last half-century have no sidewalks, requirements for new development should be approved so that new residential and non-residential sites provide sidewalks as an integral part of the transportation system expected by many new citizens

Extend sidewalks that just end.

1.5 Benefits

Walking can enhance physical and mental health and it can enhance community life.

The benefits of sidewalks and an improved pedestrian system to Edenton include safety and enjoyment of the public realm by citizens and visitors who choose to walk, stroll, jog, etc. on the city's sidewalks. Walking can enhance physical and mental health and it can enhance community life by increasing "chance" meetings of people and facilitating an active living by design approach to exercise. That is, by designing facilities to walk for everyday travel (e.g. to work, shop, meetings, eating, and/or appointments) it allows people to be active while they travel. Walking is also a lifeline for people with limited or no access to motor vehicles. They need an alternative transportation system that is accessible, user friendly, and safe. People who choose to walk are benefitting the community by reducing car traffic, avoiding emissions that contribute to climate change as well as air and water pollution, conserving expensive energy, and addressing their personal health that may avoid future public health-care costs. They are also contributing to what one day may be a tipping point when motorists see enough people walking that they realize it is a reasonable alternative to driving.

Edenton has a great sense of community.

Many Americans, including Edentonians, suffer from health issues that could be relieved by exercise and healthy eating. A good sidewalk system and seeing others out walking will encourage citizens to walk rather than drive. For anyone under doctor's orders to get more exercise, access to a well-maintained sidewalk system is essential. Edenton has been called the "buckle" of the stroke belt. There are very high rates of hypertension, heart disease, obesity, and diabetes.

A tremendous local effort is underway to motivate and encourage healthy active lifestyles by the Three Rivers Healthy Carolinians, a Community Health Partner of the Albermarle Regional Health Services organization.

Walking is one of the most economical and practical modes of travel for short trips.

Edenton has a great sense of community that enhances the high quality of life which is attracting major growth interest from retirees and baby boomers looking for second homes or retirement homes. Homebuyers are seeking walkable neighborhoods that are linked to shopping and other destinations within the community. Edenton wants to grow but also retain and enhance the small town character which makes the town such an attractive place to live, work, play and visit. To do that, the town needs to enhance walkability and promote community sustainability.

Walking to, within, or along Edenton's waterfront, downtown business district, outlying shopping centers, and neighborhoods contributes to the economy and attractiveness as a tourist destination. Improvements to pedestrian comfort and safety will help the town grow to its target population of 7,000 by providing responsive services to citizen's needs and demands. Movement by foot is one of the most economical and practical modes of transport for short trips. National personal transportation surveys suggest that one out of every two trips is less than three miles in length; one in every four trips is less than one mile, but most of those short trips in Edenton are now taken by automobile. Trips of less than one mile in length represent an opportunity to try to shift to a walk instead of a drive, since the travel time of 20 to 25 minutes isn't much slower than driving when you consider parking and intersection delays. The popular *WalkScore.com* website suggests the most popular types of walking destinations are within a reasonable quarter-mile distance of downtown Edenton; including parks, a library, school, bookstore, hardware and drug stores, churches, grocery market, restaurants, bars, and a movie theater. The Town envisions sidewalk improvements that will connect other neighborhoods within walking distance of downtown destinations. The Town has adopted an ambitious greenway and open space plan that will dovetail with this Pedestrian Plan so that citizens and visitors may one day walk on sidewalks and trails for recreation and destination-oriented travel.

1.6 Scope and Purpose of Plan

A good example of sidewalk on a residential street with trees and parked cars buffering pedestrians from traffic.

The scope of this Plan encompasses Edenton's planning jurisdiction which extends beyond the city limit to areas likely to realize urban or suburban development in the next 20 years. The scope of this Plan includes the 5 "E"s": engineering, education, encouragement, enforcement, and evaluation of pedestrian projects, policies, and programs.

The purpose of this Plan is to present a guide to decision makers at the local and state levels of government as public and private investments are made to improve sites, streets, and districts in Edenton. Specifically, this Plan:

- identifies sidewalk deficiencies (See Section 2.3 – Current Conditions, page 18)
- prioritizes solutions (See Section 7.2 – Project Development, page 63)
- recommends sidewalk investments that will serve citizens and visitors (See Section 4.3 – Short-term and Long-term opportunities, page 42)

Section 2: Current Conditions

2.0 Introduction

The town requires new sidewalks with new subdivisions, an effective strategy to keep up with growth.

The surface smoothness of 15 miles of existing sidewalk in Edenton were observed in June 2008 as part of a conditions inventory and subsequently reported to the Public Works Department for their use in prioritizing work crews. Blocks with multiple tripping hazards have been checked and work begun to repair damages. This section describes the conditions inventory as well as demographic data for Edenton and reported crash history involving pedestrians. The results of a questionnaire, completed by 37 citizens who saw the survey online or at Town Hall, are summarized.

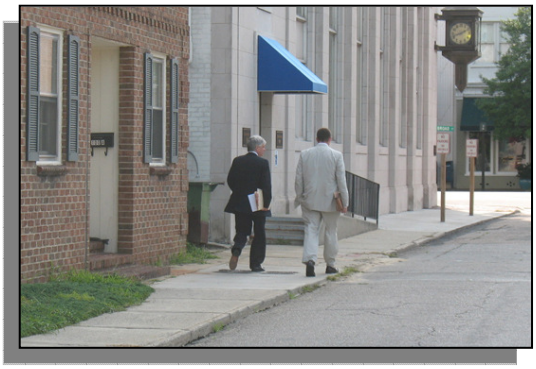
2.1 Demographics

The Town of Edenton represents more than one-third (35%) of the total population of Chowan County and is the sole municipality. In 2007, the State certified a population of 5,099 in Edenton; projected to increase to 6,505 in 2010 and 7,584 in 2025, according to the NC State Data Center. Since 1980 the town experienced a slight decrease in 1990 (5,268) and again in 2000 (5,058). These results reflect a negative natural growth rate (more deaths than births) exceeding net in-migration to the town.

While Edenton lost population from 1990 to 2000, other coastal communities experienced substantial gains. During that period, all of the following gained more than 20 percent population: Elizabeth City (+20.4%), Jacksonville (+122.3%), Morehead City (+27.2%), New Bern (+33.2%), and Wilmington (+36.6%). The population of nearby Washington, North Carolina gained 5.6 percent during the 1990 to 2000 period. By comparison, Edenton's municipal growth has not been attributed to the population gains experienced by similar communities who increased their population, in part, through

annexation. From 1990 to 2002, Edenton annexed land with 10 residents, compared to Jacksonville (36,535), Wilmington (25,855), New Bern (4,469), Elizabeth City (3,126), Morehead City (1,591), and Washington (991). Since 1980, Edenton's population density (persons per square mile) has decreased from 1,492 (1980), to 1,066 (1990) to 1,009 (2000).

According to 2000 Census data, 24% of Edenton's population were children under 18 years old, 14.3% were of college age (18-24), 41.5% were between the working ages of 25 and 64 and 20.5% were 65 or older and may be of retirement age. Looking at households in Edenton, about one-third have at least one individual that is 65 years of age or older. While many seniors 65 years and older continue to drive, many face the challenge of mobility without driving at some time in their senior years. For those living without accessible sidewalks, the loss of personal freedom to drive an automobile is upsetting.



37 citizens completed a questionnaire.

Edenton's housing stock as of the year 2000 consisted of approximately 67% single-family homes, 26% multi-family homes and 7% manufactured homes. The median year for homes built within Edenton is 1965, with a median value of owner-occupied homes of $81,100. The median household income in 2000 was $25,241 which is only 64% of the statewide median household income of $39,184. Some of this disparity can be attributed to the many community residents who are employed in service industries such as tourism. Families with low household incomes are more likely to depend on alternative forms of transportation such as walking to get to work and other destinations.

2.1 Community Concerns, Needs, and Priorities

A questionnaire was available at Town Hall, the Planning Department, and online at the town's website for anyone who chose to complete it. Surveys were received from August through November 2008. Following is a summary of the most-oft reported results.

Families with low household income are more likely to walk.

- 35 citizens expressed support to spend Town funds to build and maintain sidewalks
- 28 walk daily; 27 walk to shops and on errands
- 25 mention providing a place to walk as the most important pedestrian priority
- 24 cite gaps in sidewalks as their major concern regarding walking
- 22 cite broken sidewalk as their major concern regarding walking
- 21 recommend installing sidewalk on streets where no sidewalk currently exists
- 17 different streets that need sidewalks
- 13 identify Water Street as needing sidewalks (more than any other street mentioned)
- mention sidewalk maintenance as the most important pedestrian priority
- 10 identify Church Street as needing sidewalks
- 9 identify Granville Street as needing sidewalks

Edenton's recent past demonstrates only one facet of what should be a multi-faceted approach to building and maintaining sidewalks. Success has been achieved throughout the community securing developer commitments to build sidewalks as new sites are developed. Success has also been achieved by the Town Public Works crews responding quickly to citizen requests to repair sidewalk problems that are potential tripping hazards.

Edenton requires developers to install sidewalks on streets within new developments, but not necessarily to connect with existing sidewalks nearby. Many favorable

Connecting gaps in the sidewalk network will lead to an increase in walking.

comments are received from citizens when new sidewalks are built, but the problem of connecting sidewalk system components has been a major obstacle to increasing pedestrian use of the current system to walk from their homes and businesses to community destinations. This Pedestrian Plan raises awareness of the need to invest public funds to finish connecting sidewalks and identifies areas of highest priority.

Recurring pedestrian issues in Edenton include safety, access, pedestrian crossings, aesthetics, and maintenance. Special user groups — children, seniors, and people with physical and mental disabilities — to be specific, need a safe, well-connected pedestrian system to encourage exercise and to provide an alternative to owning an automobile.

Edenton currently has 75 centerline miles of public streets, but only 15 miles of sidewalk. The Town uses public funds to build an average of one-fourth of a mile of new sidewalk each year. The length of sidewalk built each year by developers varies considerably, based on the extent and rate of development activity.

2.2 Vehicle-Pedestrian Crash History

A June 2008 sidewalk condition inventory is presented in Appendix A.

State of North Carolina pedestrian crash data indicate there were three crashes between pedestrians and vehicles within the town in 2004 and 2005, two reported in 2006, one in 2007, and one in 2008. All pedestrians were reported to have injuries. Two pedestrians were 10 years of age or younger, while the other was between the ages 11 and 20.

From 2001 through 2005 in North Carolina, nearly 170 pedestrians were killed and 260 were seriously injured each year statewide. Table 2-1 compares data.

Table 2-1 Edenton Pedestrian Injury History		
City/Town	2007 Population	Total pedestrians injured in 2004 through 2006
Kill Devil Hills	6,820	9
Williamston	5,694	9
Edenton	**5,099**	**3**
Farmville	4,656	2
Ahoskie	4,456	3

The application submitted by the Town of Edenton reported pedestrian crash data from 1997 to 2005 that are consistent with the more recent data described above.

2.3 Inventory and Assessment of Existing Pedestrian Facilities

A map of existing sidewalks is shown in Map 8.1. Sidewalks as shown in Map 8.2 range in condition from good to poor based on the number of potential tripping hazards in each block. A spreadsheet of existing sidewalk facility conditions can be found in Appendix A.

Neighborhoods near downtown are top candidates for closing sidewalk gaps to complete the connections.

An assessment of the surface condition of sidewalks in Edenton was made in June 2008 by the consultant. A subjective decision was made by an engineering technician based on observation of the number of significant cracks, heaves, cuts or missing concrete representing potential tripping hazards. A judgment was made by the consultant that a block of sidewalk with four or more tripping hazards is considered to be in "poor" condition. Any block with one to three tripping hazards is "fair" and no observed hazards are indicative of sidewalk that is in "good" condition. The survey results are being used by Edenton's Public Works Director to enhance the existing program of repairing deficient sidewalks. The Director is also implementing a multi-year plan to address deficiencies in handicap-accessibility on sidewalks and at intersections. The plan is to comply with the Americans with Disabilities Act (ADA) of 1991.

Edenton's Public Works Director maintains a list of deficiencies and updated the list using the new survey. The Public Works Department responds in a timely manner to citizen and Council requests to repair sidewalks that pose tripping hazards.

A certified arborist that is an employee of the town is organizing an initiative to limb-up trees that hinder convenient pedestrian movement on existing sidewalks in Edenton. This effort will result in safer and more pleasant walking conditions.

Summary

Sidewalks in Edenton are used for destination-oriented transportation as well as for recreational purposes. Many destinations are located downtown, however, too many residential neighborhoods near downtown do not have safe, continuous sidewalks leading residents there. Neighborhoods adjacent to each other are often inaccessible to pedestrians because of natural barriers such as rivers and creeks but also by barriers such as cul-de-sacs, fences, private property, railroad tracks, and steep terrain. Busy streets also present a perception that it's not safe to walk. These issues are exacerbated in places where sidewalks simply end, forcing a pedestrian to turn back or continue walking without a sidewalk. The gaps between sidewalks give visitors the impression that despite its 300-year history, Edenton is still a work-in-progress.

Section 3: Existing Projects, Plans, Policies, Laws, and Programs

3.0 Introduction

Current transportation projects using State funds are described in Section 3.1, followed by relevant plans adopted at the local and state level in Section 3.2. Policies adopted by Edenton are presented in Section 3.3. Laws governing pedestrians and vehicles that are relevant to this report are briefly mentioned in Sections 3.4 (state laws) and 3.5 (town ordinances). The section closes with a discussion of local programs in Section 3.6.

3.1 Relevant State and Local Projects

The following project was announced by NCDOT in December 2008. Two funding sources will be tapped. Map 8.4 shows where this project is located.

1. East Church Street Sidewalk

A sidewalk will be built on the north side of East Church Street from the Peanut Mill at Wood Avenue to Old Hertford Road, a distance of about 2,000 feet. The Town requested that NCDOT fund the project. NCDOT anticipates construction in Spring 2009. Funds in the amount of $200,000 are reserved for this project. The funding for the curb and gutter for this project was obtained from the Small Construction Fund and the funding for the sidewalk was obtained from NCDOT's Sidewalk Enhancement Funds. The Town is responsible for 20% of the sidewalk cost.

A new sidewalk will be built by NCDOT on the north side of East Church Street near the Old Peanut Mill.

The following projects are identified in the NCDOT Transportation Improvements Plan (TIP). These are shown on Map 8.5.

2. Bridge Replacement NC 32 over Queen Anne Creek

A planned replacement of an existing bridge carrying Yeopim Road (NC 32) over Queen Anne Creek is at the eastern edge of the Edenton ETJ. The project (B-4463) is being planned now by NCDOT's Project Development and Environmental Analysis (PD&EA) Branch. The TIP indicates a cost of $1,082,000 for construction in fiscal year 2011. Current plans show the bridge will be wide enough to provide four feet between the edge of travelled way white stripe and the bridge fascia, leaving four feet of width for pedestrians to walk and for any bicyclist who prefers not to ride in the vehicular traffic lane. A bridge railing is planned that will be 54 inches high, suitable to safeguard cyclists who lose their balance. Underneath the new bridge, insufficient space is planned for a future greenway; conflicting with the 2003 adopted "*Chowan County & Edenton Greenways and Open Space Plan*". This conflict between a project and an adopted plan has been highlighted for decision-makers consideration.

3. Eastern Connector

A planned two-lane road from Yeopim Road (NC 32) at Soundside Road (NC 94) to the US 17 Bypass at the North Broad Street Interchange. This future road is designated as project U-3419 in the current state TIP. Planning and design is currently underway. Construction is projected in begin in federal fiscal year (FFY) 2011. This route is planned to alleviate traffic congestion in Edenton based on growth projected in 2020 and to create an alternate route for through truck-traffic around downtown Edenton. It is conceivable such a road may enhance pedestrian comfort and safety crossing in-town intersections by diverting through traffic away from downtown, however, the potential loss of retail activity in the commercial core may lessen the desire for pedestrians to shop downtown. NCDOT estimates $30 million in construction funds will be needed for U-3419.

4. Western Connector

A planned two-lane road from West Queen Street (US 17 Business) and Albania Street to Dr. Martin Luther King Jr. Avenue at Cox Avenue. A feasibility study is currently underway by NCDOT and is designated in the current state TIP as project

number FS-0201D and U-5001. This route would create an alternate route to through traffic on Twiddy Avenue, a residential street. It would also connect with another future road at Cox Avenue, extending north to Chowan Hospital via the Luke Street Extension.

5. Soundside Road

Soundside Road (NC 94) operates as a minor thoroughfare providing access to the southeastern portion of Chowan County including Northeastern Regional Airport and the Air Transpark industrial area. Shoulder widening is planned to provide a safer road and to better accommodate truck traffic.

All NCDOT staff in charge of project development for the projects listed above should consider including sidewalks, multi-use paths, or shoulders wide enough to safely accommodate pedestrians. If projected traffic volumes or anticipated operating speeds are high enough to cause concern with safe pedestrian roadway crossings, then sidewalks or wide shoulders should be provided on both sides of the aforementioned roads. The Town of Edenton will need to request sidewalks for these projects and lobby for their completion.

3.2 Local, Regional and State Plans and Guidelines

1. "*Edenton & Chowan County Greenways and Open Space Plan*"

Edenton and Chowan County adopted a joint *Greenways and Open Space Plan* in March 2003, signifying that elected officials are committed to making Edenton "pedestrian friendly". The plan calls for promoting connectivity, recreational opportunities, and alternative transportation options. As shown in Figure 8.3, proposed greenways, wholly or partially within Edenton's planning jurisdiction, include the following:

- Downtown Corridor Pilot Project—a pedestrian/bike path to link downtown with hotels, restaurants, stores, and the Hospital near the US 17 Bypass interchange with Virginia Road (NC Highway 32) following a route along West Hicks Street, an abandoned rail corridor, Granville Street, West Eden Street, and West Water

Street. This was proposed in 2003 as a "pilot project to jumpstart additional interest and investment in the larger greenway and open space system".

- Pembroke Creek—two separate greenway segments: one west of the downtown core along Filbert's Creek and one in the southwestern portion of the town's extra-terratorial jurisdiction (ETJ) along the Pembroke Creek waterway. The former would connect nearby neighborhoods with downtown Edenton. The latter would be a recreational amenity for the region.
- Queen Anne Creek—a greenway extending from east of the downtown area to the northern portion of the ETJ following the creek and its tributaries. Ultimately, a loop system is envisioned that would encompass the east side of Edenton with connections to existing and possibly future neighborhoods and existing sidewalks on East Water Street, East King Street, and East Church Street.

2. "*Core Land Use Plan*"

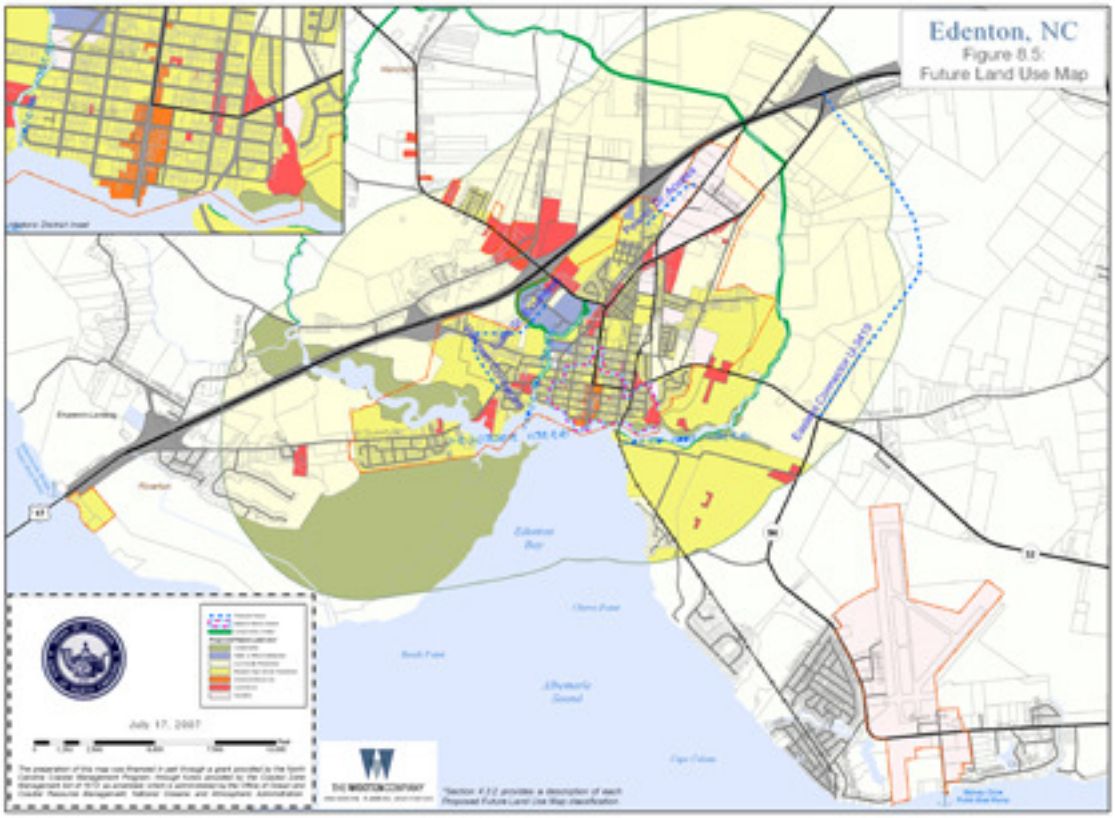
Chowan County and the Town of Edenton adopted a *Core Land Use Plan* that was certified by the Coastal Resources Commission in July 2008 (see Map 8.5). The Land Use Plan does not carry the legal regulatory powers that the *Unified Development Ordinance* (described later in this section of the report) provides to the Town of Edenton on land owners.

The first point identified in the Executive Summary of the Land Use Plan, under the heading "Summary of Land Use Issues", relates to public access to the waterfront in Edenton, as follows:

> "*Provide for public water access to all segments of the community, including persons with disabilities. Develop comprehensive policies that provide access opportunities for the public along the shoreline within the planning jurisdiction."*

The *Core Land Use Plan* indicates the Town's schedule in 2009 is to prepare two documents that will influence design of the physical realm for pedestrians; these are an *Urban Design Manual* and updating the joint *Chowan County-Edenton Thoroughfare Plan*. NCDOT requires a phase-out in the use of the term "thoroughfare plan" by replacing it with "*Comprehensive Transportation Plan*" (CTP).

Future Land Use Plan



Relevant excerpts of the *Core Land Use Plan* state that:

- *"Much of the county's future residential growth is expected to be directly related to retirement-aged developments, particularly in waterfront areas. To facilitate orderly and compatible growth and development the County is pursuing the expansion of its zoning powers throughout the County."*

- *"The Town and County anticipate an increase of retirement-aged residents to the area. This will increase the demand for health care services."*

Adaptive re-use of historic buildings is encouraged along with commensurate completion of adjacent sidewalks.

- *"The local economy is driven by agricultural, retail trade, services, manufacturing, and government jobs. Agriculture and agribusiness is an important sector of the local economy. Tourism is an increasingly important component of the local economy. The Edenton- Chowan Chamber of Commerce has an economic development plan for Chowan County."*

- *"The town and county should continue to capitalize on their history as an economic resource. The town should continue with efforts for the revitalization of historic structures and redevelop areas that are blighted. Edenton Downtown rejuvenation and waterfront development can be important economic asset to the community."*

- *"The City and County provide public services and facilities that service existing and new development. The community is blessed with a quality of life that includes a number of outdoor recreational opportunities. These same opportunities attract tourist and weekend visitors from other parts of North Carolina and Virginia. Growth demands can overtax the local governments' ability to provide services if allowed to occur without consideration for the cost-effectiveness of providing services."*

Major issues identified during the preparation of the *Core Land Use Plan* include:

a. Spillover growth from metropolitan Tidewater Virginia given recent highway improvements that shorten the commuting time from that area
b. High number of out-commuters for employment in the State of Virginia
c. Impact of growth on services and infrastructure
d. County-wide zoning
e. Coordination of regulations between the town and county
f. Retention of rural, low density character
g. Impact of large-scale residential developments

The "Core Land Use Plan" presents capital improvement recommendations. Following are relevant excerpts of the plan:

> *"Capital improvements are new or expanded physical facilities for the community that are typically large in size, relatively expensive and are permanent in nature. Examples relating to the Land Use Plan recommendations are street and sidewalk improvements, public buildings and park improvements. The Town should incorporate these implementation strategies into the Capital Improvement Program (CIP) review process, and when the appropriate funds become available, these initiatives should be included in the formal consideration of future projects by the [Chowan County] Board of Commissioners. Citizens, town staff, and appointed and elected officials of Edenton shall be responsible for outlining a detailed schedule for the implementation of the policies contained in the 1998 Land Use Plan Update. This scheduling effort shall be completed within the same timeframe as the adoption of the upcoming fiscal budget. It is suggested that the staff and officials adopt a phasing strategy when developing the implementation schedule which will assist them in prioritizing initiatives and focus on the long-range goals of the community." Each of the following upcoming planning and programming activities create an opportunity to engage the community in dialogue and decision-making regarding pedestrian improvements:*
>
> - *Update the Town's Unified Development Ordinance.*
> - *Develop the Town's new urban design manual.*
> - *Hold citizen workshops to educate community on a variety of issues.*
> - *Undertake plans and feasibility studies for mid- to long-range goals.*
> - *Prepare and adopt a Comprehensive Plan for Edenton and its ETJ.*

- *Prepare and adopt Corridor Design Guidelines for Edenton and ETJ.*
- *Prepare a Market and Economic Impact Study for future commercial and economic development in Edenton and the surrounding region.*
- *Secure funding from state and federal sources for planned programs.*
- *Review and update CIP to meet demands for public improvements.*

3. "*Bicycling and Walking in North Carolina: A Long-Range Plan*"

The North Carolina Department of Transportation (NCDOT) adopted *Bicycling and Walking in North Carolina: A Long-Range Transportation Plan* in 1996. Bicycling is the primary focus of the document because the pedestrian aspect of the Office of Bicycle and Pedestrian Transportation was still relatively new. Bicyclists and pedestrians are spoken of mostly as one group, but their needs vary sharply.

At the turn of the 21st Century, municipalities and their citizens began to refocus their attention on walking and pedestrian facilities. Greenway plans and comprehensive recreation and parks plans have been drafted by many municipalities including Edenton and Chowan County, in 2003 and 2005 respectively. A comprehensive transportation plan has not been prepared for Edenton or Chowan County or any other nearby county or city in northeastern North Carolina.

3.3 Relevant Local Policies

The town does not have a formal policy delineating the process for installing new sidewalks in existing developed areas when requested by residents, outlining financial participation of abutting property owners, prioritizing sidewalk construction, etc.

Relevant policies adopted in the *Core Land Use Plan* are listed below:

Policy A1: "Edenton and Chowan County will ensure a variety of opportunities for access to public trust waters to all segments of the community, including persons with disabilities."

Policy A2: "The Town of Edenton and Chowan County support the state's shoreline access policies set forth in NCAC Chapter 15A, subchapter 7M."

Policy A3: "It is the policy of Town of Edenton and Chowan County governments to acquire, in accordance with an adopted access plan and funding availability, rights-of-way, fee simple title and/or easements to allow public access along the navigable waterways."

Policy A4: "Chowan County shall require water access for owners of interior lots or as public access sites in major residential subdivisions located in close proximity to the water's edge. Edenton shall require residential waterfront subdivisions containing interior lots to reserve water access for owners of interior lots. Edenton shall also require that some major residential waterfront developments include in the proposed development a plan for public water access."

Policy A5: "The County should investigate the viability of eco-tourism development along its waterfront areas. Eco-tourism is a thriving "clean" industry that takes advantage of existing environmental characteristics such as creeks, lakes and rivers to promote recreational activities and attract visitors. Such an industry would be ideal for the County given its existing environmental resources. The County could explore the development of several creek trails, for example, that could be used for recreational purposes."

Policy A6: "The community shall continue to provide for the diverse recreational needs of the permanent and seasonal populations by supporting the design and construction of the extensive waterfront area in a manner that balances water access needs with the protection of fragile natural resources."

Policy B29: "Edenton shall maintain minimum landscaping and screening requirements that provide a visual buffer between parking and loading areas and public streets; a visual buffer between parking and loading areas and adjoining residential land uses; screening of solid waste collection dumpsters; and screening between certain incompatible uses."

Policy B33: "Chowan County will allow the development of Traditional Neighborhood

Developments (TNDs) as a means of encouraging mixed-use, pedestrian-oriented communities and promoting the diversification and integration of land uses. A TND is a human-scale, walkable community composed of a variety of housing types and densities and a mixed use core of shopping, offices, public, and civic uses. Generally, TNDs shall adhere to the following general principles and design standards:

- Neighborhoods have clearly delineated centers and edges and are limited in size to promote pedestrian activity.
- The distance from the center to the edge of a neighborhood is generally no greater than ¼ to ½ mile.
- TNDs provide a balanced mix of residential, retail, professional and personal service, office, civic, public, and recreational uses.
- Residential uses include a diversity of housing types.
- Street patterns are interconnected and blocks are short.
- TNDs are organized around an activity center consisting of shopping, offices, public, and civic uses.
- Public and civic uses, such a schools, libraries, government offices, parks and recreational facilities, plazas, and village greens are prominent features and focal points.
- Formal and informal open space is located throughout a TND

To promote flexibility and creativity, dimensional standards shall be established in accordance with the TND purpose and design principles. The determination of appropriate building setbacks, lot coverage, building heights for proposed uses will be made during the special use permit review process. The permitted density of the residential component of a TND shall be determined during the special use permit review process but in no case shall exceed the maximum density levels delineated in the zoning ordinance. Factors taken into consideration in determining the permissible density of a specific TND shall include the anticipated vehicular traffic, infrastructure, and environmental impacts of the proposed TND."

Policy G6: "It is the policy of Chowan County and Edenton to support state and federal programs which lead to improvements of the quality of life of County residents and lessen the burdens of local government such as: highway construction and maintenance, channel maintenance, aviation enhancement, environmental protection, education, health and human services."

3.4 North Carolina Pedestrian Laws

North Carolina General Statutes are the source for Section 3.4. It states that "*By law, pedestrians in North Carolina have certain rights and duties*." The following are excerpts from North Carolina General Statutes.

Street Crossings

"Where traffic-control signals are not in place or in operation the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to yield, to a pedestrian crossing the roadway within any unmarked crosswalk at or near an intersection, except as otherwise provided in state law. Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle."

"The driver of a vehicle emerging from or entering an alley, building entrance, private road or driveway shall yield the right-of-way to any pedestrian, or person riding a bicycle, approaching on any sidewalk or walkway extending across such alley, building entrance, road or driveway."

Highly visible crosswalks like these enhance pedestrian safety.

"Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway. Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all

vehicles upon the roadway. Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk."

Signals

"Pedestrians must obey special pedestrian-control signals as follows:

WALK - Pedestrians facing the signal can walk across the roadway in the direction of the signal, and motorists must yield the right-of-way.

DON'T WALK - Pedestrians cannot start to cross the roadway, but if they are partially across the highway they can complete their crossing or proceed to a safety island."

"On certain streets and highways, traffic islands or other spaces are set aside specifically as pedestrian refuges when pedestrians cannot completely cross the roadway on a single WALK signal. When these special pedestrian-control signals are not provided, pedestrians must obey the regular traffic-control signals, such as traffic lights. At places without traffic-control signals, pedestrians should adhere to the rights and responsibilities described in the statutes."

Walking along a Road

"Where sidewalks are provided, it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway. Where sidewalks are not provided, any pedestrian walking along or upon a highway shall, when practicable, walk only on the extreme left of the roadway or its shoulder facing traffic which may approach from the opposite direction. Such pedestrian shall yield the right-of-way to approaching traffic."

Motorist Responsibilities

"Every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian upon any roadway, and shall give warning by sounding the horn when necessary, and shall exercise proper precaution upon observing any child or any confused or incapacitated person upon a roadway. At intersections, motorists and bicyclists must yield the right-of-way to pedestrians and other traffic when making a right turn on red. Motorists and bicyclists must yield the right-of-way to pedestrians in several cases that do not involve crosswalks and intersections:

- *Where there is a traffic signal emitting a steady red light, or flashing red light or flashing yellow light*
- *Where there is a stop sign*
- *When a pedestrian is traveling on a sidewalk or driveway and is approaching a driveway, alley, building entrance, or private road, regardless of right-of-way, motorists and bicyclists must exercise caution to avoid colliding with pedestrians on the roadway, and must sound a horn to warn pedestrians, when necessary. Vehicle operators must also exercise caution when observing any child or apparently incapacitated person in the roadway."*

3.5 Relevant Local Ordinances

1. Edenton "*Unified Development Ordinance*" (UDO)

The Town of Edenton adopted a *Unified Development Ordinance* (UDO), updated periodically, comprising its zoning and subdivision regulations. Through the UDO, the Town of Edenton requires all new residential developments to install sidewalks. A number of new residential subdivisions have been approved in recent years with interest from new residents in locating in neighborhoods with sidewalk systems. Developers are aware that home buyers are looking for and expecting sidewalks in their neighborhoods. Edenton is the size town that can retain and enhance walkability by providing more pedestrian connections along existing town streets providing pedestrian access from older and new neighborhoods into downtown and also to newer shopping areas.

"Through application of the Unified Development Ordinance (UDO), the following is recommended [for follow through action by the Town]:

- *Adopt updated landscape and screening standards for commercial development.*
- *Adopt requirements and guidelines for traffic impact assessments, fiscal impact assessments and environmental performance standards for large scale or "big box" commercial development proposals.*
- *Amend waiver for subdivision streets without curb and gutter requirement to engineer a sidewalk on the "back side" of any drainage swale."*

"While revision to the UDO will effectuate the implementation of the Land Use Plan's objectives within Edenton, true influence over future development cannot be realized without changes to the subdivision ordinances in both Edenton and Chowan County. The following recommendations shall apply to Edenton to make the necessary changes to the subdivision ordinance to implement the goals and objectives set forth in the Land Use Plan.

Another gap in the sidewalk system that needs to be filled.

- *Incorporate greater detail on design standards for both public and private streets."*

Chapter 21 (Streets and Sidewalks) of the Town Code contains some general regulations regarding sidewalks excerpted below:

a. Street Width, Sidewalk, and Drainage Requirements in Subdivisions

"Where required by the Town Council, sidewalks shall be at least four feet in width and constructed according to the specifications set forth [by ordinance], except that the Town Council may permit the installation of walkways constructed with other suitable materials when it concludes that:

(1) Such walkways would serve the residents of the development as adequately as concrete sidewalks; and

(2) Such walkways would be more environmentally desirable or more in keeping with the overall design of the development.

Whenever the Town Council finds that a means of pedestrian access is necessary from the subdivision to schools, parks, playgrounds, or other roads or facilities and that such access is not conveniently provided by sidewalks adjacent to the streets, the developer may be required to reserve an unobstructed easement of at least ten feet in width to provide such access."

b. Road and Sidewalk Requirements in Unsubdivided Developments

"Within unsubdivided developments, all private roads and access ways shall be designed and constructed to facilitate the safe and convenient movement of motor vehicle and pedestrian traffic. In all unsubdivided residential development, sidewalks shall be provided linking dwelling units with other dwelling units, the public street, and on-site activity centers such as parking areas, laundry facilities, and recreational areas and facilities. Notwithstanding the foregoing, sidewalks shall not be required where pedestrians have access to a road that serves not more than nine single-family dwelling units. Whenever the permit issuing authority finds that a means of pedestrian access is necessary from an unsubdivided development to schools, parks, playgrounds, or other roads or facilities and that such access is not conveniently provided by sidewalks adjacent to the roads, the developer may be required to reserve an unobstructed easement of at least ten feet to provide such access. The sidewalks required by this section shall be at least four feet wide and constructed according to the specifications set forth [by ordinance], except that the permit issuing authority may permit the installation of walkways constructed with other suitable materials when it concludes that:

(1) Such walkways would serve the residents of the development as adequately as concrete sidewalks; and

(2) Such walkways could be more environmentally desirable or more in keeping with the overall design of the development.

c. Attention to Wheelchairs in Street and Sidewalk Construction

"Whenever curb and gutter construction is used on public streets, wheelchair ramps for the handicapped shall be provided at intersections and other major points of pedestrian flow. Wheelchair ramps and depressed curbs shall be constructed in accordance with published standards of the North Carolina Department of Transportation, Division of Highways. In unsubdivided developments, sidewalk construction for the handicapped shall conform to the requirements of the North Carolina State Building Code."

Wheelchair accessibility must be built into street and sidewalk projects.

d. Cost Allocation

"The cost of installing street and sidewalk improvements required by this article shall be borne entirely by the developer. In no case shall the Town of Edenton be responsible for the cost of street and sidewalk improvements required by this [law]."

e. Specifications for Street Design and Construction

"Sidewalk construction shall be similar to street construction, with subgrade compacted to 95% AAASHO T99. Concrete sidewalks shall be 4 inches thick (increasing to 6 inches thick at driveway entrances), and shall be at least 4 feet wide. Expansion joints shall be provided every 30 feet; false joints at 10 feet."

e. Greenway and Open Space Land Dedication

New residential land developments are required, in accordance with Article XIII of the Edenton UDO, to provide recreational and open space. Section 200 of the UDO requires that any portion (not exceeding five percent of the total project area) of a new land development project that is designated on an officially adopted recreation, park, or greenways plan be dedicated for public use. The relevant plan that was officially adopted by the Town of Edenton is the 2003 *Chowan County and Edenton Greenways and Open Space Plan* that serves as a guide to create a system of greenways and protected open space areas in Edenton and Chowan County. The greenways system proposed in the plan is composed of a variety of pedestrian facilities including multi-use unpaved trails, multi-use paved trails, and on-road sidewalks and bikeways. Within Edenton, the Greenways and Open Space Plan proposes the following mileage:

Open space in the historic district.

- Greenway trails – 5.84 miles
- Sidewalks – 4.42 miles
- Bicycle lanes – 3.0 miles

f. Corridor Overlay Districts

Excerpts of the Edenton UDO authorize enforcement of overlay districts borne out of a separate study entitled "*Edenton Gateway Corridors Master Plan*", as follows:

- Roadway Corridor Overlay District Requirements
- "The use and development of any land or structure within the Roadway Corridor Overlay District shall comply with the use regulations and intensity regulations applicable to the underlying zoning district except as stipulated" in the ordinance.

- "The Roadway Corridor Master Plan [sic. "Edenton Gateway Corridors Master Plan Report"], composed of corridor plans, illustrative drawings, and written recommendations, indicates the general objectives for planting, pedestrian and bicycle circulation, appearance, and signage. They should be used as guidelines to achieve the intent of the Edenton Gateway Corridors Master Plan's objectives. If the objectives indicated in the Edenton Gateway Corridors Master Plan exceed similar or related minimum standards found elsewhere in this code, the objectives of the Edenton Gateway Corridors Master Plan [shall prevail]."

2. "*Edenton Gateway Corridors Master Plan*"

In May 2003, the Town Council adopted the *Edenton Gateway Corridors Master Plan* (see Map 8.6). This plan identifies the location of proposed sidewalks along the six main road corridors that lead into downtown Edenton. All six roads are maintained by the North Carolina Department of Transportation. The Plan calls for concrete sidewalks that are five feet wide, separated from moving traffic by at least a five-foot wide grass strip if there is curb-and-gutter or even more separation if there is a roadside ditch. The Plan shows how streetscapes should vary depending on the type of adjacent land use and general character of the area. The corridors are listed below:

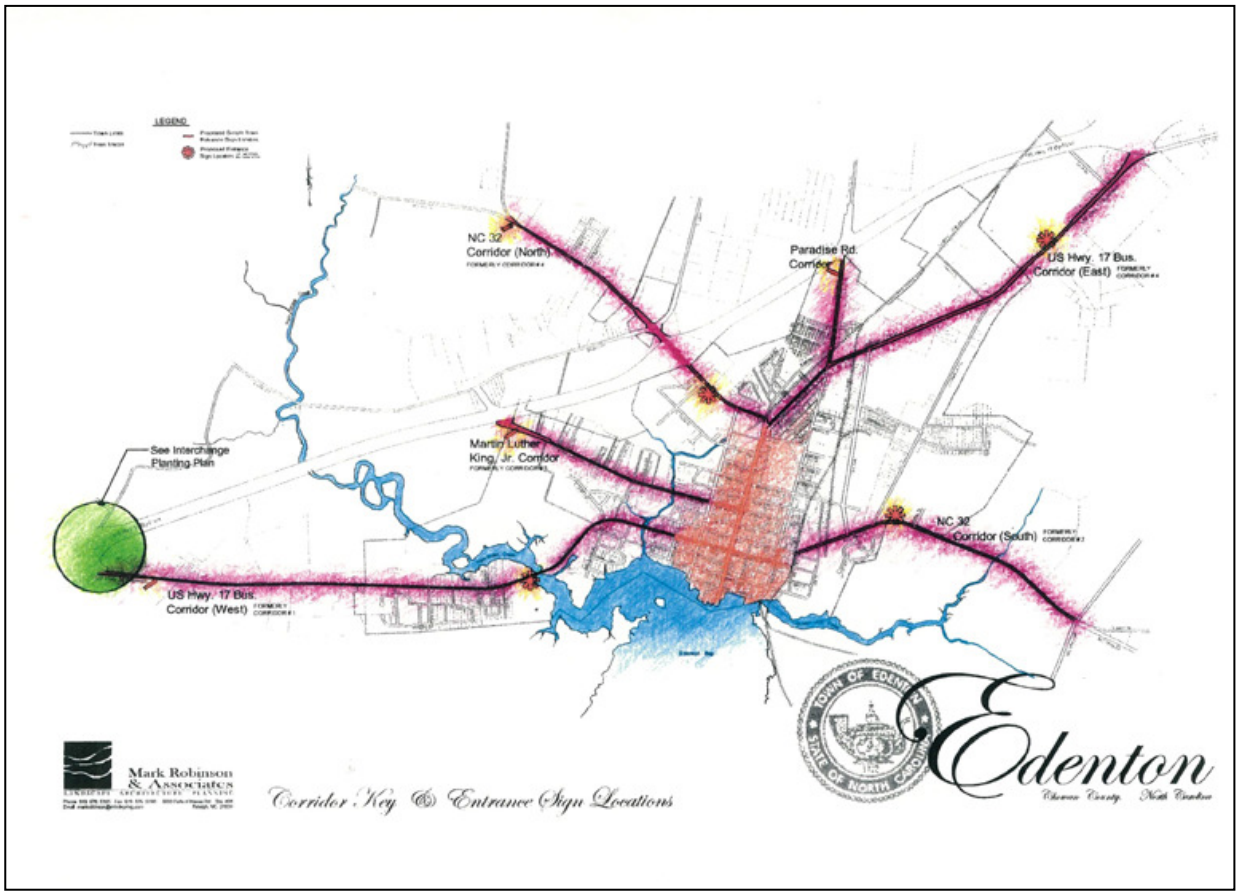
- West Queen Street (US Highway 17 Business West) from its western end at US 17 Bypass to Moseley Street;
- North Broad Street (US Highway 17 Business East) from NC 32 to the eastern end of US 17 Business at US 17 Bypass;
- Virginia Road (NC Highway 32 North) from Wildcat Road to North Broad Street;

- East Church Street/Yeopim Road (NC Highway 32 South) from Wood Avenue to Soundside Road (NC 94);
- Martin Luther King, Jr. Avenue from Moseley Street to US 17 Bypass;
- Paradise Road from North Broad Street (US 17 Business) to US 17 Bypass.

New land developments located within the identified corridors are required, in accordance with Article XI, Section 180.9 of the UDO, to install sidewalks along the roadway corridor in conformance with the master plan.

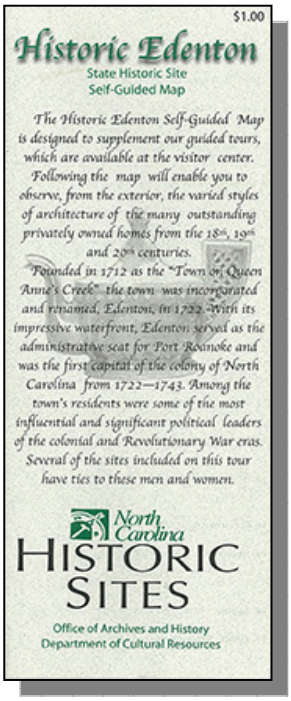
In the future, if funds are programmed by the City, County or NCDOT to improve any of the six corridors, the Plan will be used to develop the scope of the construction project. In 2009, part of the Plan will be implemented when NCDOT builds a sidewalk with curb and gutter on the north side of East Church Street between the Old Peanut Mill at Wood Avenue and Old Hertford Road.

Gateway Corridors in Edenton



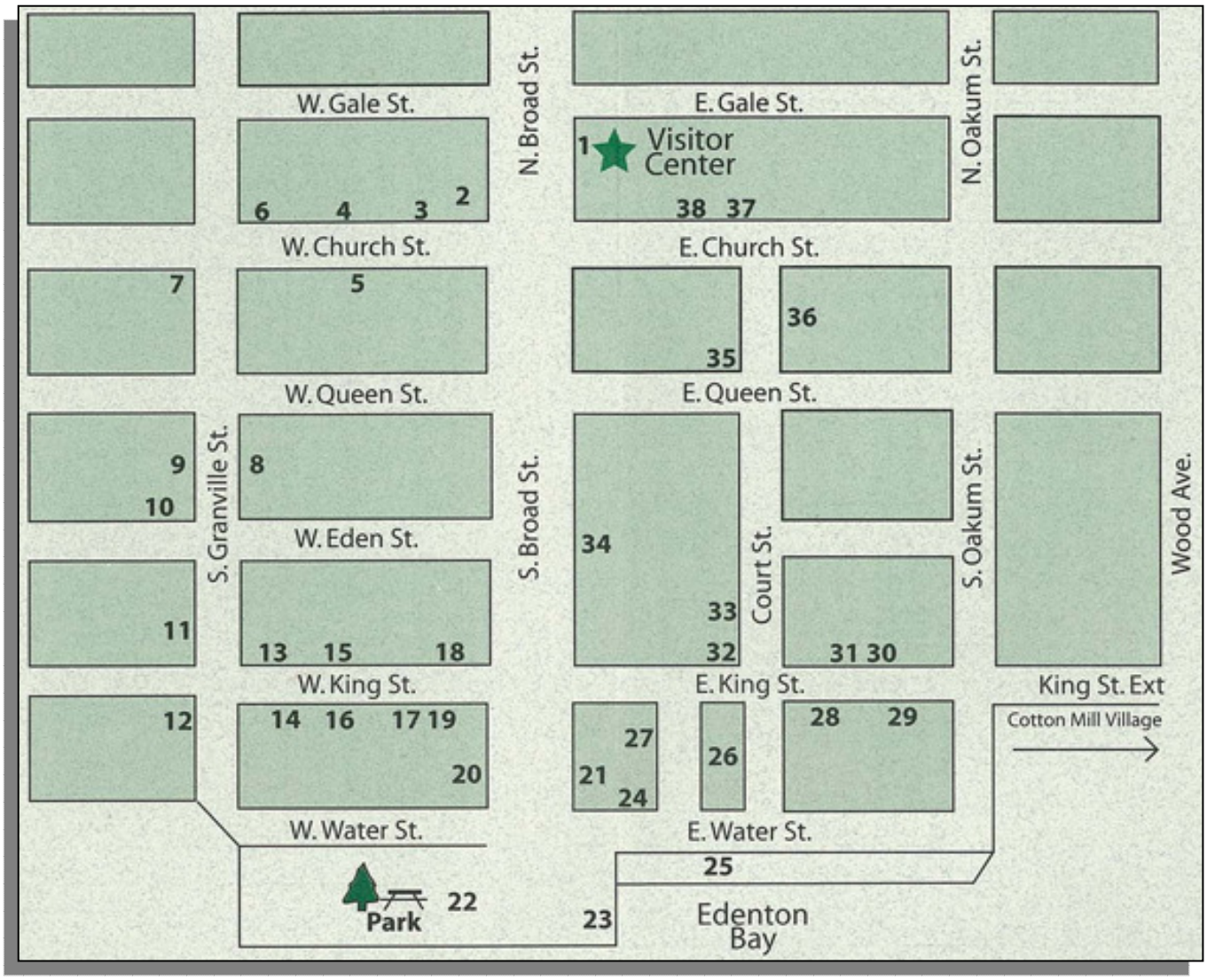
3.6 Relevant Local Programs and Initiatives

State Historic Site Self-Guided Tour



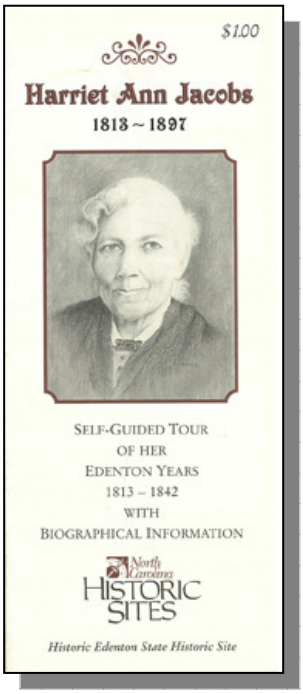
Self-guided walking tours can begin with a free map (see Map 8.7) collected at the Historic Edenton Visitor Center, located on North Broad Street at East Gale Street. The route follows sixteen downtown city blocks to view more than 35 historic buildings, memorials, and public spaces. Outstanding 18th century architecture includes some of the state's oldest homes and churches; the 1767 courthouse, considered the most intact in America; a site along the Maritime Underground Railroad, and even an historic baseball field. There are "pilgrimage tours, candlelight tours, trolley tours, festivals, regattas, and waterfront parties all of which involve walking to an extent.

In detail, the walking route begins at the Visitors Center, crosses to the west side of Broad Street, then proceeds westward along West Church Street, southward on South Granville Street, eastward along West King Street, and then southward along South Broad Street to and through historic Colonial Park located along the Edenton Bay shoreline. From Colonial Park, the route proceeds northward on Broad Street, then eastward along East Water Street to the Courthouse Green at Colonial Street. From the Courthouse Green, the route continues eastward along the north and south sides of East King Street to mid-block between Court Street and South Oakum Street. The route backtracks to Court Street via East King Street and then proceeds northward on the west side of Court Street to the Chowan County Jail directly behind the 1767 Courthouse. Tourists are then directed to the commercial downtown area along South Broad Street but it is unclear what the route should be—presumably backtracking on Court Street to East King Street and then to South Broad Street. At the intersection of South Broad Street and East Queen Street the route continues eastward on East Queen Street to Court Street, however, there is a missing gap in the sidewalk on the north side of East Queen Street. The final leg of the tour goes northward along the east side of Court Street to the north side of East Church Street, and then back to the Visitor Center.



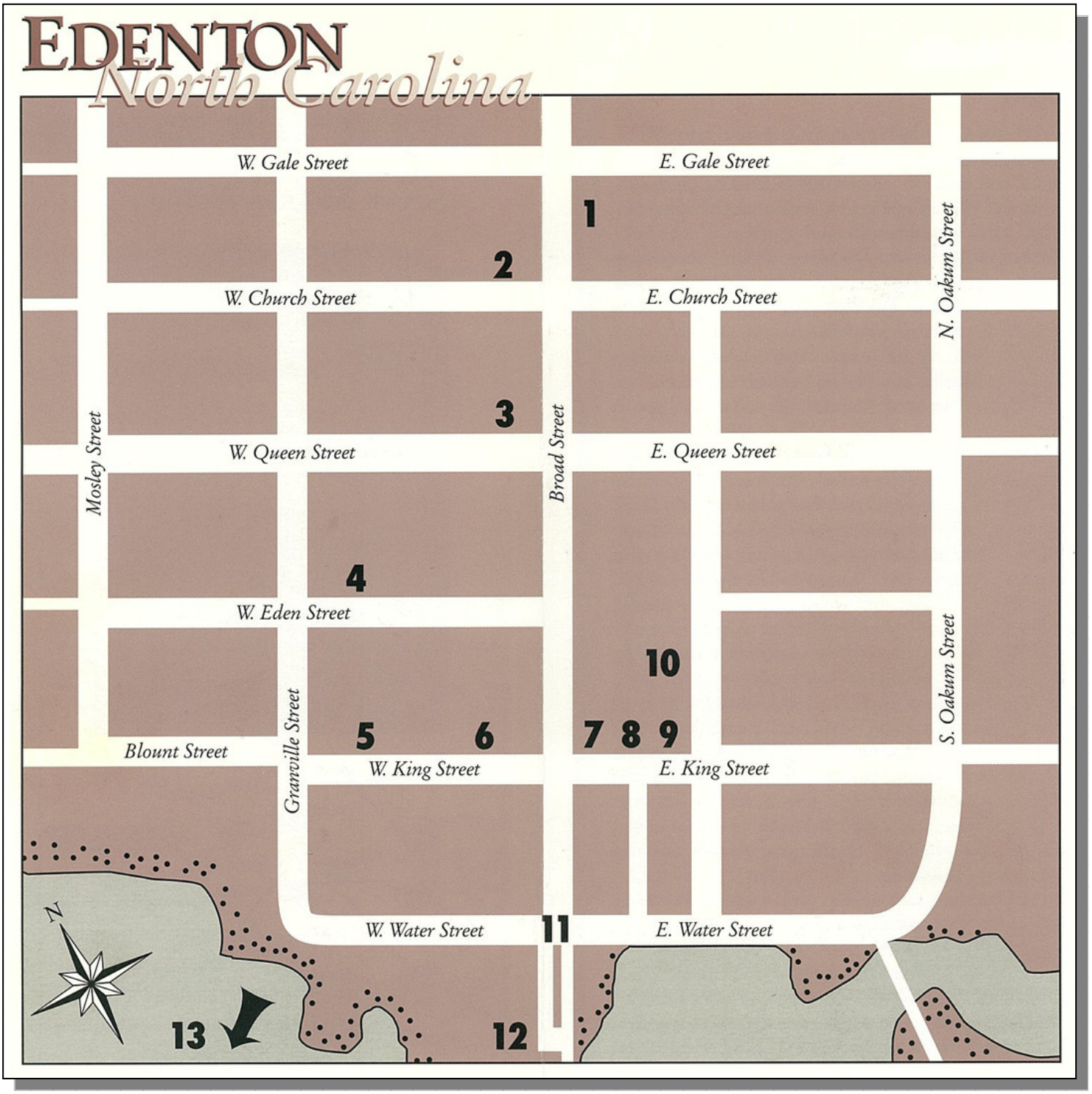
State Historic Self-Guided Tour

Harriett Jacobs Self-Guided Tour



Harriett Jacobs wrote the book "*Incidents in the Life of a Slave Girl*" about her life in 19th Century North Carolina as a fugitive slave and abolitionist. Edenton was part of the "Maritime Underground Railroad" that provided safe passage to freedom for former slaves. Sites in downtown Edenton educate visitors about this aspect of history. The self-guided tour route can begin with by picking up a free map at the Historic Edenton Visitor Center located on the east side of North Broad Street at the intersection East Gale Street (see Map 8.8). The route crosses to the west side of North Broad Street and then proceeds southward along the west side of Broad Street, then westward on the north side of West Eden Street to South Granville Street. Along the east side of South Granville Street, the route proceeds southward to West King Street and then along the north side of West King Street to South Broad Street. Crossing South Broad Street, the route continues along the north side of East King Street and then northward on Court Street, however, there is no sidewalk on either side of this block of Court Street. Visitors can reach the Chowan County Jail directly behind the 1767 Courthouse via the west side of the building rather than walking in Court Street, but a sidewalk on the west side of Court Street would be helpful to visitors who walk there anyway. A set of stairs on the north side of the courthouse suggest to visitors that it's alright to walk in the street.

Tourists are next directed to the intersection of South Broad Street and East Water Street but it is unclear what the route should be—presumably (i) backtracking on Court Street to East King Street and then west to South Broad Street or (ii) backtracking on Court Street to East King Street, southward on Court Street to East Water Street, however, there are missing gaps in the sidewalk along the east side of Court Street between East King Street and East Water Street. The route then follows westward on East Water Street to South Broad Street, then southward on South Broad Street and terminates at Edenton Bay.



Harriet Jacobs Self-Guided Tour

Section 4: Strategic Pedestrian System Plan

4.0 Introduction

Short- and long-term opportunities exist for the Town of Edenton to leverage its annual investment in sidewalks by seeking additional funding through the North Carolina Department of Transportation and other organizations that assist communities with pedestrian initiatives. A description of specific ideas for capital investments to benefit pedestrians in Edenton is described in this section. Special focus will be put on building new sidewalk on one side of radial streets connecting downtown with near neighborhoods so citizens within a short walk can choose to leave their car at home, if they have one. Citizens with limited or no access to a vehicle, in particular, will benefit from such projects.

4.1 System Overview

Edenton's pedestrian system will be a network of strategically located sidewalks, greenways, and walkways that connect places where people want to walk. For the foreseeable future, there will continue to be some streets and corridors without adequate pedestrian accommodation, if three conditions are met: (1) because the corridor exists today without it, (2) adjacent land uses are established and do not generate much if any pedestrian use, and (3) property owners are satisfied. If all three conditions are met, and funds to retrofit are scarce, it is probable that pedestrian accommodation will not occur on such a street or corridor. Along some existing streets and corridors, the retrofit cost to add sidewalks would be very high relative to the likely increase in pedestrian use. On the other hand, new roads will always be built with pedestrian accommodation, except for very short cul-de-sac streets. As a percentage of total construction cost, the cost to include sidewalks in new construction is much lower than the cost to retrofit.

A short-term need exists to extend the sidewalk on South Granville Street to Water Street.

Sidewalks in "poor" condition will continue to be fixed by the Public Works Department. Existing sidewalks and intersections where pedestrian use exists or is anticipated will be

modified to meet ADA accessibility guidelines. A multi-year plan is in effect to eliminate existing ADA deficiencies, using a combination of town and state transportation funds.

Downtown streets and corridors connecting downtown with nearby neighborhoods will be retrofitted to provide sidewalks in "good" condition, without gaps, on at least one side of continuous streets. Intersections of these streets will be re-designed to safely accommodate pedestrians. Crosswalk markings will be painted and maintained. Fluorescent-colored "in-street" pedestrian regulatory crossing signs (Yield to Pedestrian in Crosswalk) will be installed strategically in the center of busy streets where vehicle-pedestrian conflicts can be better managed.

The Town of Edenton will partner with local organizations to enhance the streetscape downtown and on connecting streets between downtown and nearby neighborhoods. Streetscapes should enhance the visitor and resident experience through education of local history, aesthetic appeal, and amenities that aid in providing comfort to pedestrians. Benches, wayfinding signs, historical icons, flowers, shade trees, awnings, newspaper racks and other contributions all help. Specific ideas should be left to local decision-makers and volunteers willing to fund, build, and maintain the additions.

Chowan Hospital will be contacted to partner or lead an initiative to retrofit streets nearby so that patients, loved ones, and staff can take walks as needed to rehabilitate or simply to maintain good health. The current wellness program offered by the Hospital is a good place to start such an initiative.

NCDOT should be engaged to design safer pedestrian crossings of the railroad.

The railroad and NCDOT Rail Division should be approached by the Town and NCDOT Bicycle and Pedestrian Division staff with a request to design safe pedestrian facilities at all railroad crossings. One location near downtown should be selected as the pilot demonstration site, preferably on a corridor that already has sidewalks leading to the rail crossing (or scheduled for new sidewalks soon, such as East Church Street). All parties should be expected to contribute financially. The Town could

approach local industries that use rail service to also participate financially. New facilities at rail crossings are envisioned to be relatively low cost.

4.2 Corridor Identification

Corridors typically require larger sums of funding than spot improvements. This Plan identifies roadway corridor improvements that rely on some state funding. Off-road "greenway" corridor improvements and "spot" improvements may be accomplished through local funds or a combination of state, county, town, and private sources. Corridors with state interests are on numbered, state-maintained roads and on any new road using funds programmed in the state Transportation Improvement Program (TIP). Funding sources are documented in Appendix C.

4.3 Short-term and Long-term Opportunities

New sites and buildings are a likely short-term opportunity to extend and expand the pedestrian facility network, however, only on land immediately fronting a new development along a public road. While arguments can certainly be made that pedestrians generated by new residential units or attracted to new non-residential buildings will use sidewalks farther from their development sites, legal restrictions exist that make it difficult if not impossible to require developers to build sidewalks off-site.

Utility poles on East Church Street may require relocation to make way for a new sidewalk.

Interest in pedestrian accommodation that is generated by the public review of this document should be leveraged to secure local support to fund the highest priorities. The consultant recommends action on the following short- and mid-term opportunities (also see Table 4-1):

1. Contribute town funds in the amount of 20 percent of the cost determined by NCDOT to build a new sidewalk on the north side of **East Church Street between the Old Peanut Mill at Wood Avenue and Old Hertford Road**, a distance of about 2,000 feet. The source of state funds is the NCDOT Sidewalk Enhancements Fund. A

companion project, to be fully funded by NCDOT using Board of Transportation member discretionary funds, will install new curb and gutter along the same section of roadway. This section of East Church Street has no curb, gutter, or sidewalk on it presently. Construction is anticipated to begin Spring 2009. The total estimated cost, including State and local funds, is $200,000.

2. Secure funding to build key downtown sidewalks on one side of:
   - South Granville Street between King and Water Streets
   - West Water Street between Granville and Broad Streets
   - East King Street between Oakum Street and the existing sidewalk near Mill Street
   - South Oakum Street between King Street and the existing sidewalk on East Water Street.

3. Work with NCDOT and Board of Transportation member to line up future funding to construct sidewalk on the south side of **North Broad Street Extended, between North Oakum Street and Coke Avenue**, a distance of about 1,200 feet. A popular grocery store and shopping center is located at the intersection of Broad Street and Coke Avenue attracting some pedestrians. A local match may be necessary, depending on the criteria of the actual source of funding secured for the project. In the meantime, the Town can conduct public outreach with adjacent business and property owners to gain support for the project.

4. Secure right-of-way and begin design of the "**Downtown Corridor Pilot Greenway** Project" described and recommended in the "*Edenton & Chowan County Greenways and Open Space Plan*". It will link hotels and restaurants near the Highway 17 Bypass interchange with Virginia Road and the downtown waterfront. The route follows public streets, a cemetery, an abandoned rail corridor, and Filbert's Creek. It would

A key crossing of Filberts Creek forms part of the "Downtown Corridor Pilot Greenway"

serve tourist destinations and the hospital area, allow the community to highlight its cultural resources, and jumpstart progress on the larger greenway network envisioned by the community when the plan was adopted in 2003.

5. Install crosswalk markings and in-street pedestrian crosswalk signs at key downtown intersections where vehicle-pedestrian conflicts are well-known to citizens. Monitor the effectiveness of these installations over a one-year period before funding additional intersections in subsequent fiscal years budgets.

6. Build sidewalks to close gaps between existing sidewalks on streets that are within 1,500 feet of John Holmes High School. Launch an education program through the school PTA to encourage walking to school and educate students about pedestrian safety. The limits of 1,500 feet from the school extends roughly to 3rd Street on the north, Granville Street on the west, Gale Street on the south, Jackson at Freemason Street on the southeast, and Blades Street on the northeast. A 1,500 foot walk takes five to ten minutes.

7. Install wayfinding signs to guide visitors from the old Courthouse on Court Street at East King Street to South Broad Street, via East King Street.

8. Build sidewalks to eliminate gaps in the following locations in the Historic District:
   - North side of West Gale Street between Granville Street and Filberts Creek
   - South side of West Eden Street between Broad and Granville Streets
   - South side of West King Street between Broad and Granville Streets
   - East side of South Granville between West King Street and West Water Street
   - North side of West Water from South Granville to mid-block, with a mid-block crossing to connect with an existing sidewalk on the south side of West Water Street.

A sidewalk is recommended on the inside of this curve at Water Street and South Granville Street.

   - Either side of Colonial Street (historic "Courthouse Green") between Water and East King Streets
   - East side of Court Street between East King Street and East Water Street
   - West side of Court Street between East King Street and East Church Street
   - North side of East Queen Street between Court and Broad Streets

- South side of East Church Street between the Senior Center and Oakum Street
- North side of East Queen Street between South Broad Street and Court Street
- South side of East Queen between South Oakum Street and Wood Avenue.
- North side of East Eden Street between Court Street and South Oakum Street
- South side of East King between South Oakum Street and McMullan Avenue
- East side of McMullan Avenue from Cotton Mill Circle to East Church Street

9. Prepare a traffic study to evaluate the existing section of **North Broad Street** between Queen Street and Virginia Road, a distance of about 3,600 feet (0.60 miles). This is the only multi-lane section of Broad Street within Edenton's corporate limits. It is a four-lane undivided roadway without provision for exclusive left-turn lanes. There is a gap of about 600 feet in sidewalk on the west side of Broad Street south of Virginia Road, a location that is close to John A. Holmes High School. There is also a gap in sidewalk on the south side of Virginia Road that is about 400 feet long from Broad Street to the west. The scope of the traffic study should address alternate cross-sections including conversion to a three-lane section that would improve motorist safety by separating left-turning vehicles from through traffic. The study should also address any need for on-street parking and enhancement of pedestrian safety at intersections.

4.4 Special Focus Areas

A special focus area geographically is the downtown, specifically building new sidewalks on streets that connect downtown Edenton with nearby neighborhoods; that is, neighborhoods within one mile of the central business district. A vibrant downtown business environment can be enhanced by creating a customer base that includes tourists, local residents, and people who work in Edenton but live elsewhere.

All of the sidewalk projects described below will connect neighborhoods that are now within one mile of the commercial district of downtown Edenton. Upon completion, residents will feel safer walking downtown. About two miles of new sidewalk (10,500 lineal feet) are identified in Table 4-1. At an average cost in 2009 dollars, the estimated cost to complete all of these projects is more than $1 million. It would take about 16 years to build all of the aforementioned projects, assuming 25 percent of the average state-allocated Powell Bill funds plus Town contributions of $20,000 per year. Cost

escalations are not accounted for in these assumptions. This provides for construction of about 600 feet of sidewalk each year. Streets to focus on include the following:

- **West Queen Street:** build a new sidewalk on the north side of the street between Boswell Street and Twiddy Avenue, a distance of about 250 feet. This project extends the existing sidewalk along West Queen Street to connect residents living along Boswell Street, Chowan Court, and Cauthen Lane (about 40 parcels) with the downtown commercial district in a walking time of about 15 minutes. The estimated cost is $25,000. Edenton could partner with NCDOT as this is a state-maintained road.

West Queen Street pedestrian crossing at Filbert's creek.

- **Dr. Martin Luther King, Jr. Avenue:** build new sidewalk and intersection improvements in three segments or locations, as follows:
  a. South side extend sidewalk 250 feet along frontage of apartments to Cox Avenue with appropriate intersection pedestrian treatments to facilitate crossing Dr. Martin Luther King, Jr. Avenue here.
  b. Twiddy Avenue intersection pedestrian treatments, as appropriate, to facilitate safe crossings.
  c. North Granville Street intersection pedestrian treatments, as appropriate, to facilitate safe crossings.

Extension of this sidewalk is recommended on Dr. Martin Luther King Jr. Ave.

The effect of building sidewalk and intersection treatments in the three locations identified above is to close gaps in existing sidewalks that will stretch more than one mile from the US 17 Bypass to North Broad Street, with two crossings of Dr. Martin Luther King, Jr. Avenue since sidewalk exists on alternating sides of the street. The estimated cost is $35,000. Edenton could partner with NCDOT as this is a state-maintained road.

- **South Granville Street and West Water Street**: meet with adjacent property owners and evaluate the relative cost and benefits of building the first segment of new sidewalk on either side of these streets. Build new sidewalk West King Street and West Water Street, a distance of about 400 feet including intersection pedestrian treatments. A connecting project to build concurrently is to extend existing sidewalk on the south side of West Water Street between South Granville Street and just west of South Broad Street, a distance of about 600 feet. The projects would connect residents along and connecting east-west streets with the waterfront. The projects would also facilitate visitor tours that include historic homes on South Granville Street. The estimated cost of both projects is $100,000, but may be higher if water quality permits and/or site grading are required.

- **East King Street, South Oakum Street and East Water Street**: There may be an opportunity in fiscal year 2009/10 to leverage a $10,000 town investment in new sidewalk construction with matching funds from NCDOT to extend the sidewalk on the east side of South Oakum Street linking existing sidewalks on East Water and East King Streets. The gap distance is about 200 feet (estimated cost $20,000). One singly-family residential parcel (for sale as of June 17, 2009) is affected. The town's certified arborist should inspect two mature hardwood trees on the property and provide a recommendation regarding potential effects of sidewalk construction on tree health. Henderson

Oakum Street looking south.

Consulting recommends a new sidewalk that is aligned with the existing sidewalk on Oakum Street north of East King Street.

Court Street: close the gap in the Historic District Walking Tour by narrowing the traveled way by painting out an in-street walking zone on the west side of the street between East King Street and the first parking lot driveway. Build a sidewalk on the west side, behind the curb, north of the first parking lot driveway. Traffic in this short section along the frontage of the historic Courthouse should be restricted to one-way southbound. Northbound traffic could be maintained from the southernmost parking lot driveway north to Church Street.

- **Coke Avenue**: build sidewalk on one side of the street between East Church Street and North Broad Street, a distance of about one mile. This project would connect a popular grocery store and shopping center at North Broad Street and a planned community park at East Church Street with residences in between. A rough cost for such a project is at least one-half million dollars. Edenton could partner with NCDOT as this is a state-maintained road.

- **Blades Street**: extend the existing sidewalk on the north side of the street west to North Oakum Street and east across the railroad tracks to Coke Avenue, a distance of about 1,100 feet. A sidewalk exists for a length of about 400 feet, but it is only three feet wide so some widening to provide a five-foot sidewalk width is recommended. Some of the existing sidewalk is behind a chain-link fence, on Edenton Housing Authority

An extension of sidewalk on the north side of Blades Street is recommended.

property. The project extends sidewalk closer to residents of the Coke Avenue, Oakdale Drive, Tylers Lane area of Edenton (more than 60 residential parcels). While the sidewalk doesn't extend all the way to and along these streets, it cuts the distance considerably. Including an improved at-grade rail crossing for pedestrians, the estimated cost of the project is $100,000.

- **East Freemason Street**: extend the existing sidewalk on the south side of the street east of North Oakum Street across the railroad tracks to Coke Avenue, a distance of about 1,000 feet. Including an improved at-grade rail crossing for pedestrians, the project serves residents along Jackson Street (more than 25 parcels), Colonial Village (more than 115 parcels), connects with John A. Holmes High School and the planned Meadow View Dairy Farm Park (to be located on the south side of East Freemason Street between Jackson Street residences and Coke Avenue). The estimated cost of the sidewalk project on East Freemason Street is $100,000.

A summary of the recommended projects is presented in Table 4-1

Table 4-1
Sidewalk Projects
Short- and Mid-Term Recommendations

Project	Length (Cost)	Connects homes with the high school, college, parks, community facilities, or downtown	Connects neighborhoods with limited access to vehicles	Located in Historic District
S. Granville St. W. Water Street	1,000 ft. ($100,000)	park, waterfront, library		✓
E. King Street S. Oakum Street E. Water Street	600 ft. ($60,000)	park, downtown, waterfront		✓
W. Queen Street	250 ft. ($25,000)	park, downtown		-
MLK Avenue	250 ft. ($35,000)	park, downtown		-
Court Street	900 ft.	park, historic site		✓
Coke Avenue	5,300 ft. ($500,000)	park, shopping center		-
Blades Street	1,100 ft. ($100,000)	high school, college, boys/girls club		-
E. Freemason St.	1,100 ft. ($100,000)	high school, college, park, boys/girls club		-
Total Cost: $ 920,000 – $ 1 million or more				
typical annual expenditure (state and local): $60,000				

Section 5: Facility Standards and Guidelines

5.0 Introduction

Specific reference is made to several adopted plans, guidelines and standards that should or must be followed as pedestrian facilities are built in Edenton. There is an expanded description of design guidelines for pedestrian facilities presented in Appendix B.

5.1 General Pedestrian Planning and Design Guidelines

The planning process began before this document was drafted. One of the earliest steps was the creation and adoption of the *Greenways and Open Space Plan* in 2003, with goals that are congruent with this plan. When Town Council decided to apply for an NCDOT pedestrian planning grant in December 2006, members of the Greenways and Open Space Committee were invited to participate as members of the Pedestrian Plan Steering Committee.

Other documents and plans that have helped lay the groundwork for this Plan include the *Gateway Corridors Plan* and the *Unified Development Ordinance*. Adopted in May 2003, the *Gateway Corridors Plan* emphasizes safe, attractive streetscape environments for pedestrians. The *Unified Development Ordinance* requires sidewalk construction and maintenance as well as establishing laws for pedestrian use of public rights-of-way.

A wide variety of people walk and a successful network of facilities will be accessible to all. Universal design elements incorporating *ADA Accessibility Guidelines* (ADAAG) are required by federal law so that new and improved roads are designed for use by people with low vision or blindness and people who use walkers and wheelchairs. Such design elements also aid seniors and others. Curb ramps must allow for a fairly smooth transition between sidewalk and roadway, but must also include a place where tactile surfaces inform people with low vision or blindness that they are transitioning from sidewalk to the roadway environment. ADA Accessibility Guidelines are approved by the Access Board under the United State Justice Department.

To prevent heat-related illnesses, benches and shady areas should be created so that seniors and anyone else needing a cool rest can do so.

Signs shall meet the standards set forth in the Federal Highway Administration's "Manual of Uniform Traffic Control Devices" (MUTCD). The manual is available online at http://mutcd.fhwa.dot.gov/. Roadway and sidewalk designs are controlled by state design standards approved by NCDOT available online at http://ncdot.org/doh/preconstruct/ps/std_draw.

Appendix B describes NCDOT design guidelines for pedestrian facilities.

5.2 Typical Cross-sections and Pedestrian Design Considerations

The *UDO* includes street schematics that illustrate cross-section dimensions of residential streets with curb and gutter. Sidewalks are shown in a sidewalk area that is 8.5 feet from the back of curb inclusive of a utility strip. A three-foot wide utility strip accommodates poles for overhead utilities and also serves as a buffer between the travelway and sidewalk. Illustrations are presented in Appendix A of the *UDO*.

Intersections have higher vehicle-pedestrian crash frequencies than mid-block sidewalks, but steps can be taken to reduce the risk at intersections. Pedestrians must be visible and expected to be present. Lighting is an important consideration in making pedestrians more visible to motorists at night. Crosswalks are intended to raise motorist's awareness of the likelihood of the presence of pedestrians, but the markings must be visible to the motorist otherwise the presence of marked crosswalks may give pedestrians a false sense of security; that is, feeling safer than they truly are (if the pedestrian is unseen by motorists). Pedestrian safety at intersections of higher-speed roads can be enhanced by painting diagonal or longitudinal lines to create "high visibility crosswalks" that are visible to oncoming motorists traveling at speeds greater than 40 mph. Intersections should have signal timings that are long enough to

permit safe crossing of pedestrians. Some intersections may warrant pedestrian-actuated traffic signal controls such as pedestrian push buttons and indicators.

Mid-block crossings should be designed to minimize the "surprise" element by motorists; that is, designed so that pedestrians are visible as they enter and cross the street. Bulb-outs have been built on Broad Street downtown to provide safe places for pedestrians to view traffic (and vice versa) before stepping into the street. Bulb-outs work well with on-street parking, as evidenced on Broad Street. Mid-block crossings on multi-lane (four or more travel lanes) or high-speed roadways (posted speed limit of 40 mph or more) should be carefully considered and designed by traffic engineers to minimize the risk of pedestrian injuries. Studies conducted by the UNC Highway Safety Research Center show that pedestrians are at higher risk at unsignalized mid-block crossings of multi-lane roads where a motorist may stop for a pedestrian, but another motorist in an adjacent travel lane may not. Injuries to pedestrians are typically severe when the vehicle speed is 40 mph or more.

Median refuge islands are a worthwhile design element at signalized and unsignalized intersections as well as at mid-block crosswalks. Desirable raised median widths at the crosswalk are six feet or more. Landscaped islands enhance community appearance and pedestrian comfort as long as good sight lines are maintained between pedestrians and motorists.

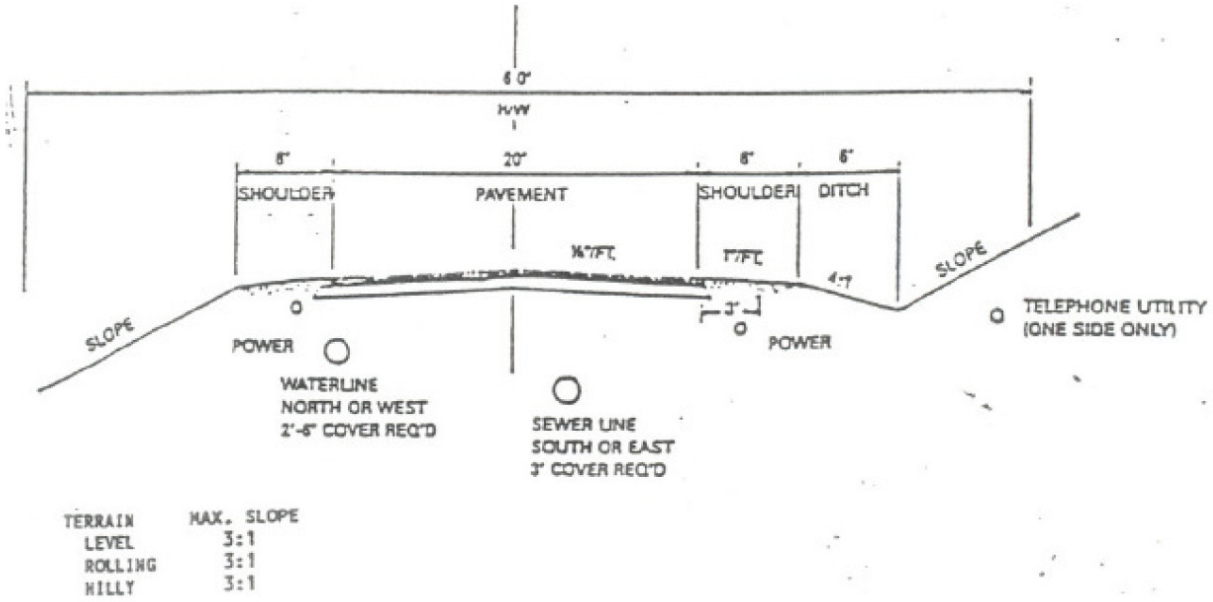
"Yield Here to Pedestrians" signs shall be placed 20 to 50 feet in advance of the nearest crosswalk line if yield lines are used in advance of an unsignalized midblock crosswalk.

The "In-Street Pedestrian Crossing" may be used to remind motorists of laws regarding right of way at an unsignalized pedestrian crossing. The legend "STATE LAW" may be shown at the top of the sign if applicable. The legends "STOP FOR" or "YIELD TO" may be used in conjunction with the appropriate symbol. If an island is available, the "In-Street Pedestrian Crossing" sign, if used, should be placed on the island. The "In-Street Pedestrian Crossing" sign shall not be used at signalized locations. If it is installed in the roadway, the sign support shall comply with the breakaway requirements of the latest edition of AASHTO's "Specifiication for Structural Supports for Highway Signs, Luminaires, and Traffic Signals". The sign can be used seasonably to prevent damage

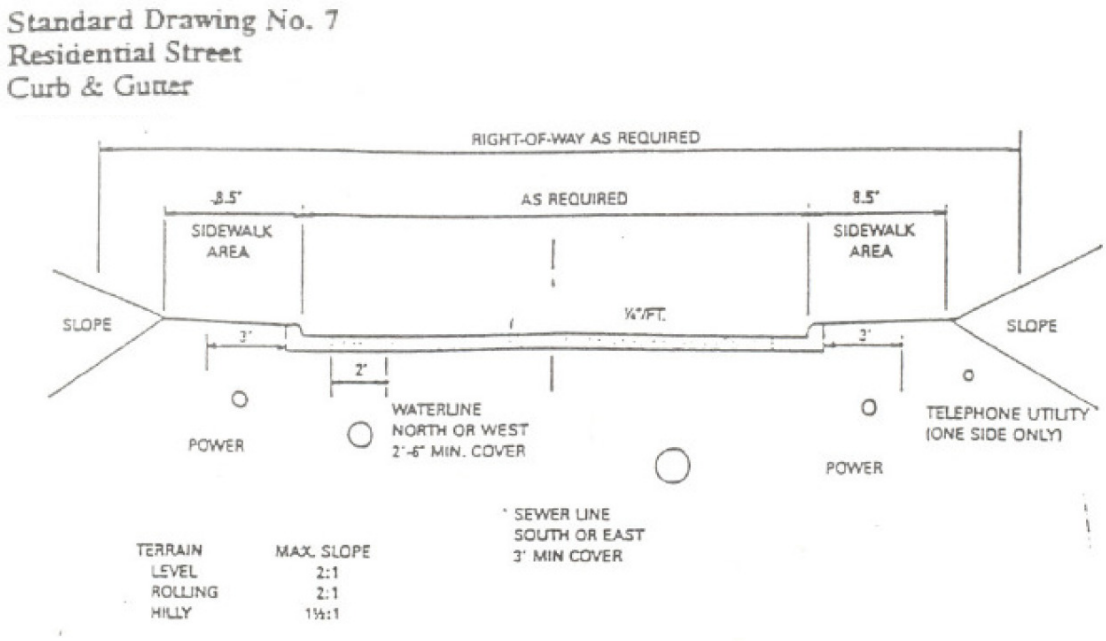
in winter because of plowing operations, and may be removed at night if the pedestrian activity at night is minimal.

The following illustrations are reprinted from the Edenton UDO, Appendix C-7. They represent the street cross-section required by Edenton for local residential streets, varying between the two illustrations depending on whether curb and gutter are provided or not. With curb and gutter, sidewalks are typically five feet wide, located 3 feet from the back of curb. Sidewalks are not required on streets that do not have curb and gutter.

Standard Drawing No. 6
Residential Street
No Curb & Gutter



TERRAIN	MAX. SLOPE
LEVEL	3:1
ROLLING	3:1
HILLY	3:1



5.0 feet desired (4.0 feet minimum)

Source: UDO

5.3 Historic District Preservation

Sidewalk repair in the historic district should follow historic district design guidelines.

In October 2006, the Edenton Town Council adopted design guidelines for the Historic District, including guidelines for streets and sidewalks. "One of Edenton's most appealing characteristics is the pedestrian-friendly atmosphere. Maintaining this environment is important to the preservation of the district. The street and sidewalk pattern should be maintained and preserved. Preserve the original size, orientation, path, and materials of sidewalks, walkways, streets, and alleys." For example, brick sidewalks should be repaired with similar bricks when maintenance is performed.

5.4 Sample Cost Estimates

Table 5-1 Planning Phase – Rough Cost for Street Crossing Facilities		
Street Crossings		
Item	**Unit Cost**	**Notes**
Crosswalk markings	$1,000 or less	Assumes 48-foot wide streets, markings on all approaches, and use of thermoplastic
Traffic signs	$200 each	Assume a new post is used
Traffic signals	$40,000 Per intersection	Varies based on street size; intersection configuration; type of signal, post, and mast arm; and complexity of phasing.
Audible Pedestrian Crossing Cues at Intersections	$2,400 per intersection	Two at each corner for a total of 8 per intersection.
Countdown signals at intersections	$6,000 per intersection	Two at each corner for a total of 8 per intersection
Raised crosswalk	$6,000 (portable) to $15,000 (stationary)	Rubber crosswalks are 6 feet wide, 30 feet long
Wheelchair ramps with warning surface (truncated domes)	$12,000	Assumes two at each corner for a total of 8 per intersection. Not including demolition cost.

Table 5-2 Planning Phase Rough Cost for Sidewalk Facilities		
Sidewalks		
Item	**Unit Cost**	**Notes**
Sidewalk	$50 to 75 per lineal foot	Cost varies widely throughout NC
Curb and gutter	$20 to 25 per lineal foot	
Street lighting, pedestrian level	$2,200 each	10 to 15 feet in height
Cobra head street light	$3,500 each	Standard roadway light
Bench	$1,000 each	
Bike rack	$1,200 each	
Trash receptacle	$1,500 each	

Section 6: Ancillary Facilities and Programs

6.0 Introduction

Additional sidewalks and greenways are typically what are thought of when pedestrian improvements are discussed. Edenton can also be improved for use by pedestrians through spot improvement and maintenance programs, traffic calming initiatives, safety education programs, enforcement programs, and encouragement and promotion. Examples of each are outlined below.

6.1 Spot Improvement Programs

Spot improvements to repair broken sections of sidewalk are performed routinely by Edenton Public Works.

Certain tasks can be completed to improve the condition of the pedestrian network. These spot improvements can be done without involving much planning, design, capital or labor. Removal and replacement of severely broken sections of sidewalk is needed in Edenton. A map and list of locations (see Map 8.2 and Appendix A) were provided to the Edenton Public Works Department.

Another type of spot improvement involves the installation of regulatory and warning signs from the federally-promulgated Manual of Uniform Traffic Control Devices (MUTCD). A sign that is not currently used in Edenton, but one that may be desired by citizens, is the In-Street Pedestrian Warning sign. The sign should be considered at several downtown intersections where pedestrian-vehicle conflicts are well-known. After a one year monitoring period, more widespread application of this signage solution may be considered in Edenton.

6.2 Infrastructure Maintenance Programs

Maintenance is required to keep any system operating, including a network of pedestrian facilities. Routine inspection and use of repair crews employed either directly or indirectly (contract basis) by the Town is typical. An average cost to repair sidewalk sections is $25 per lineal foot.

Opportunities to enhance the pedestrian system can also occur during maintenance activities associated with other types of infrastructure. Roadway construction, widening and resurfacing projects are opportunities to enhance conditions for pedestrians. Some of the least expensive solutions use paint to delineate space for pedestrians. Other improvements are shoulder grading and paving, on rural roads, in lieu of sidewalks. Water, sewer and stormwater upgrades can also create opportunities to enhance pedestrian facilities above ground, once the underground work has been completed.

6.3 Traffic Calming Initiatives

Design elements within the street can reduce the 85th percentile vehicular speed (that speed above which only 15 percent of vehicles travel at). Such a calming effect can significantly enhance pedestrian comfort, safety and use. There is a wide range of traffic calming measures to be considered on local residential streets, but only a few on major high-speed, high-volume streets. One major street to consider is North Broad Street between Queen Street and Virginia Road where a transformation should be considered from its existing four-lane undivided section to a three-lane section. A transformation may create more space for left turns, pedestrians, cyclists, or on-street parking.

For local streets, speed humps can be considered but not for major streets. Many North Carolina communities that allow traffic calming on local streets do so with some sort of cost sharing formulate whereby adjacent property owners contribute to the overall cost of the construction and maintenance. Such a policy focuses attention on only those streets where severe problems exist.

6.4 Safety Education Programs

It is important to provide safety education to drivers and pedestrians, as they both have responsibilities when they encounter each other. School-based programs would train a wider group of impressionable minds than any other type of program, and the Edenton-Chowan County Schools could

promote pedestrian safety at the high school. The elementary and middle schools are located in a rural area several miles northwest of Edenton. The Driver's Education instructor or another officer at John A. Holmes High School could put on an informative and entertaining program for high school students. A more involved agenda could be incorporated into the Driver's Education training offered through the high school. Instruction could also be given through health and physical education classes. Repetition of a message increases the chance that it will be remembered. Other opportunities for teaching pedestrians and drivers should be sought and used.

The Edenton Police Department works in conjunction with the Edenton-Chowan School District to provide bicycle and pedestrian education training to the youth in the community. The Healthy Carolinians (wellness task force) provides educational information to community groups and churches to promote healthy lifestyles. The *Greenways and Open Space Plan* as well as the *Gateway Corridor Overlay Plan* both promote "connectivity" of neighborhoods to the greater community.

The Boys and Girls Club, located on North Oakum Street, is another organization that could be encouraged to educate children about how to be safe pedestrians. Senior centers and activities oriented to seniors through the Parks and Recreation Department provide opportunities and locations for programs directed more toward senior citizens. The newspaper and newsletters serving the Edenton community are effective media oriented to middle-age adults who also need reminders about pedestrian and driving laws.

6.5 Enforcement Programs

Traffic laws are more likely to be obeyed if they are enforced. Some people do not realize certain actions are against the law because they have never heard of someone being "caught in the act". Even enforcement of an area for one day will make people who drive or walk in that area remember and pay more attention to their actions.

Outreach programs also increase the chances that people obey the laws. When someone feels like they have a positive personal relationship with a law enforcement official, they tend to show more respect, in turn driving or walking more in

accordance with the laws. These outreach programs also afford law enforcement officials the opportunity to educate the community about laws and safety. A safety fair could be held at the school or at the Boys and Girls Club.

6.6 Encouragement and Promotion

Many would-be pedestrians need some incentive to get them moving. Others are unaware of their options. Incentive programs could be sponsored by the Chowan County Health Department, Edenton-Chowan County Schools, or the Edenton Parks and Recreation Department. Rewards could be offered to participants who walked and recorded their time and distance, in addition to the health benefits of exercise received as a result of their effort. Other agencies and organizations should be encouraged to join the effort. Employers should be encouraged to offer some benefit to employees who walk instead of drive to work.

Events should also be held that would increase awareness and draw more attention to pedestrian needs and incentives. "Each October, millions of children, parents, teachers and community leaders across the globe walk to school to celebrate "International Walk to School Day". It is an energizing event, reminding parents and children alike of the simple joy of walking to school. It also serves as an opportunity to focus on the importance of physical activity, safety, air quality and walkable communities. Walk to School activities often become a catalyst for on-going efforts to increase safe walking and bicycling all of the time.

<u>Steps to Get Started:</u>

1) *Get Partners* - work with the principal, public officials, PTA volunteers, police and other local organizations to form a partnership.

2) *Create a Plan* - plan a great event that works for your school. If walking to school from home is too far, plan to meet up at a central location and walk a mile to school;

if many parents are unable to attend the event, plan to use a "walking school bus" model. For ideas, visit www.walktoschool.org.

3) *Promote Your Event* - contact parents and staff to inform them of the event and encourage their participation. Work through existing channels, such as school newsletters, morning news, etc. Also, contact the local media to gain wider attention to the purpose of the event and issues that children and parents face when it comes to biking and walking to school.

Section 7: Project Development

7.0 Introduction

Expansion of the sidewalk network in Edenton will take place project by project. Potential projects and preferred treatments are identified and prioritized in this section. Funding sources and opportunities have been reviewed. Special funding opportunities for high priority projects and supporting policies and guidelines are identified, and monitoring processes recommended in this section to ensure success.

7.1 Identify Potential Projects, Preferred Treatments and Program Initiatives

1. **Pedestrian Plan**

   This plan identifies 15 to 20 years of pedestrian facility projects assuming continued investment by Edenton at present funding levels. This Plan represents a best effort toward identifying potential projects, preferred treatments and program initiatives.

   As time goes by, citizens, staff, and town officials will identify other opportunities to build projects and initiate programs. As situations evolve, town staff may add, change, and omit projects as needed. Following is a process used successfully in Durham, North Carolina to address citizen requests for new sidewalks.

2. **Sidewalk Petition Process**

   The sidewalk petition process used in Durham, for example, is a method whereby citizens have the opportunity to request a sidewalk at any given location. The requestor serves as the petitioner to secure signatures. The property owners at the sidewalk location pay a portion of the cost through an assessment. Citizens may request a sidewalk petition and learn more about the petition process by calling the city.

   An individual, serving as the "petition sponsor," requests a petition from the City. As a part of the request the sponsor outlines the limits of the area to be served. They indicate the starting point and ending point of the sidewalk and on which

side of the street. Typically the sidewalk does not begin mid-block, rather it begins and ends at street intersections and includes complete blocks. Once the limits have been determined the City prepares a petition for the sponsor to circulate.

The petition needs to be sufficient on two criteria, with sufficient being defined as representing more that 50 percent of citizens within the criteria. The petition needs to be signed by a majority (50 percent plus one person) of the property owners adjacent to the proposed improvement, and their properties must represent the majority (50%+) of the road frontage involved. The petition is returned to Engineering and researched to determine if it is sufficient, then the petition is taken to City Council for action.

A public hearing is held to consider the issue. Assuming Council approves the project it is returned to Engineering for design and placement into a construction contract. Once the project is complete the adjacent property owners are assessed a portion of the project costs. The assessment can be paid at the time it is levied or it can be paid in annual installments over 5 years at 9% interest.

7.2 Project Prioritization

The order in which projects in Edenton should be approved and built should reflect what's important to local citizens and officials. Based on input received by the consultant at advisory committee meetings, the following criteria are important:

Prioritization Factors

1. **Safety of pedestrians** – perceived risk of being struck by a vehicle keeps some people from walking. Instead, they drive and may exacerbate the sense by some pedestrians that walking can be lonely. Factors in perceived risk include speed and the number of vehicles, particularly fast-moving trucks that create wind blasts on pedestrians; the distance between the sidewalk and traveled way, lessened somewhat by buffers (parked cars and trees) and the complexity of street crossings.

2. **Wise use of scarce public funds** – support exists to build sidewalks, but only in a reasonable manner and in places with a reasonable likelihood that someone will use it. Extremely high construction and/or land acquisition costs should be deferred.

3. **Connect places** – sidewalks should connect people to neighborhoods, downtown, community buildings, parks, Holmes High School and associated facilities, College of Albermarle, Boys/Girls Club, shopping centers, and the Edenton waterfront.

4. **Connect people who must walk** – neighborhoods with a higher than average percentage of households with no or just one vehicle must walk. Building sidewalks between such neighborhoods and the places that people want to walk to are helpful.

5. **Historic District** – Visitors are attracted to Edenton's waterfront and its remarkably intact historic district. However, gaps in the sidewalk system within the historic district detract from its use and may confuse visitors and put them in harms way. Their interest in returning to Edenton may be influenced more by these seemingly insignificant trivial matters, rather than by the architecture and presentation of unique cultural resources.

6. **Fill gaps between sidewalk sections** – Missing sections of sidewalk deter people from walking along these streets and may alter their destination and choice of travel mode. Filling gaps in sidewalks may lead to more people walking longer distances. Map 8.2 shows where gaps exist as of June 2008 when the Comprehensive Sidewalk Condition Survey was performed.

[1] The Edenton Pedestrian Plan Advisory Committee recommends these factors in the priority order listed above.

7.3 Funding Sources / Processes

Several funding sources at the local, state and federal levels of government are available to aid in implementation of this Plan. Using the right source and getting the best return requires strategy. This Plan itself was funded by the NCDOT Pedestrian Planning Grant, but grants usually provide only a portion of overall funding needs. The most successful strategy for a municipality to develop and improve its pedestrian system will involve an appropriate combination of all possible sources, public and private. Sources and applications are listed below.

1. Town of Edenton Discretionary Funds
   a. Capital budget

      Edenton historically spends $20,000 each fiscal year on sidewalks. The total 2008/2009 general fund budget is $4.17 million. However, the town manager's budget message delivered to Town Council on May 29, 2008 said the following:

      "The downturn in our local and state economy has dramatically impacted the Town's General Fund revenue. … I have reviewed the expense side of the General Fund budget and have made a number of deferrals on projects. I am confident that the future for Edenton is a positive one and that better days are ahead. I think all of the good planning that you have done these last few years will insure that our community grows in a way in which we can all be proud of. I just cannot in good faith try to capitalize on projected growth that is not here yet at the expense of the fiscal integrity of the Town's budget. … On the expense side, I cannot point to one new initiative that is not related to a grant. … We have included funds to continue the Pedestrian DOT Planning Grant."

      By Anne-Marie Knighton, Town Manager

   b. Powell Bill funds

      The Powell Bill Program is a state grant to municipalities for use in street system maintenance and construction activities. The 2008/2009 town budget appropriated out of the total $172,000 Powell Bill Fund the following:

      - Sidewalks capital outlay = $3,000
      - Paving capital outlay = $63,000

- Storm drainage capital outlay = $10,000
- Salaries and benefits = $79,046
- Debt service on street sweeper = $26,800

c. Bond issues

The town has not used bonds to pay for sidewalk projects. Due to the relatively slow growth in population and employment in Edenton, bonds are not a preferred financing mechanism here.

d. Streetscape utility fees

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

e. Local maintenance or spot improvement funds

Crews employed by the Town of Edenton Public Works Department maintain sidewalks and build wheelchair ramps. Large projects are sometimes contracted out to private construction companies.

2. Public / private partnerships

a. Partnerships

Due to the linear and connective nature of many pedestrian facilities, oftentimes improvements often involve numerous landowners. Greenway projects, for example, can present complex challenges of working with multiple property owners and jurisdictions. Creating partnerships may be the best way to solve the complex problems that ensue, as well as deal with the inevitable web of utility lines and transportation corridors. Though these partners may have some conflicting interests at times, opportunities for funding, support and publicity may arise and broaden by involving partners with diverse interests. Multiple uses of utility corridors provide one example of effective partnership. Most utilities use a linear corridor but occupy only a small portion of the ground surface. Rather than being solely dedicated to that one isolated use, these valuable corridors can often include a complementary public transportation and recreation use along with the utility functions. Utilities benefit from sharing corridors with trails through maintenance savings.

b. Gifts and donations

A trust fund could be established to collect money from a variety of sources including gifts, private grants, estate donations, and town and county general fund appropriations. The fund could be administered by a private advocacy group or local commission and could aid in land acquisition, especially of large high-priority tracts that may be unavailable if not obtained by the initiative of members of the private sector.

3. State funds

Refer to Appendix C for information on funding sources.

7.4 Supporting Policies and Guidelines

There are guidelines for designing pedestrian facilities in Edenton's *Unified Development Ordinance,* the adopted *Gateway Corridors Overlay District Master Plan* report, and the Edenton *Historic District Design Guidelines*. Safe passageways for pedestrians are required on new streets within the town's corporate limits and ETJ unless a waiver is granted due to steep topography that results in a drainage swale instead of curb and gutter. In such cases, no sidewalk is required. Whenever the Town Council finds that a means of pedestrian access is necessary from the subdivision to schools, parks, playgrounds, or other roads or facilities and that such access is not conveniently provided by sidewalks adjacent to the streets, the developer may be required to reserve an unobstructed easement of at least ten feet in width to provide such access.

Sidewalk maintenance is provided by the Town, however '*no person shall permit the limbs from any tree growing on his land to grow or hang as to obstruct or interfere with the free passage of persons along sidewalks or streets*' according to the Edenton Town Code.

Section 8: Maps

The following pages are maps of the current and proposed pedestrian facilities in Edenton. Maps 8.1 through 8.4 show where pedestrian attractions such as parks and schools are located.

8.1 Existing Pedestrian Facilities and Destinations
8.2 Condition of Existing Sidewalks
8.3 Recommendations of Greenway and Open Space Plan
8.4 Recommended Pedestrian Facilities
8.5 Future Land Use
8.6 Gateway Corridors in Edenton

Map 8.1
Existing Pedestrian Facilities and Destinations

Point Trip Generators

- Hospital
- Medical
- Multi-family residence
- Nursing Home
- Place of worship
- Private Lodge
- Private Marina
- Private recreational
- Public Park
- School
- Shopping center
- Sidewalks
- Railroads
- Water Features

Existing Land Use: CAMA Categories

- Industrial
- Commercial
- Confined Animal Feeding Operation
- Institutional/ Public
- Residential
- Forestry
- Agricultural
- Dedicated Open Space
- Vacant/ Undeveloped

N W E S

1 inch = 800 feet

0 400 800 1,600

Feet

THE WOOTEN COMPANY
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Map Document: (N:\Chowan_County\Edenton\Citywide\8_1_existing_ped_fac.mxd)
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Map 8.2
Condition of Existing Sidewalks

Point Trip Generators

- Hospital
- Medical
- Multi-family Residence
- Nursing Home
- Place of worship
- Private Lodge
- Private Marina
- Private Recreational
- Public Park
- School
- Shopping center
- Park
- Water Features
- Railroads

Sidewalk Condition as of June 2008

- Good Condition
- Fair Condition
- Poor Condition

N
W E
S

1 inch = 800 feet

0 400 800 1,600
Feet

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Map 8.3 Recommendations of Greenway and Open Space Plan

BOTH MAPS ARE AT THE SAME SCALE

Downtown Corridor Pilot Project

Pembroke Creek Future Greenway

Queen Anne Creek Future Greenway

Pembroke Creek

Queen Anne Creek

Edenton Bay

Dutch's Creek

Point Trip Generators

- Hospital
- Medical
- Multi-family residence
- Nursing Home
- Place of worship
- Private Lodge
- Private Marina
- Private recreational
- Public Park
- School
- Shopping center
- Rails
- Greenway & Open Space Plan Proposed Sidewalks
- Gateway Corridor Plan Proposed Sidewalks
- Wooten Sidewalk Survey of 2008
- Recomendation of Greenway and Open Space Plan
- Greenway
- Park Path
- Water Features

Existing Land Use: CAMA Categories

- Industrial
- Commercial
- Confined Animal Feeding Operation
- Institutional/ Public
- Residential
- Forestry
- Agricultural
- Dedicated Open Space
- Vacant/ Undeveloped

N W E S

1 inch = 2,200 feet

0 1,000 2,000 4,000

Feet

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Map Document: (N:\Chowan_County\Edenton\Citywide\8_3_prop_ped_fac.mxd)
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Map 8.4
Recommended Pedestrian Facilities

Point Trip Generators

- Hospital
- Medical
- Multi-family residence
- Nursing Home
- Place of worship
- Private Lodge
- Private Marina
- Private recreational
- Public Park
- Park
- School
- Shopping center
- Railroads

Sidewalk Status

- Proposed
- Built

N

W E

S

1 inch = 800 feet

0 400 800 1,600

Feet

THE WOOTEN COMPANY
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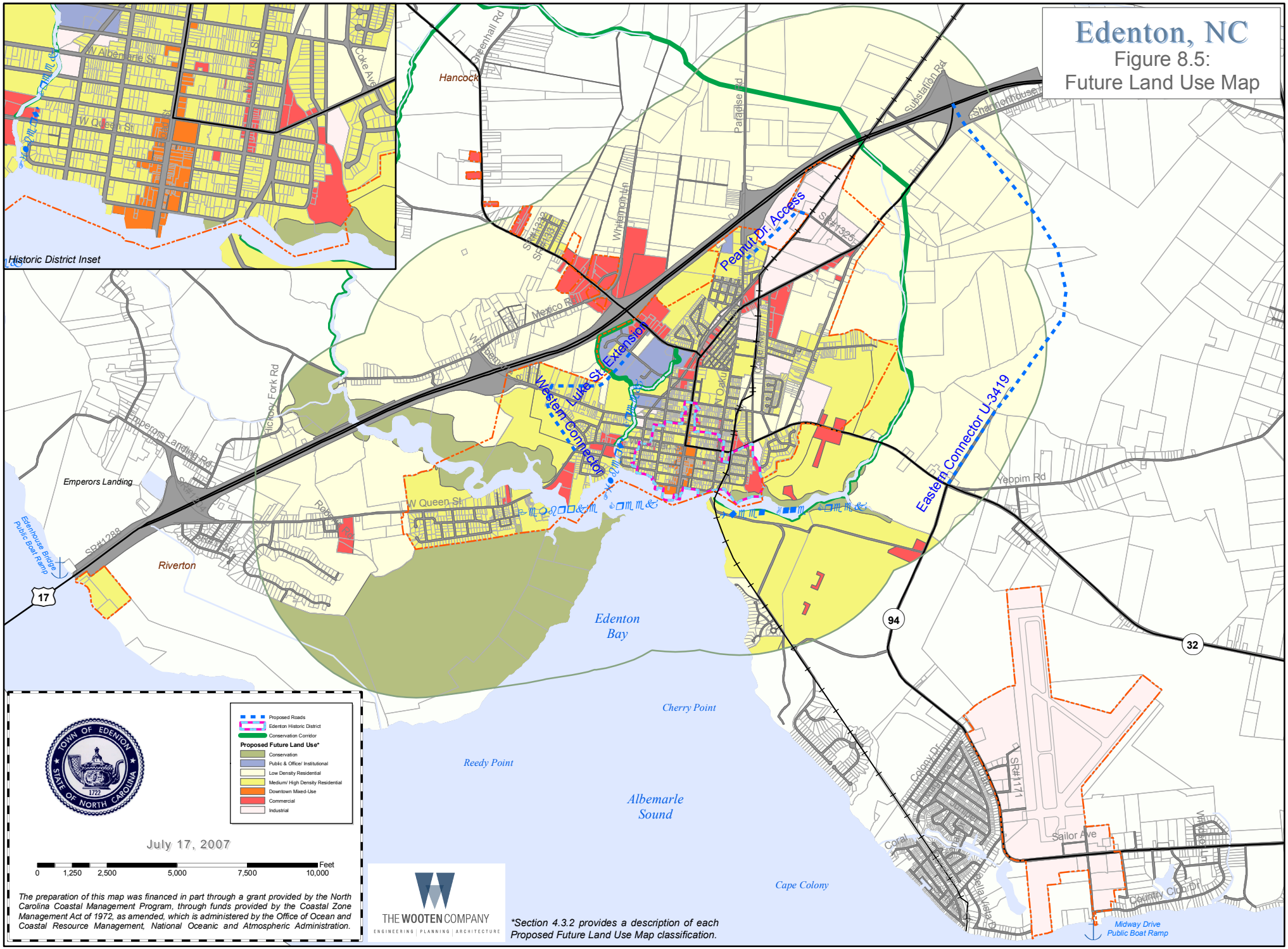
Edenton, NC

Figure 8.5: Future Land Use Map



The preparation of this map was financed in part through a grant provided by the North Carolina Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

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**Section 4.3.2 provides a description of each Proposed Future Land Use Map classification.*

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Corridor Key & Entrance Sign Locations

Edenton

Chowan County, North Carolina

Section 9: Recommendations

9.0 Introduction

General information is presented in this section, following up on specific projects recommended in Section 4. The concept of ongoing involvement by citizens is discussed here.

9.1 Project Descriptions

Specific projects are described in Chapter 4. Much coordination will need to be done to ensure these projects are undertaken in a programmatic manner. Projects are prioritized in an attempt to have new construction throughout the town rather than concentrated pockets of improvement.

Steps will also need to be taken to expand the existing pedestrian corridor network by building greenway projects recommended in the *Edenton & Chowan County Greenways and Open Space Plan* adopted in 2003 (see Map 8.3).

9.2 Recommendations for Pedestrian Policies, Guidelines and Procedures

Land use policies and regulations of the last five decades did more to discourage pedestrian-friendly development than any other single force. The Pedestrian Plan recommends policies and regulatory provisions that should be considered by the town as part of its next 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 pedestrian and bicycle facilities shall 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 Edenton's high school is non-motorized (walking, bicycling, skating, etc.). For the development of new schools, finding a school location inside a developed or future residential development is preferred. If this is not feasible, design the school so that its

main entrance faces toward future or existing residential areas where appropriate. Schools should encourage children to get themselves to school without the use of cars.

- The location of post offices, health departments, Social Security offices, parks, libraries, police stations, abuse care centers, courts, DMV offices and other civic facilities should be in a location where pedestrian access is the 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 or cannot afford to drive. In cases such as Social Security offices where there is typically one branch office, a central location is best. The town should have a policy to work with county, state, and federal agencies to make this possible.
- Plans for new roadway construction must not compromise projects and concepts brought forth in the Pedestrian Plan or Greenway and Open Space Plan. A new roadway should never sever a planned shared-use path corridor and a road widening project must always leave room for sidewalks.
- Request that NCDOT install appropriate pedestrian crossing warning signs at existing mid-block crosswalks on South Broad Street in the business district.

9.3 Funding Recommendations

Building and repairing sidewalks and greenways in tough economic times may show citizens, visitors and potential relocates that Edenton is the kind of place that understands our need to keep moving. If a sidewalk construction project is coupled with educational and encouragement campaigns the message received by the public may support continued construction projects.

Existing programs to fix “poor” quality sidewalks and requested ADA accessibility projects should continue. During this time, continued engineering evaluation by staff of the readiness of other projects (see Table 4-1) should be conducted and presented to Town Council during municipal budget hearings in 2009 and subsequent years. Funds should be requested for the “best” project in the 2009-2010 budget. Public opinion surveys should be conducted before, during and after sidewalk construction projects to gauge interest; perhaps gaining support that can be leveraged in future budget deliberations.

9.4 Staffing / Committee Recommendations

Citizens willing to invest time and initiative to remain informed of pedestrian priorities in Edenton may be able to help maintain support for projects, programs, and bicycle policies. To the extent

that six or more individuals are interested, the formation of an *ad hoc* committee could be considered by the Town Manager. The committee could meet as needed and take on tasks that reinforce this Pedestrian Plan and raise awareness in the community. One such task could be assistance applying for grants to help fund projects or programs, including a grant application to NCDOT for funds to prepare a bicycle plan.

Section 10: Implementation Action Plan

10.0 Introduction

The adoption process for this plan is explained in this section.

10.1 Plan Approval / Adoption Process

Following the final public input session on ____, 2009 the report will be updated and then reviewed by the NCDOT Bicycle and Pedestrian Division and Transportation Planning Branch. Edenton Town Council will be invited to approve the Pedestrian Plan and then it will be sent to NCDOT for final approval. All approvals should occur in 2009.

10.2 Project Planning / Implementation Process

Spot improvements to fix "poor" quality sidewalk sections should be carried out by Edenton Public Works Department. To the extent practical, compliance with ADA should be incorporated into the repairs at intersections. Funding should be considered by the Town Council during budget deliberations in 2009 and subsequent years.

10.3 Project Summary and Assessment

The implementation of repaired, new, and expanded pedestrian infrastructure projects is an important component of Edenton's Pedestrian Plan. Infrastructure projects are classified as either an ***incidental project*** or an ***independent project***. The Town of Edenton will need to request sidewalks for these projects and lobby for their completion.

- **Incidental projects** are pedestrian enhancements that are implemented in conjunction with roadway and new development projects. The town staff should review all plans for upcoming roadway and bridge improvements (constructed by the town, NCDOT, or the federal government) to ensure that pedestrian (and bicycle) accommodations are included to the fullest 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 are made

as part of all pending roadway expansion and maintenance projects, as well as all new development projects.

- **Independent projects** are pedestrian improvements that are implemented as a separate project, 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 projects outlined in Table 10-1 and described in Chapter 4 are indicative of projects that will most likely be implemented as independent projects.

Table 10-1 Sidewalk Projects Short- and Mid-Term Recommendations				
Project	Length (Cost)	Connects homes with the high school, college, parks, community facilities, or downtown	Connects neighborhoods with limited access to vehicles	Located in Historic District
S. Granville St. W. Water Street	1,000 ft. ($100,000)	park, waterfront, library		✓
E. King Street S. Oakum Street E. Water Street	600 ft. ($60,000)	park, downtown, waterfront		✓
W. Queen Street	250 ft. ($25,000)	park, downtown		-
MLK Avenue	250 ft. ($35,000)	park, downtown		-
Court Street	900 ft.	park, historic site		✓
Coke Avenue	5,300 ft. ($500,000)	park, shopping center		-
Blades Street	1,100 ft. ($100,000)	high school, college, boys/girls club		-
E. Freemason St.	1,100 ft. ($100,000)	high school, college, park, boys/girls club		-
Total Cost: $ 920,000 – $ 1 million or more				
typical annual expenditure (state and local): $60,000				

10.4 Funding Opportunities

A combination of funding sources will be needed to construct the infrastructure projects. The town should seek all viable funding opportunities for project implementation, including federal and State monies where available. Special funding programs for specific types of projects should also be pursued. Private foundations should be thoroughly researched to identify possible funding options.

Although many funding sources potentially can 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).

10.5 Adoption of Policy and Ordinance Revisions

The recommended policy and ordinance revisions should be fully considered when the town updates its UDO. Incorporating the policy recommendations in the updated UDO will play a major role in defining the future pedestrian environment of Edenton. A formal policy is needed to delineate the process used by the Town to consider citizen requests for sidewalks.

10.6 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.

10.7 Spot Improvement and Maintenance Programs

The Town's Spot Improvement Program to inventory, repair, maintain, and enhance sidewalks, crosswalks, and other pedestrian facilities will be continued by the Edenton Public Works Department.

10.8 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 Edenton-Chowan 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. Police educate citizens about

pedestrian safety when asked. Proactively, the annual Music/Water Festival in June could include a booth with handouts offering information. This might also be an opportune time to get new signs installed at downtown intersections called “In Street Pedestrian Yield” signs (see info on Page 53).

10.9 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 promotion activities are on-going, rather than one-time efforts.

Appendix A
Existing Sidewalk Survey
Town of Edenton

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
1	S Broad St (E)	Edenton Bay-E Water St	339.2	4' - 7.5'	Good	Mixed	No	48% 5' - 30% 7.5' - 22% 5' | Brick & Concrete
2	S Broad St (E)	E Water St-E King St	355.3	16.0	Good	Brick	No	
3	S Broad St (E)	E King St-E Queen St	687.0	16.0	Good	Mixed	No	mostly brick, 16' driveway concrete
4	S Broad St (E)	E Queen St-E Church St	327.0	5.3	Poor	Brick	No	many low spots
5	S Broad St (W)	Edenton Bay-W Water St	141.5	4.0	Good	Brick	No	
6	S Broad St (W)	W Water St-W King St	358.1	5' - 15'	Fair	Brick	No	general uneveness, 80% 5'
7	S Broad St (W)	W King St-W Eden St	334.1	15.8	Good	Brick	No	
8	S Broad St (W)	W Eden St-W Queen St	331.7	18.9	Good	Brick	No	
9	S Broad St (W)	W Queen St-W Church St	342.5	5.7	Fair	Concrete	No	2 uneven joints, 2 broken surface areas
10	N Broad St (E)	E Church St-E Gale St	352.0	5.7' - 8.5'	Good	Concrete	No	70% 8.5'
11	N Broad St (E)	E Gale St-E Albemarle St	352.0	6.0	Good	Concrete	No	
12	N Broad St (E)	E Albemarle St-E Carteret St	350.7	5.5	Good	Concrete	No	
13	N Broad St (E)	E Carteret St-E Freemason St	402.0	5.0	Good	Concrete	No	
14	N Broad St (E)	E Freemason St-E Peterson St	377.4	4.0	Good	Concrete	No	
15	N Broad St (E)	E Peterson St-E Hicks St	400.5	4.0	Poor	Concrete	No	many broken spots
16	N Broad St (E)	E Hicks St-Park Ave	472.7	4.0	Good	Concrete	No	
17	N Broad St (E)	Park Ave-First St	519.4	4.0	Fair	Concrete	No	70% has areas of broken surface
18	N Broad St (E)	First St-E Second St	603.8	4.0	Poor	Concrete	No	3 broken spots
19	N Broad St (E)	E Second St-E Third St	623.2	4.0	Good	Concrete	No	1 broken spot at north ramp
20	N Broad St (E)	E Third St-N Oakum St	543.3	3.5' - 5'	Good	Concrete	Yes	ADA north end only, 44% 4' - 33% 3.5' - 23% 5'
21	N Broad St (W)	W Church St-W Gale St	364.3	5.7	Fair	Concrete	No	2 broken surface, 2 uneven joint
22	N Broad St (W)	W Gale St-W Albemarle St	352.4	5.7	Good	Concrete	No	
23	N Broad St (W)	W Albemarle St-W Carteret St	350.1	6.0	Good	Concrete	No	
24	N Broad St (W)	W Carteret St-W Freemason St	388.1	5.0	Good	Concrete	No	
25	N Broad St (W)	W Freemason St-W Peterson St	355.1	4.0	Good	Concrete	No	
26	N Broad St (W)	W Peterson St-W Hicks St	392.2	4.0	Good	Concrete	No	1 uneven joint
27	N Broad St (W)	W Hicks St-Cemetery St ROW	246.5	4' - 8'	Good	Concrete	No	78% 8' - 22% 4'
28	N Broad St (W)	Virginia Rd-Second St	854.7	4.0	Fair	Concrete	No	1 panel missing, 1 open cut, 1 broken surface
29	N Broad St (W)	Second St-Third St	620.8	4.0	Poor	Concrete	No	4 broken surface, 1 large crack
30	N Broad St (W)	Third St-N Oakum St	655.0	4.0	Good	Concrete	No	
31	S Oakum St (E)	E King St-E Queen St	691.9	4.0	Good	Concrete	No	
32	S Oakum St (E)	E Queen St-E Church St	348.9	4.0	Poor	Concrete	Yes	1 uneven joint, 1 tree root crack, ADA North end only
33	S Oakum St (W)	E King St-E Eden St	323.2	4.7	Good	Concrete	No	

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
34	S Oakum St (W)	E Eden St-E Queen St	331.0	5.0	Good	Concrete	No	
35	S Oakum St (W)	E Queen St-E Church St	356.7	5.0	Good	Concrete	Yes	1 panel missing, ADA north end only
36	N Oakum St (E)	E Church St-E Gale St	338.5	5.0	Good	Concrete	Yes	
37	N Oakum St (E)	E Gale St-E Albemarle St	349.9	5.0	Good	Concrete	Yes	
38	N Oakum St (E)	E Albemarle St-E Carteret St	358.0	5.0	Good	Concrete	Yes	
39	N Oakum St (E)	E Carteret St-E Freemason St	380.3	4.0	Good	Concrete	No	
40	N Oakum St (E)	E Freemason St-E Peterson St	331.8	4.0	Good	Concrete	No	
41	N Oakum St (E)	E Peterson St-E Hicks St	345.7	4.0	Good	Concrete	No	
42	N Oakum St (E)	E Hicks St-Dicks St	350.1	4.0	Good	Concrete	No	
43	N Oakum St (E)	Dicks St-Blades St	756.1	4.0	Good	Concrete	No	
44	N Oakum St (E)	Blades St-N Oakum Circle	224.4	4.0	Good	Concrete	No	
45	N Oakum St (E)	N Oakum Circle-Walker St	273.8	4.0	Good	Concrete	No	1 panel missing
46	N Oakum St (E)	Walker St-N Broad St	885.4	4.0	Good	Concrete	No	
47	N Oakum St (W)	E Church St-E Gale St	337.8	5.0	Good	Concrete	Yes	
48	N Oakum St (W)	E Gale St-E Albemarle St	359.5	5.0	Good	Concrete	Yes	
49	N Oakum St (W)	E Albemarle St-E Carteret St	344.9	5.0	Good	Concrete	Yes	
50	N Oakum St (W)	E Carteret St-E Freemason St	386.6	5.0	Good	Concrete	Yes	
51	Wood Ave (E)	E King St-Elliot St	325.1	4.5	Good	Concrete	No	1 uneven joint
52	Wood Ave (E)	Elliot St-E Queen St	319.4	4.0	Good	Concrete	No	1 broken surface
53	Wood Ave (E)	E Queen St-Phillips St	295.2	4.0	Good	Concrete	No	
54	McMullan Ave (E)	E King St-Elliot St	315.8	4.0	Good	Concrete	No	
55	McMullan Ave (E)	Elliot St-Cotton Mill Circle	90.6	4.0	Good	Concrete	No	
56	McMullan Ave (W)	E Queen St-Phillips St	59.0	4.0	Good	Concrete	No	
57	Coke Ave (E)	Tyler Ln-N Broad St	273.4	5.0	Good	Concrete	No	
58	Bridgetowne Ave (E)	Barefoot Ct-Winborne Ln	174.3	3.0	Good	Concrete	No	
59	Bridgetowne Ave (W)	Pendeton Trace-Middlesborough Ln	124.1	3.0	Good	Concrete	No	
60	Bridgetowne Ave (W)	Belvedere Ln-Winborne Ln	201.4	3.0	Good	Concrete	No	
61	Cabarrus St (W)	Park Ave-First St	308.6	4.0	Good	Concrete	No	
62	Cabarrus St (W)	First St-E Second St	611.1	4.0	Good	Concrete	No	
63	Cabarrus St (W)	E Second-N Oakum St	254.6	4.0	Good	Concrete	No	
64	Court St (E)	E Water St-E King St	166.9	3.6' - 6.5'	Good	Mixed	No	1 broken surface, brick and concrete, 43% 3.6' - 42% 6.5' - 15% 5'
65	Court St (E)	E Queen St-E Church St	314.2	4.0	Good	Concrete	No	2 tree root crack

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
66	Court St (W)	E Queen St-E Church St	158.3	5.0	Good	Concrete	No	
67	Colonial Ave (W)	E Water St-E King St	67.3	4.0	Good	Concrete	No	
68	Tyler Lane (N)	Coke Ln-Old Hertford Rd	1,650.0	4.0	Good	Concrete	No	
69	S Granville St (E)	W King St-W Eden St	333.9	4.0	Good	Mixed	No	brick and concrete, 1 low spot, 1 large crack
70	S Granville St (E)	W Eden St-W Queen St	341.3	4.0	Good	Concrete	No	
71	S Granville St (E)	W Queen St-W Church St	366.4	4' - 5'	Good	Concrete	No	55% 4' - 45% 5'
72	S Granville St (W)	Blount St-W Eden St	286.8	4.0	Good	Concrete	No	1 small cracks
73	S Granville St (W)	W Eden St-W Queen St	338.5	5.0	Good	Concrete	No	1 tree root crack
74	S Granville St (W)	W Queen St-W Church St	360.2	6.0	Good	Concrete	No	
75	N Granville St (E)	W Albemarle St-W Carteret St	354.6	4.0	Good	Concrete	No	
76	N Granville St (E)	W Carteret St-W Freemason St	395.6	4.0	Good	Concrete	No	1 open cut
77	N Granville St (E)	W Freemason St- W Peterson St	346.4	4.0	Poor	Mixed	No	asphalt (poor) 36', concrete (good)
78	N Granville St (E)	W Peterson St-W Hicks St	350.5	4.0	Good	Concrete	No	1 broken surface, 1 uneven joint
79	N Granville St (E)	W Hicks St-Virginia Rd	1,068.8	4' - 5'	Good	Concrete	No	56% 5' - 44% 4'
80	N Granville St (W)	W Church St-W Gale St	363.0	6.0	Fair	Concrete	No	several broken surface
81	N Granville St (W)	W Gale St-W Albemarle St	370.7	4.0	Good	Concrete	No	
82	N Granville St (W)	W Albemarle St-W Carteret St	354.3	5.0	Good	Concrete	No	
83	N Granville St (W)	W Carteret St-W Freemason St	389.8	4.0	Good	Concrete	No	
84	S Moseley St (W)	Blount St-Pembroke Cir	289.5	4.0	Good	Concrete	No	1 low spot
85	S Moseley St (W)	Pembroke Cir-W Queen St	328.9	4.0	Good	Concrete	No	1 low spot, 1 tree root crack
86	E Water St (N)	S Broad St-Colonial Ave	241.1	4.5	Good	Brick	No	
87	E Water St (N)	Colonial Ave-Court St	80.2	4.7	Good	Brick	No	
88	E Water St (N)	Court St-E King St	835.0	4' - 5'	Good	Brick	No	general small cracking, 50% 5' - 50% 4'
89	W Water St (N)	S Granville St-S Broad St	163.1	4.5	Good	Brick	No	
90	W Water St (S)	S Granville St-S Broad St	186.6	3' - 5.5'	Good	Mixed	No	9% 5.5' - 40% 5' - 28% 4' - 22% 3'
91	E Water St (S)	S Broad St-Colonial Ave	138.2	4.0	Fair	Concrete	No	
92	E King St (N)	S Broad St-Court St	370.6	6' - 12'	Good	Mixed	No	brick and concrete, 27% 6' - 73% 12'
93	E King St (N)	Court St-S Oakum St	753.7	4' - 5'	Good	Concrete	No	1 open cut, 91% 5' - 9% 4'
94	E King St (N)	S Oakum St-Wood Ave	172.5	4.0	Good	Concrete	No	1 low spot
95	E King St (N)	Wood Ave-McMullan Ave	155.2	4.0	Good	Concrete	No	
96	E King St (S)	S Broad St-Colonial St	275.0	4' - 12.7'	Good	Mixed	No	brick and concrete, 44% 12.7' - 56% 4'
97	E King St (S)	Colonial St-Court St	86.8	4.0	Good	Brick	No	
98	E King St (S)	Court St-S Oakum St	755.0	4.0	Good	Concrete	No	

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
99	E King St (S)	S Oakum St-McMullan Ave	635.7	4.0	Good	Concrete	No	1 missing panel, 1 uneven joint
100	W King St (N)	S Broad St-S Granville St	816.3	5.0	Good	Concrete	No	1 small cracking, 1 panel missing, 1 large crack
101	W King St (S)	S Broad St-S Granville St	145.0	4' - 7'	Good	Mixed	No	brick and concrete, 41% 4' - 59% 7'
102	Elliot St (N)	Wood Ave-McMullan Ave	556.1	4.0	Good	Concrete	No	
103	Elliot St (S)	Wood Ave-McMullan Ave	521.0	4.0	Good	Concrete	No	
104	W Eden St (N)	S Broad St-S Granville St	795.1	4.0	Fair	Concrete	No	1 tree root crack, 2 broken surface, 1 low spot, 1 large crack, 1 small crack area
105	W Eden St (N)	S Granville St-S Moseley St	631.5	4.0	Fair	Concrete	No	1 uneven joint, 1 broken surface, 1 large crack, 1 small crack area
106	W Eden St (S)	S Broad St-S Granville St	309.8	4' - 8.3'	Poor	Mixed	No	brick and concrete, 51% 5.8' (poor)- 40% 4' - 9% 8.3'
107	Blount St (N)	S Granville St-S Moseley St	620.9	4.0	Good	Concrete	No	1 low spot, 1 broken surface, 1 small crack area
108	E Queen St (N)	S Broad St-Court St	178.6	5.3	Good	Brick	No	
109	E Queen St (N)	Court St-S Oakum St	754.4	4.0	Good	Concrete	No	1 low spot
110	E Queen St (N)	S Oakum St-Wood Ave	404.1	11.5' - 4'	Good	Concrete	No	93% 4' - 7% 11.5'
111	E Queen St (N)	Wood Ave-McMullan Ave	548.0	4.0	Good	Concrete	No	
112	E Queen St (S)	S Broad St-Court St	357.3	5' - 12.5'	Good	Concrete	No	
113	E Queen St (S)	Court St-S Oakum St	754.1	6.0	Good	Concrete	No	
114	E Queen St (S)	S Oakum St-Wood Ave	341.8	5.0	Good	Concrete	No	
115	E Queen St (S)	Wood Ave-McMullan Ave	538.7	4.0	Fair	Concrete	No	several low spots
116	W Queen St (N)	S Broad St-S Granville St	818.9	4.0	Good	Concrete	No	1 uneven joint, 1 broken surface
117	W Queen St (N)	S Granville St-S Moseley St	635.9	4.0	Fair	Concrete	No	1 uneven joint, 1 broken surface, general unevenness
118	W Queen St (N)	S Moseley St-Twiddy Ave	1,464.4	3' - 5'	Good	Concrete	No	2 uneven joint, 1 low spot, 1 panel misssing, 35' wood bridge, 88% 4' - 10% 3' - 2% 5'
119	W Queen St (S)	S Broad St-S Granville St	807.7	5' - 5.7'	Fair	Concrete	No	2 broken surface, 1 low spot, 1 large crack, 1 panel separation; 87% 5' - 13% 5.7'
120	W Queen St (S)	S Granville St-S Moseley St	631.7	4.0	Good	Concrete	No	1 low spot, 1 uneven joint, 1 panel separation
121	E Church St (N)	N. Broad St-N Oakum St	1,117.0	4' - 8.5'	Good	Concrete	Yes	ADA east end only, 64% 4' - 24% 6' - 11% 8.5'
122	E Church St (N)	N Oakum St-RR	414.4	4.0	Fair	Concrete	Yes	ADA west end only, 1 low spot and general unevenness
123	E Church St (S)	N Broad St-Court St	295.9	4.0	Good	Mixed	No	brick and concrete, 20' section at corner of S Broad in poor shape
124	E Church St (S)	Court St-N Oakum St	492.2	4.0	Good	Concrete	No	1 missing panel
125	W Church St (N)	N Broad St-N Granville St	840.4	5.0	Good	Concrete	No	1 uneven joint, 1 tree root crack
126	W Church St (N)	N Granville St-N Moseley St	639.3	5.0	Good	Concrete	No	
127	W Church St (S)	S Broad St-S Granville St	828.5	4.0	Good	Concrete	No	1 large crack
128	W Church St (S)	S Granville St-S Moseley St	641.8	4.0	Fair	Concrete	No	2 broken surface, 1 open cut
129	Phillip St (N)	Wood Ave-McMullan Ave	550.5	4.0	Good	Concrete	No	
130	Phillip St (S)	Wood Ave-McMullan Ave	562.2	4.0	Good	Concrete	No	

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
131	Cotton Mill Cir	McMullan Ave-dead end	112.8	4.0	Good	Concrete	No	
132	E Gale St (S)	N. Broad St-N Oakum St	1,147.4	4.0	Good	Concrete	No	1 uneven joint
133	W Gale St (N)	N Broad St-N Granville St	836.9	4.0	Good	Concrete	No	
134	E Albemarle St (S)	N. Broad St-N Oakum St	1,133.1	5.0	Fair	Concrete	No	many uneven joint, 1 broken surface
135	W Albemarle St (N)	N Broad St-N Granville St	831.8	4.0	Good	Concrete	No	
136	Dr. Martin L King Ave (N)	N Granville St-N Moseley St	650.5	4.0	Good	Concrete	No	
137	Dr. Martin L King Ave (N)	N Moseley St-Twiddy Ave	1,509.1	4.0	Good	Concrete	No	25' wood bridge - uneven transition from bridge to sidewalk (eastside)
138	Dr. Martin L King Ave (N)	Twiddy Ave-US 17	1,468.7	4.0	Good	Concrete	No	
139	Dr. Martin L King Ave (S)	Twiddy Ave-Chowan Court Apts	1,798.4	4.0	Good	Concrete	No	
140	E Carteret St (N)	N. Broad St-N Oakum St	1,126.2	4.0	Good	Concrete	Yes	ADA east end only
141	E Carteret St (N)	N Oakum St-dead end	166.4	4.0	Good	Concrete	No	
142	E Carteret St (S)	N. Broad St-N Oakum St	1,145.8	4.0	Good	Concrete	Yes	ADA east end only
143	E Carteret St (S)	N Oakum St-dead end	259.5	4.0	Good	Concrete	Yes	ADA west end only, 1 low spot
144	W Carteret St (N)	N Broad St-N Granville St	798.9	4.0	Good	Concrete	No	1 broken spot
145	W Carteret St (S)	N Broad St-N Granville St	816.6	4.0	Fair	Concrete	No	several uneven joints, 1 tree root crack
	E Freemason St (N)	N. Broad St-N Oakum St						
146	E Freemason St (N)	N Oakum St-RR	348.4	4.0	Good	Concrete	No	1 low spot, sidewalk slightly below curb
147	E Freemason St (S)	N. Broad St-N Oakum St	1,153.4	4.0	Good	Concrete	No	ADA east end only
148	E Freemason St (S)	N Oakum St-RR	299.1	4.0	Good	Concrete	No	
149	W Freemason St (N)	N Broad St-N Granville St	820.1	4.0	Good	Concrete	No	
150	W Freemason St (S)	N Broad St-N Granville St	817.4	4.0	Good	Concrete	No	1 broken surface, 1 uneven joint
151	W Hicks St (N)	N Broad St-N Granville St	172.4	4.4	Good	Concrete	No	
152	E Hicks St (S)	N Oakum St-dead end	387.5	4.0	Good	Concrete	No	
153	Park Ave (S)	N Broad St-N Oakum St	1,055.0	4.0	Good	Concrete	No	
154	Virginia Road (N)	N Broad St-Badham Rd	155.2	4.0	Good	Concrete	No	
155	Virginia Road (N)	Badham Rd-Morris Cir	175.8	4.0	Good	Concrete	No	
156	Virginia Road (N)	Morris Cir-US 17	2,011.4	4' - 5'	Good	Concrete	Yes	SPLIT AT OVERPASS, 84% 5' - 16% 4', 1 large crack, ADA at ramps of US 17
157	Virginia Road (N)	US 17-Whitemon Ln	859.4	5.0	Good	Concrete	Yes	ADA all ends

ID	Street	Segment	Length Ft.	Width Ft.	Condition	Material	ADA Curb	Notes
158	Virginia Road (N)	Whitemon Ln-Hampton Dr	330.8	5.0	Good	Concrete	Yes	ADA at very ends (separated by driveway)
159	Virginia Road (N)	Hampton Dr-Barker Dr	140.5	5.0	Good	Concrete	Yes	ADA at east end
160	Virginia Road (S)	N Broad St-N Granville St	315.8	4.5' - 5'	Good	Concrete	No	71% 4.5' - 29% 5'
161	Blades St (N)	N Oakum St-Blades Cir	394.8	3.0	Good	Concrete	No	
162	Blades Cir (W)	Blades St-dead end	490.5	3' - 5'	Good	Concrete	No	64% 3' - 36% 5'
163	E Peterson St (S)	N Oakum St-dead end	193.6	4.0	Good	Concrete	No	
164	Winborne Ln (N)	Coke Ave-Bridgetowne Ave	438.4	3.0	Good	Concrete	No	
165	Winborne Ln (S)	Coke Ave-Bridgetowne Ave	359.2	3.0	Good	Concrete	No	
166	Winborne Ln (N)	Bridgetowne Ave-Barefoot Ct	161.7	3.0	Good	Concrete	No	
167	Winborne Ln (S)	Bridgetowne Ave-Barefoot Ct	76.3	3.0	Good	Concrete	No	
168	Belvedere Ln (N)	Bridgetowne Ave-dead enc	62.7	3.0	Good	Concrete	No	
169	Middlesborough Ln (S)	Bridgetowne Ave-Coke Ave	182.2	3.0	Good	Concrete	No	
	Dock St (W)	W Water St-Colonial Park						
170	Colonial Park	Total throughout park	891.9	4' - 5'	Fair	Concrete	No	2 uneven joint, 1 low spot, 1 broken surface, 1 small crack, 79% 4' - 21% 5'
171	Queen Anne Park	Total throughout park	798.2	4' - 8'	Fair	Concrete	No	several uneven panels, 61% 4' - 26% 8' - 13% 6'

Appendix B:
Design Guidelines for Pedestrian Plans

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

Sidewalks

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

Sidewalk 5 feet in width

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

Sidewalk Widths

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

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

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

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

Construction Materials and Methods

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

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

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

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

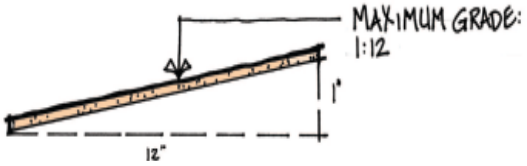
Final Finish — Surface finish for sidewalks should be completed by brushing (with brooms) or by another approved method to provide a uniform non-skid surface.

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

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

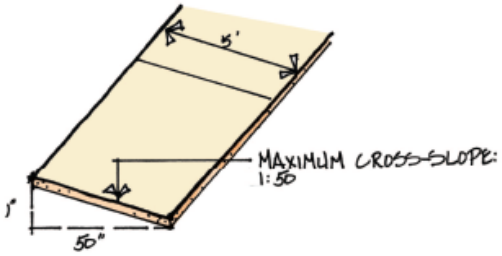
Grade

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



the end of such grades and are at least 5 feet long.

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

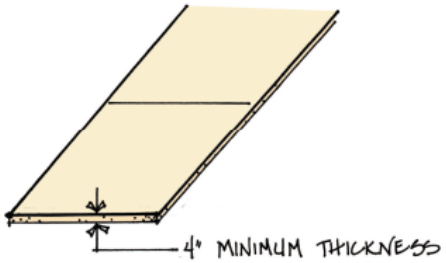


Cross-Slope

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

Sidewalk Thickness

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

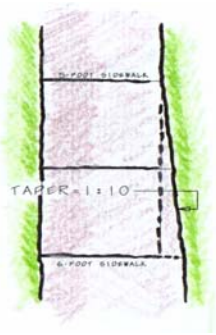


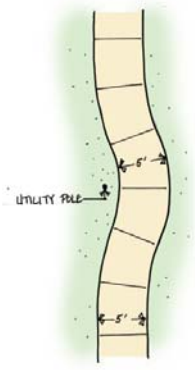
Transitions

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

Tapers

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





Sidewalk Alignment

Sidewalks should parallel the roadway. Typical exceptions include:

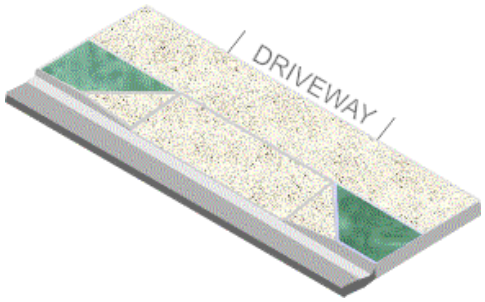
Horizontal Curve Sections on Roadways — In situations where a roadway curves at an angle greater than 60 degrees (and where right-of-way permits), the designer is permitted to adjust the curve of the sidewalk to more easily accommodate pedestrians.

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

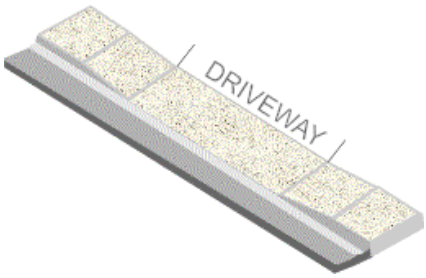
Meanders — Sidewalk meandering is strongly discouraged. People generally prefer to walk in a straight line, particularly when walking for utilitarian purposes. Meanders must meet minimum ADA requirements unless otherwise approved by the municipality.

ADA: Dealing with Cross-Slope from Driveways

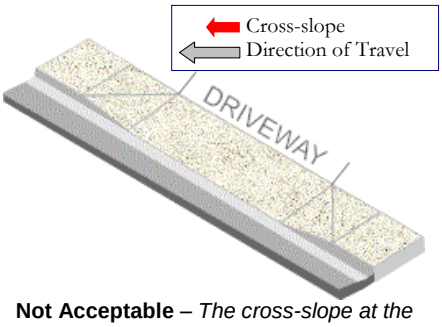
The figures at right indicate the preferred (top), conditionally acceptable (middle), and unacceptable (bottom) design solutions for new driveways as they interface with sidewalks. The intent is to make wheelchair travel safe along the sidewalk without directing the user into traffic through angled (cross)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



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



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



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

Sidewalk Buffers

Buffer zones between pedestrian paths and vehicular traffic provide a sense of security to those on foot or in wheelchairs and give the path a comfortable scale and clear definition. Buffers can also provide other benefits to pedestrians depending on the type used. Buffer zones may either be paved, providing space between the pedestrian and traffic, or they may involve a planting strip with trees and shrubs, but is not recommended for high-traffic pedestrian areas. Much like the sidewalk itself, the form and topography of a buffer may vary greatly. AASHTO recommends a buffer width of two to four feet for local or collector streets, and a buffer width of five to six feet for arterial or major streets, whether for a paved buffer zone or a planting strip.

Planting Strips

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

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

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

Paved buffer zones

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

Sidewalk with a paved buffer zone and planting zone.

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

Buffer Paving Options

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

buffer zone for ease of utility maintenance. In designing sidewalk buffers, it is important to provide adequate clearance from potential obstructions.

Table B.1: BPTD Recommended Sidewalk Width

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

* Planting area would be located within sidewalk width.

Additional Considerations

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

Paths/Greenways

Multi-Use Paths

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

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

Design Criteria

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

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

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

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

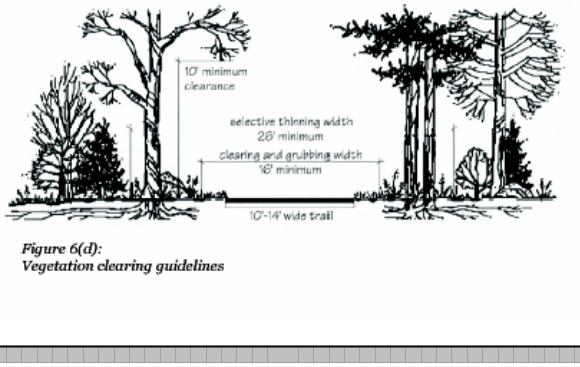


Figure 6(d):
Vegetation clearing guidelines

Vegetation clearing guidelines for path

avoided for safety reasons, especially when considering bridge and road crossings.

Vertical and Horizontal Clearance

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

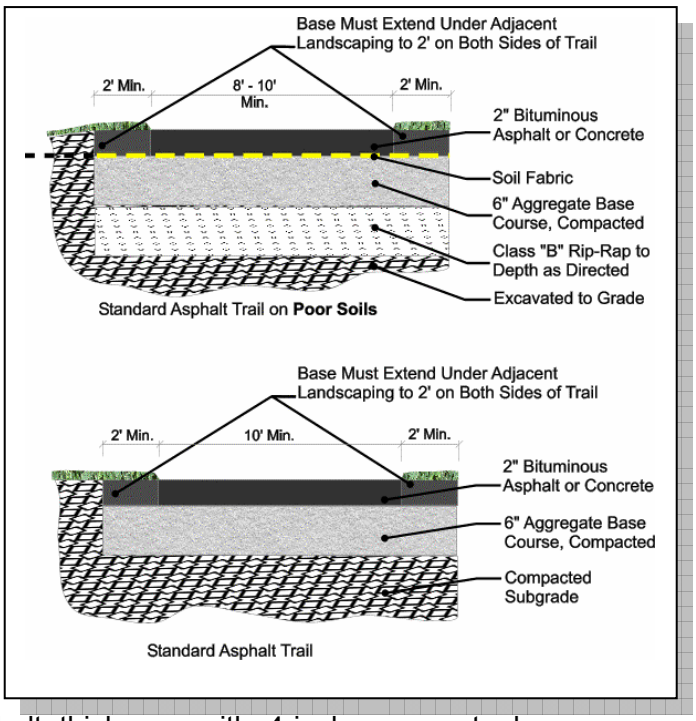
Pavement Types

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

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

Conventional Concrete – In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of holding up well against the erosive action of water, root intrusion and

subgrade deficiencies such as soft soils. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed. Installation of concrete is the most costly of all surface types, but, when properly installed, requires less periodic maintenance than asphalt or crusher fines. It is recommended to install 4-inch thickness on compacted 4-inch aggregate base course.



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

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

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

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

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

<u>Environmental Issues</u>

Environmental protection should be a priority with the planning and construction of a path. Path design, construction type, and construction schedule should all reflect environmental considerations. For example, a path offers some leniency with its

alignment compared to a sidewalk, offering opportunities for selective clearing of vegetation. Also, asphalt may not be considered a good surface material in wet areas because of its petroleum base.

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

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

Path Amenities and Accessibility

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

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

Sidepath/Wide Sidewalk

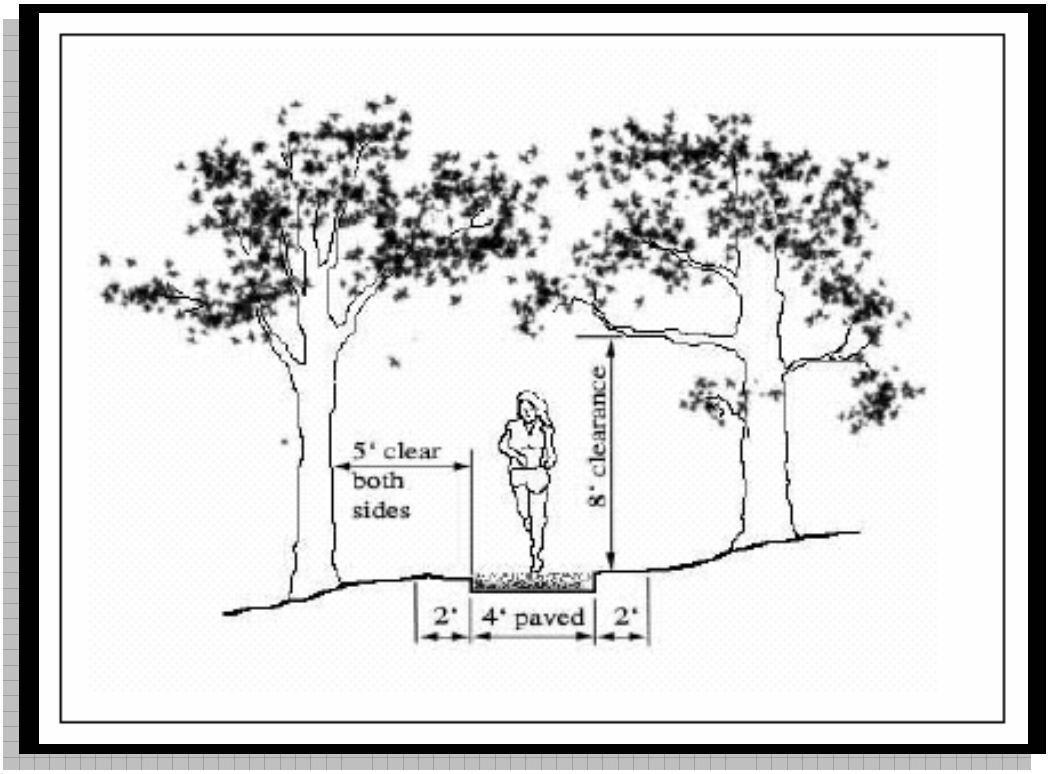
Sidepaths / Wide Sidewalks

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

Foot Path

In environmentally sensitive areas, such as stream banks and lowlands, a 4 ft. wide soft surface should be used (crusher fines recommended), with 2 ft.improved shoulders. Maintain a vertical clearance minimum of 8 ft. All paths should be maintained with a 5 ft.

cleared area from the edge of the path on each side. Pitch paths to drain with a 2% minimum grade. Paving materials may vary in specific locations.



Raised or Lowered Medians

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

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there runs a possibility for increased traffic speeds and unsafe U-turns at intersections. Additionally, the space occupied may be taking up room that could be used for bike lanes or other treatments discussed in this chapter. An alternative to the continuous median is to create a segmented median with left turn opportunities.

Sensitivity to large vehicles (buses, trucks and fire equipment) dictates some elements of the median design, curb style, and placement. Median-controlled roadways reduce

the number of turning conflicts and are generally preferred for both pedestrians and cyclists over a two-way, left-turn lane (TWLTL) roadway.

Landscaping

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

Median Pedestrian Refuge Islands

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

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

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

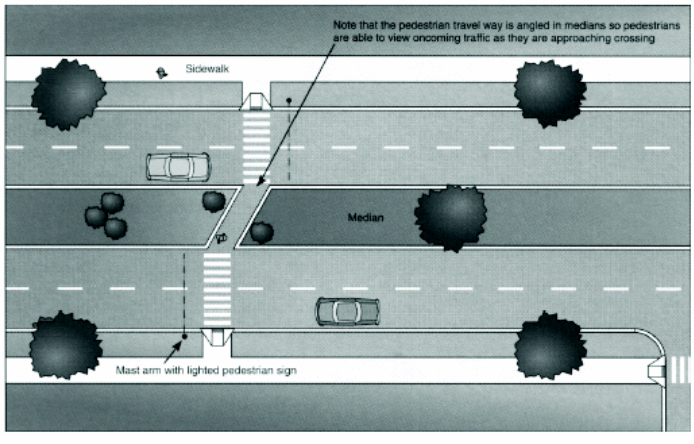


Figure (l):
A lowered median can be used to filter stormwater and provide a refuge for pedestrians crossing a roadway[3].

Median Pedestrian Refuge Island

Marked Crosswalks

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

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

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

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

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

Width

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

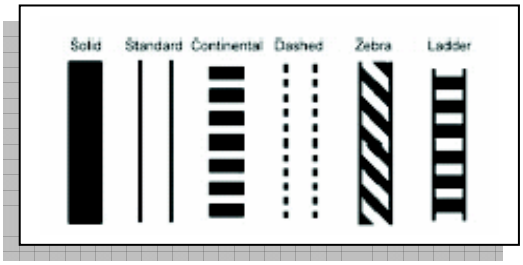


Illustration of all the variety of patterns possible in designating a crosswalk

Paint

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

Pavement Treatment

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

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

Raised Crosswalk

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

Mid-Block Crossings

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

Below are some general guidelines on mid-block crossings:

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

Advance Stop Bars

Vehicle and pedestrian visibility is increased by placing a vehicle advance stop bar 4 to 10 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings. In certain situations, a larger setback of the advance stop bar may be required. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the

Advance stop bar
Source: Pedestrian and Bicycle Information

pedestrian and motorist can interpret each other's intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a "Stop Here for Pedestrians" sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90%.

Pedestrian Signals

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

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

Types of Pedestrian Signals

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

Audible Pedestrian Signal

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

Audible signals - Audible cues can be used to pulse along with a countdown signal. The signals are used

for visually and audibly impaired individuals. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.

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

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

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

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

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

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

Right Turn on Red Restrictions

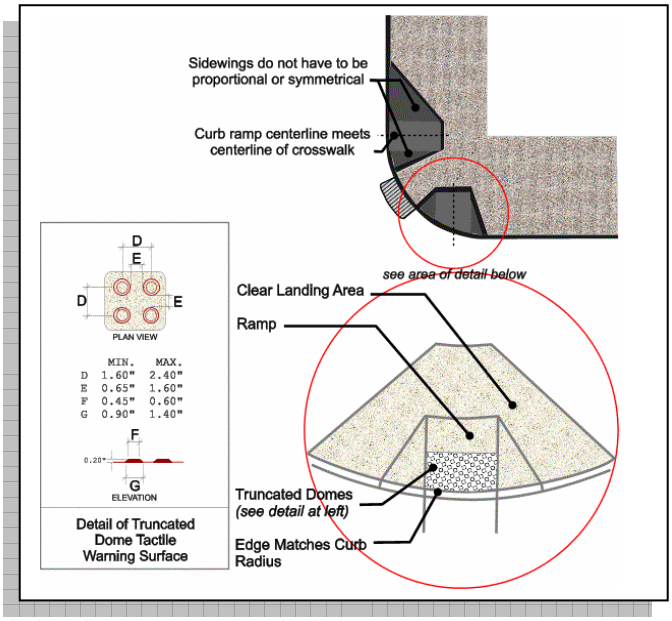
Introduced in the 1970's as a fuel saving technique, the *Right Turn on Red* (RTOR) law is thought to have had a detrimental effect on pedestrians. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians. Often motorists will either nudge into a crosswalk to check for oncoming traffic without looking for pedestrians or slow, but not stop, for the red-light while making the turn. There is legitimate concern that

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

eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. Some experts are concerned that eliminating right on red will increase the number turning on green. Consider elimination on case by case basis and only where there are usually high pedestrian volumes.

Curb Ramps

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

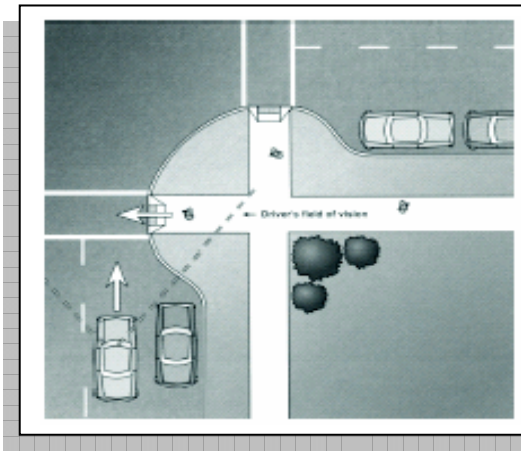


[1] Vanguard Company, accessed November, 2005 (http://www.vanguardonline.com/downloads.asp)

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

Curb Extensions (Bulb Outs) and Curb Radii

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



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

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

Curb Extensions (Bulb Outs)

The table below illustrates the relationship between posted speeds and the curb (often called "corner") radius[2].Motorists will travel more slowly around corners with smaller curb radii even without the use of curb extensions.

Table B.2: Maximum Desired Speed and Curb Radii

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

Lighting

Source: Pedestrian and Bicycle Information Center

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

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

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

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

lighting pedestrian areas. Luminaries and poles should be at a scale appropriate for pedestrian use.

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

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

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

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

Signage

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

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

Wayfinding or guide signs give notice of traffic laws or regulations that pedestrians, cyclists, and motorists are required by law to follow.

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

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

Regulatory Signs and Warning Signs

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

Pedestrian-related signage serves primarily to notify motorists and others of the presence of pedestrians. The intended effect is to cause motorists drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area.

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

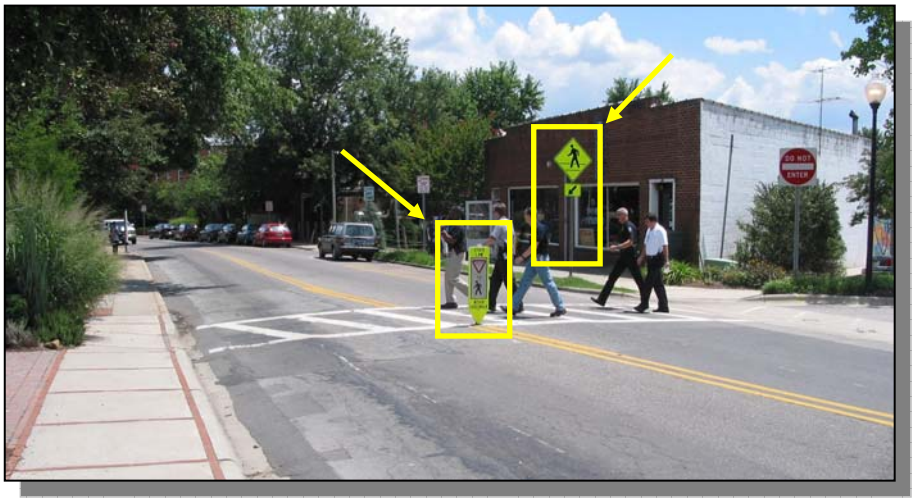


Figure 6-1. An example of two types of signs used to notify motorists of a pedestrian crossing.

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

The following are some recommended signs which municipalities should consider installing. For more signs and more detailed guidelines for sign installation and use, the municipality should consult the MUTCD. The S4-3/R1-6 as well as the W11-2 signs are regulatory, while the sign furthest to the right is a wayfinding signs. The remaining signs directly below are warning signs.

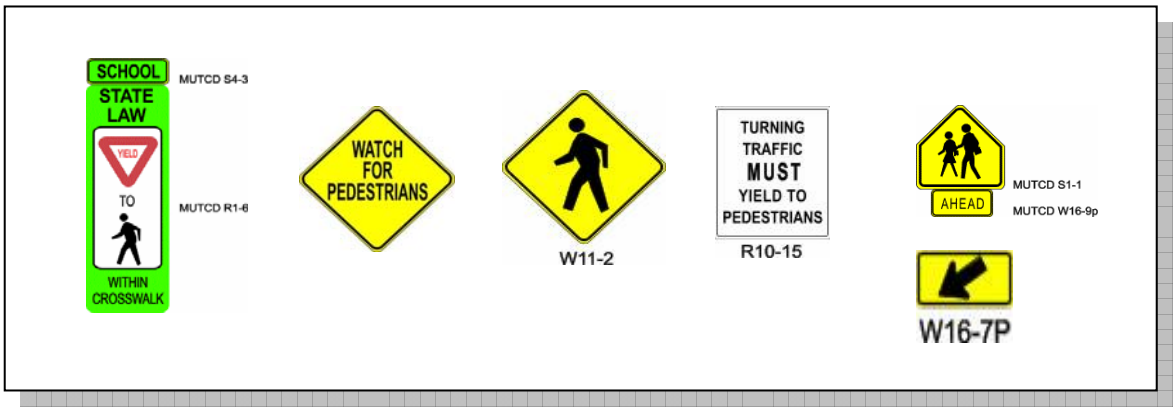
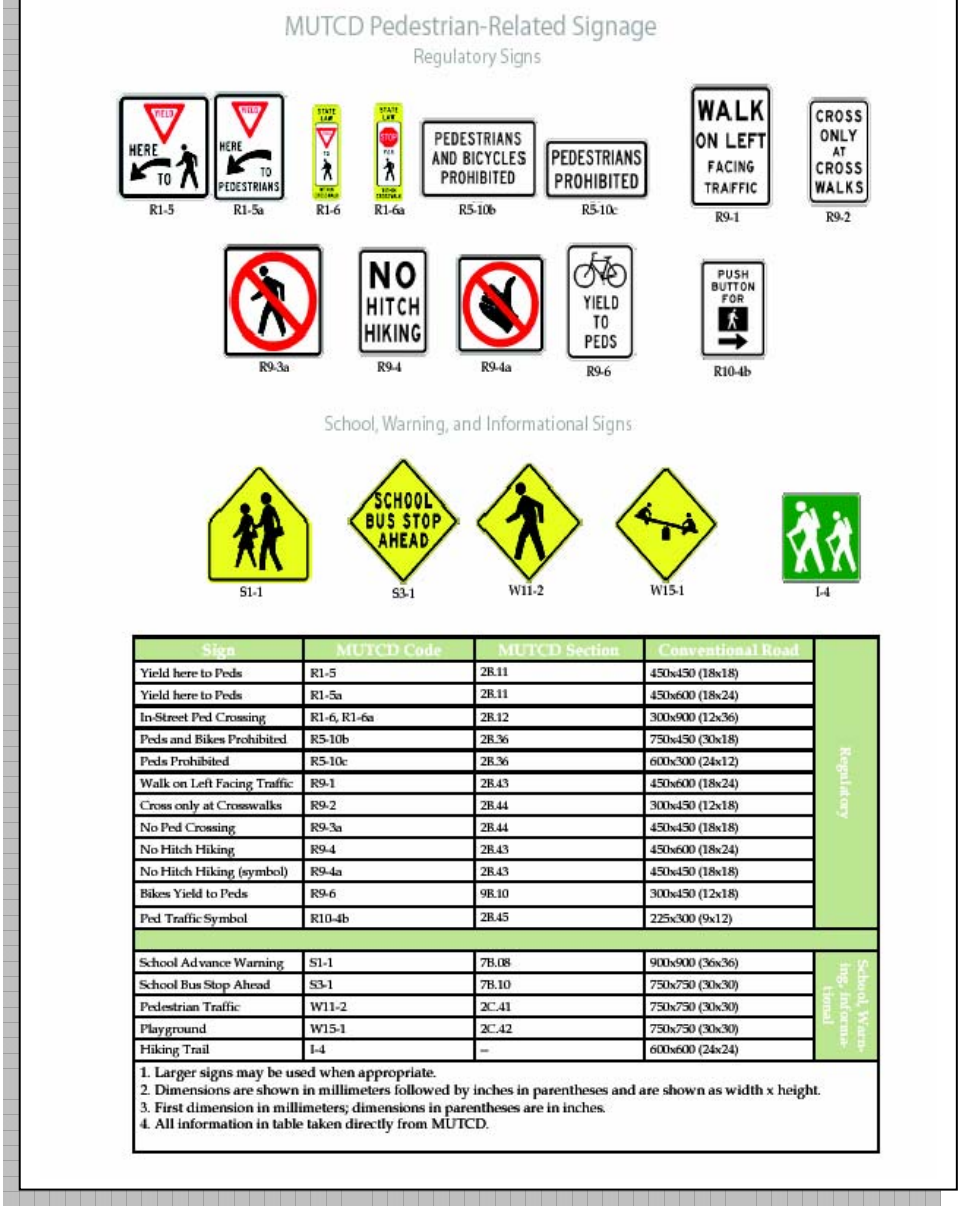


Figure 6-2. Example standard pedestrian warning signs.

The first sign is usually installed within the street to warn motorists to yield to pedestrians in a crosswalk. The "school" sign (MUTCD S4-3) is added to the in-street sign for placement near a school. The second and third signs are commonly used pedestrian warning signs, while the fourth and fifth signs notify motorists of specific instances to watch for pedestrians. The fourth sign, "Turning Traffic", is usually placed at intersections to warn motorists that are turning right or left to yield to pedestrians in crosswalks. The sign at the far right is an examples of typical wayfinding signage to help direct cyclists at major decision points along a route. For the fifth sign, the top sign can either be combined with the smaller "ahead" sign or the arrow symbol to indicate the presence of a crosswalk to motorists in a school zone.

Figure 6.3 – Pedestrian Warning Signs



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

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

Regulatory signs for pedestrians.
Source: MUTCD

School Zone Treatments and School Route Plan Map

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

Street Trees

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

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

Source: Pedestrian and Bicycle Information Center

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

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

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

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

Tree Pits and Tree Grates - Street trees should generally be located in open planting strips. However, tree pits with tree grates may be a practical, although expensive, alternative in very high pedestrian traffic areas. Tree grates should generally not encroach upon the travel path.

For optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway".

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

Pedestrian Overpass/Underpass

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

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

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

Transit Stop Treatments

To accommodate as many users as possible, a transit system must include well-planned routes and safe, accessible stops. Bus stops should be designed to accommodate the appropriate number of users and should be highly visible to pedestrians and motorists.

Bus or other transit stops should be located in places that are most suitable for passengers. For example, stops should be provided near higher density residential

areas, commercial or business areas, and schools, and connected to these areas by sidewalk.

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

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

Bridges

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

Source: Pedestrian Bicycle Information Center Image Library

Traffic Calming Techniques

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

Traffic Circle

Neighborhood Traffic Circles - a small, raised circular island positioned in the center of an intersection, designed to slow traffic by requiring traffic to maneuver around the island.

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

Typical Modern Roundabout
Source: Reid Middleton, Inc.

Speed Hump
Source: PBIC Image Gallery

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

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

Speed Table
Source: PBIC Image Gallery

<u>Textured pavements</u> - stamped pavement or alternate paving materials to create an uneven surface for vehicles and pedestrians to traverse. Textured street pavement provides a visual and tactile cue for both drivers that they are driving in an area of high pedestrian usage. Similarly, they cue pedestrians that they are entering a vehicular zone, and are a

particularly effective treatment to warn visually impaired pedestrians. Textured street pavements should be used in areas of substantial pedestrian activity and where noise is not a major concern.

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

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

Appendix C: Funding Sources

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

Funding Allocated by State Agencies

Funding Opportunities Through NCDOT:

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

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

The division has an annual budget of $6 million. Eighty percent of these funds are from STP-Enhancement funds[1], while the State Highway Trust provides the remaining 20 percent of the funding.

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

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

A total of $5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit: http://www.ncdot.gov/transit/bicycle/funding/funding_TIP.html. Another $500,000 of the division's funding is available for miscellaneous projects.

Incidental Projects – Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds. An example in Edenton is the town's request to NCDOT to replace the existing NC 32 bridge over Queen Anne Creek with a span that is long enough to add a greenway underneath in the future (NCDOT project number B-4463).

Sidewalk Program – Each year, a total of $1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state allocates $100,000 annually from each division's budget for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding. An example in Edenton is the upcoming sidewalk addition on the north side of East Church Street between the Old Peanut Mill at Wood Avenue and Old Hertford Road.

Governor's Highway Safety Program (GHSP) – The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to

start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: www.ncdot.gov/programs/ghsp/.

Funding Available Through North Carolina Metropolitan Planning Organizations (MPOs)

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

Transportation Enhancement

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

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

In order to qualify for Enhancement Funding, the project must fit into one or more the twelve eligible categories and be related to surface transportation.

Funds are allocated based on an equity formula approved by the Board of Transportation. The formula is applied at the county level and aggregated to the regional level. Available fund amount varies.

Submittal of Enhancement Projects will follow the normal Transportation Improvement Program process after the projects have been received, reviewed,

and prioritized by the local Metropolitan Planning Organization. For additional background information, visit: http://ncdot.gov/programs/Enhancement.

Bicycle and Pedestrian Planning Grant Initiative, managed by NCDOT, DBPT
To encourage the development of comprehensive local bicycle plans and pedestrian plans, the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) and the Transportation Planning Branch (TPB) have created a matching grant program to fund plan development. This program was initiated through a special allocation of funding approved by the North Carolina General Assembly in 2003 along with federal funds earmarked specifically for bicycle and pedestrian planning by the TPB. The planning grant program was launched in January 2004, and it is currently administered through NCDOT-DBPT and the Institute for Transportation Research and Education (ITRE) at NC State University. Over the past three grant cycles, 80 municipal plans have been selected and funded from 214 applicants. A total of $ 1,952,968 has been allocated. Funding is secured for 2009 at $315,000. Additional annual allocations will be sought for subsequent years. For more information, visit www.ncdot.gov/transit/bicycle/safetyprograms_initiatives/planninggrant

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

The state of North Carolina has been allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit www.ncdot.gov/transit/bicycle/saferoutes/SafeRoutes or contact Sarah O'Brien at (919) 807-0774.

The North Carolina Conservation Tax Credit (managed by NCDENR)
This program, managed by the North Carolina Department of Environment and Natural Resources, provides an incentive (in the form of an income tax credit) for landowners that donate interests in real property for conservation purposes. Property donations can be fee simple or in the form of conservation easements or bargain sale. The goal of this program is to manage stormwater, protect water supply watersheds, retain working farms and forests, and set-aside greenways for ecological communities, public trails, and wildlife corridors. For more information, visit: www.onencnaturally.org/pages/conservationtaxcredit or contact Scott Pohlman at scott.pohlman@ncmail.net.

Land and Water Conservation Fund (LWCF)
The Land and Water Conservation Fund (LWCF) program is a reimbursable, 50/50 matching grants program to states for conservation and recreation purposes, and through the states to local governments to address "close to home" outdoor recreation needs. LWCF grants can be used by communities to build a trail within one park site, if the local government has fee-simple title to the park site. Grants for a maximum of $250,000 in LWCF assistance are awarded yearly to county governments, incorporated municipalities, public authorities and federally recognized Indian tribes. The local match may be provided with in-kind services or cash. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of $900 million each year. However, Congress generally appropriates only a small fraction of this amount. The allotted money for NC for the year 2008 is $522,000.

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

NC Adopt-A-Trail Grant Program
This program, operated by the Trails Section of the NC Division of State Parks, offers annual grants to local governments and private trail groups to build, renovate, maintain, sign and map and create brochures for pedestrian trails. Grants are generally capped at about $5,000 per project and do not require a match. A total of $108,000 in Adopt-A-Trail money is awarded annually to government agencies. Applications are due during the month of January. For more information, visit : https://www.ncparks.gov/About/grants/trails_grant.php.

Recreational Trails Program

The Recreational Trails Program (RTP) is a $1.3 million grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant applicants must be able to contribute 20% of the project cost with cash or in-kind contributions. The program is managed by the State Trails Program, which is a section of the N.C. Division of Parks and Recreation.

The grant application is available and instruction handbook is available through the State Trails Program website. Applications are due in January. For more information, call visit: http://www/ncparks.gov/About/grants/trails_grant.php.

North Carolina Parks and Recreation Trust Fund (PARTF)

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

The trust fund is allocated three ways:

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

For information on how to apply, visit::
www.ncparks.gov/About/grants/partf_main.php

A portion of PARTF is the primary funding source for the Public Beach and Coastal Waterfront Access Program. The program, administered by the Division of Coastal Management (DCM), offers matching grants to local governments throughout North Carolina's twenty coastal counties. To learn more, visit: http://dem2.enr.state.nc.us/Access/grants.htm

Powell Bill Program

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Funding for this program is collected from fuel taxes. Amount of funds are based on population

and mileage of town-maintained streets. For more information, visit http://www.ncdot.org/programs/Powell_Bill/.

Clean Water Management Trust Fund

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

Natural Heritage Trust Fund

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

North Carolina Conservation Tax Credit Program

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

Urban and Community Forestry Assistance Program

This program offers small grants that can be used to plant urban trees, establish a community arboretum, or other programs that promote tree canopy in urban areas. The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. To qualify for this program, a community must pledge to develop a street-tree

inventory, a municipal tree ordinance, a tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources. For more information and a grant application, contact the NC Division of Forest Resources and/or visit http://www.dfr.state.nc.us/urban/urban_grantprogram.htm.

Ecosystem Enhancement Program

Developed in 2003 as a new mechanism to facilitate improved mitigation projects for NC highways, this program offers funding for restoration projects and for protection projects that serve to enhance water quality and wildlife habitat in NC. Information on the program is available by contacting the Natural Heritage Program in the NC Department of Environment and Natural Resources (NCDENR). For more information, visit www.nceep.net/pages/partners.html or call 919-715-0476.

Conservation Reserve Enhancement Program (CREP)

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

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

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

Agriculture Cost Share Program

Established in 1984, this program assists farmers with the cost of installing best management practices (BMPs) that benefit water quality. The program covers as much as 75 percent of the costs to implement BMPs. The NC Division of Soil and Water Conservation within the NC Department of Environment and Natural Resources administers this program through local Soil and Water Conservation Districts (SWCD). For more information, visit www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html or call 919-733-2302.

Water Resources Development Grant Program

The NC Division of Water Resources offers cost-sharing grants to local governments on projects related to water resources. Of the seven project application categories available, the category which relates to the establishment of greenways is "Land Acquisition and Facility Development for Water-Based Recreation Projects." Applicants may apply for funding for a greenway as long as the greenway is in close proximity to a water body. For more information, see: www.ncwater.org/Financial_Assistance or call 919-733-4064.

Small Cities Community Development Block Grants

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

North Carolina Health and Wellness Trust Fund

The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period. Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) announces the establishment of Fit Community, a designation and grant program that recognizes and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue.

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

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

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

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

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

The North Carolina Division of Forest Resources
Urban and Community Forestry Grant can provide funding for a variety of projects that will help toward planning and establishing street trees as well as trees for urban open space. See:
http://www.dfr.state.nc.us/urban/urban_ideas.htm

Funding Allocated by Federal Agencies

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

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

USDA Rural Business Enterprise Grants

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

Rivers Trails and Conservation Assistance Program (RTCA)

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

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

Public Lands Highways Discretionary Fund

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

Sample Local Funding Sources

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

Capital Reserve Fund

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

Capital Project Ordinances

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

Municipal Service District

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

Tax increment financing

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

Installment Purchase Financing

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

Taxes

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

Sales Tax

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

Property Tax

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

Excise Taxes

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

Occupancy Tax

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

Fees

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

Stormwater Utility Fees

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

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

Streetscape Utility Fees

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

Impact Fees

Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional needs of a growing community. These charges are set in a fee

schedule applied uniformly to all new development. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements. If Holly Springs is interested in pursuing open space impact fees, it will require enabling legislation to authorize the collection of the fees.

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

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

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

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

of general obligation bonds, but they are generally more expensive than general obligation bonds.

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

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

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

Other Local Options

Facility Maintenance Districts
Facility Maintenance Districts (FMDs) can be created to pay for the costs of on-going maintenance of public facilities and landscaping within the areas of the Town where improvements have been concentrated and where their benefits most directly benefit business and institutional property owners. An FMD is needed in order to assure a sustainable maintenance program. Fees may be based upon the length of lot frontage along streets where improvements have been installed, or upon other factors such as the size of the parcel. The program supported by the FMD should include regular maintenance of streetscape of off

road trail improvements. The municipality can initiate public outreach efforts to merchants, the Chamber of Commerce, and property owners. In these meetings, Town staff will discuss the proposed apportionment and allocation methodlogy and will explore implementation strategies.

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

Partnerships

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

Local Trail Sponsors

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

Volunteer Work

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

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

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

The Trust for Public Land
Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. TPL's legal and real estate specialists work with landowners, government agencies, and community groups to:
• Create urban parks, gardens, greenways, and riverways
• Build livable communities by setting aside open space in the path of growth
• Conserve land for watershed protection, scenic beauty, and close-to home recreation safeguard the character of communities by preserving historic landmarks and landscapes.

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

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

Z. Smith Reynolds Foundation

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

North Carolina Community Foundation

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

National Trails Fund

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

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

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