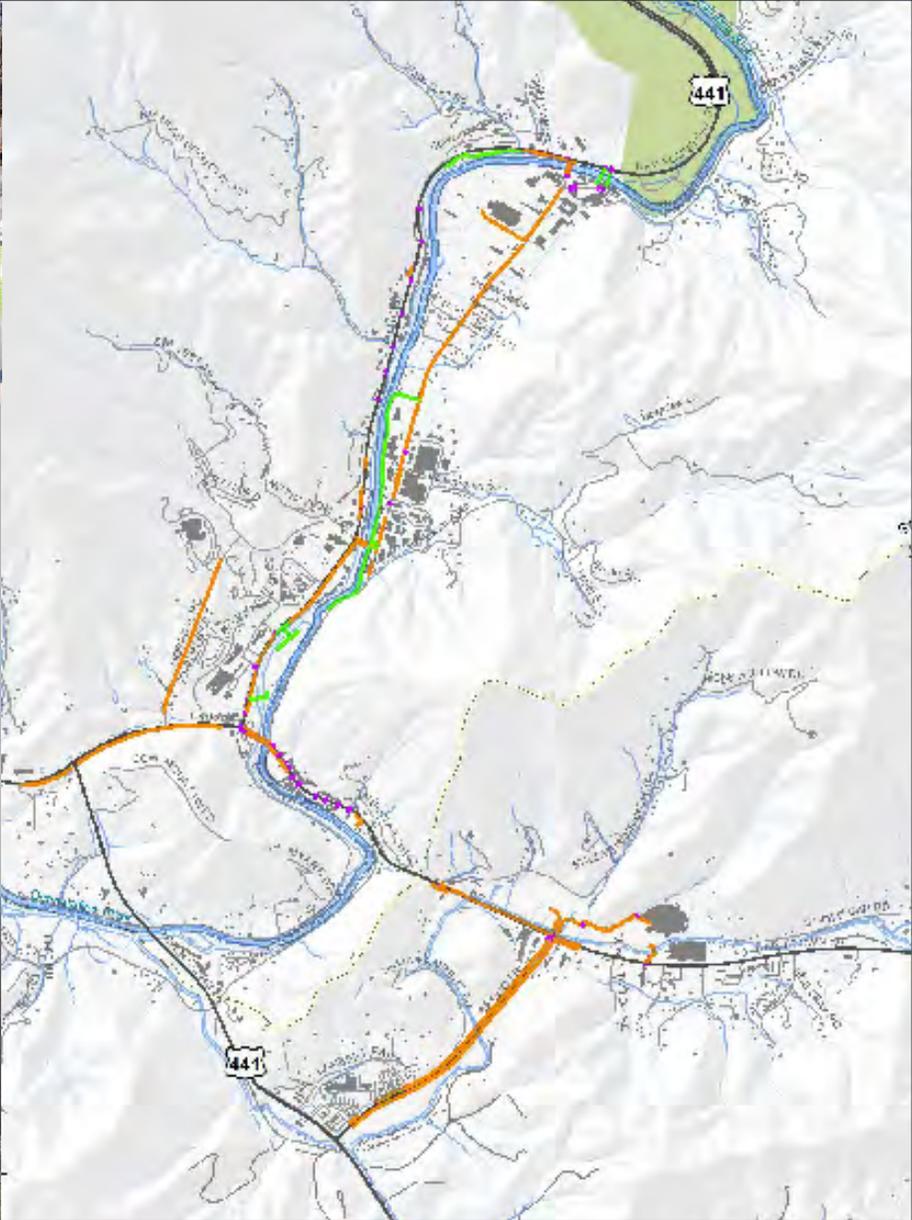




EASTERN BAND OF CHEROKEE INDIANS

PEDESTRIAN TRANSPORTATION PLAN



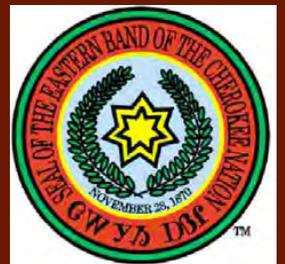
Adopted in May 2010



Prepared For:
THE EASTERN BAND OF CHEROKEE NATIONS
NCDOT



Prepared By:
GREENWAYS INCORPORATED





EASTERN BAND OF CHEROKEE INDIANS

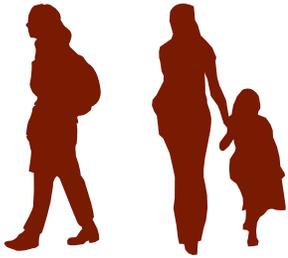
CHEROKEE PEDESTRIAN TRANSPORTATION PLAN



EASTERN BAND OF CHEROKEE INDIANS

PEDESTRIAN TRANSPORTATION PLAN

MAY 2010





EASTERN BAND OF CHEROKEE INDIANS

ACKNOWLEDGEMENTS



CHEROKEE RESIDENTS

EASTERN BAND OF CHEROKEE INDIANS STAFF

PEDESTRIAN PLAN STEERING COMMITTEE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



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CHEROKEE PEDESTRIAN TRANSPORTATION PLAN EXECUTIVE SUMMARY



OVERVIEW

In February 2009, the Eastern Band of Cherokee Indians (EBCI) began developing a comprehensive pedestrian plan. The planning effort was funded by the North Carolina Department of Transportation (NCDOT). An advisory committee composed of EBCI staff and citizens was formed to guide the planning process. The plan incorporates new research, analysis, and a full public input process. The result is a complete, up-to-date framework with modern design guidelines for moving forward with making Cherokee more pedestrian friendly.

PROJECT GOALS

The pedestrian plan steering committee formulated goals and objectives that helped guide the development of recommendations in this plan. They are, as follows:

Goal 1: Improve pedestrian safety along roadways, at intersections, and off-road

Objective A: Increase pedestrian connectivity across Cherokee by filling sidewalk gaps.

Objective B: Increase the ratio of roads with sidewalks.

Objective C: Increase the ratio of intersections with appropriate crossing devices such as crosswalks and signalization.

Objective D: Reduce traffic speeds and increase traffic calming and pedestrian measures in downtown, casino, and shopping areas.

Objective E: Increase law enforcement efforts to educate and enforce proper behaviors for both pedestrians and motorists.

Objective F: Increase illumination and visibility for high-pedestrian traffic areas such as the business district and casino areas.

Goal 2: Increase routine walking for transportation and recreation

Objective A: Increase programs to promote walking for people of all ages and walks of life.

Objective B: Increase education efforts for local staff, decision-makers, full-time residents, part-time residents, and business-owners of the benefits of walkable spaces.

Objective C: Increase signage to promote safe walking.



Harrah's Casino is the most visited attraction in the State of North Carolina. Workers walk to work here and tourists who stay at hotels along US 19 walk here as well. Pedestrian improvements such as lighting and continuous sidewalk is critical to achieve the goals of this plan.



The newly constructed river greenway trail provides a unique place for recreation and even transportation.



Public input was a large component of the planning process. Above: Residents provide input on maps at the Ramp it Up Festival.

BENEFITS OF PEDESTRIAN TRANSPORTATION

Communities across the United States and throughout the world are implementing strategies for serving the walking needs of their residents, and have been doing so for many years. They do this because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits of walking. Walkability helps to improve people's health and fitness, enhance environmental conditions, decrease traffic congestion, provide economic benefits, and contribute to a greater sense of community. Scores of studies from experts in the fields of public health, urban planning, urban ecology, real estate, transportation, sociology, and economics have supported such claims and have acknowledged the substantial value of supporting walking as it relates to active living and alternative transportation. See Chapter 1 for details.

EXISTING CONDITIONS

Detailed fieldwork and analysis led to the development of an existing conditions report that summarizes the strengths and weaknesses of the current pedestrian system in Cherokee. Numerous residents and tourists walk near the casino, US 19 CBD shopping area, Saunooke Village, and the new schools on Big Cove Road. The town features nearly six miles of sidewalk and over a mile of greenway/sidepaths. Many intersections contain pedestrian treatments such as crosswalks and signals. Yet, there is still a lack of overall connectivity, adequate crossing facilities, illumination, and ADA issues. There are many opportunities for improvement including crossing enhancements, curb ramp improvements, additional sidewalks, improved connectivity, driveway access management, pedestrian-scale lighting, and traffic calming. Existing conditions, photos, maps, and other plans and studies are detailed in Chapter 2.

PUBLIC INPUT

Appendix A summarizes the various avenues of public outreach that were employed to gather input during the planning process, including the comment form, two public workshops and other forms of outreach. Below are some key findings, according to the 68 people who submitted comments through the online comment form:

- 94% said pedestrian conditions were fair or poor in Cherokee
- 91% said that improving walking conditions in the Cherokee area is very important.



- The top three factors that discouraged walking were lack of sidewalks/trails, automobile traffic and speed, and lack of crosswalks at traffic signals.

- The top three destinations to walk to were trails/greenways, parks, and shopping.

- US 19 was identified as the most important roadway needing pedestrian improvements. Big Cove Road was identified second most.

RECOMMENDATIONS

A variety of sources were consulted to develop recommendations: previous plans and studies, existing conditions, a field-work inventory, public input, committee input, and local destinations. The recommendations consist of corridor projects (sidewalks and greenways), crossing improvements, and hub improvements (areas with significant pedestrian traffic and need). Detailed recommendations were developed for 10 intersection crossings. Together these facilities should be developed or improved to create a safe and connected pedestrian network throughout Cherokee. For details on this process and recommendations, see Chapter 3 (Pedestrian Network). The Pedestrian System Recommendations Map is also found at the conclusion of the Executive Summary.

PROGRAMS + POLICIES

Meeting the goals of the Cherokee Pedestrian Transportation Plan will require more than construction and installation of recommended facilities. It will also require the initiation and continued support of pedestrian-related programs from the local officials, local residents, and community organizations. In addition, the implementation of these facilities and programs will require the adoption and enforcement of new pedestrian-related, Complete Streets policies (as recently adopted by NCDOT in 2009). Chapter 4 outlines key policy statements and recommended policy language updates. It also provides a menu of education, encouragement, and enforcement programs to implement in Cherokee, including high priority programs.

KEY ACTION STEPS

Implementation is critical to ensure the recommendations of this Plan become a reality. A detailed action steps table is provided in Chapter 5. Key action steps are below:

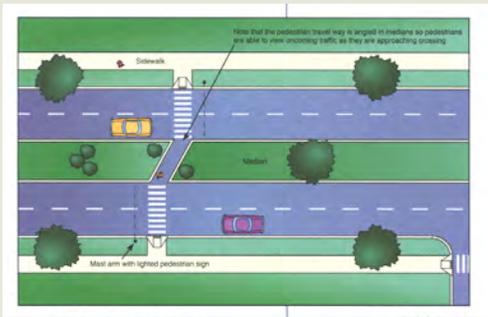
- 1) Adopt this plan.
- 2) Create Pedestrian and Bicycle Advisory Board.



Photo visualizations are found throughout Chapter 3. Above: An improvement to a midblock crossing in the US 19 CBD.



EXECUTIVE SUMMARY



Design guidelines are provided in Chapter 6 and provide details for all treatments recommended in this Plan.

- 3) Begin top priority projects.
- 4) Improve and enforce EBCI regulations.
- 5) Seek multiple funding sources and facility development options.
- 6) Develop pedestrian programming with a focus on Safe Routes to School.
- 7) Apply for an NCDOT Bicycle Planning Grant.
- 8) Record and map all pedestrian/bicycle crashes.
- 9) Ensure greenways are developed with sewer easement development.
- 10) Develop a Cherokee Walking/Bicycling Map.
- 11) Work with NCDOT and Southwestern RPO regularly on pedestrian issues with an early focus on US 19 CBD road diet project.
- 12) Implement projects utilizing Pedestrian Design Guidelines found in Chapter 6 of this Plan.

FUNDING

Implementing the recommendations of this plan will require a combination of funding sources that include local, state, federal, and private money. Appendix C defines and describes dozens of possible funding sources that could be used to support the planning, design and development of pedestrian and greenway improvements.

Intersection improvements are high priority projects for Cherokee. This photo visualization shows an improvement to the US 19/Casino Trail intersection.



System Recommendations Map

Legend

- Schools
- Churches
- Bus Stops
- Recommended Sidewalk
- Existing Sidewalk
- Recommended Trail
- Existing Trail
- Existing Crosswalk
- Buildings
- Roads
- Major roads
- Streams
- County Boundary
- GSMNP

Hubs

1 Intersection Improvements

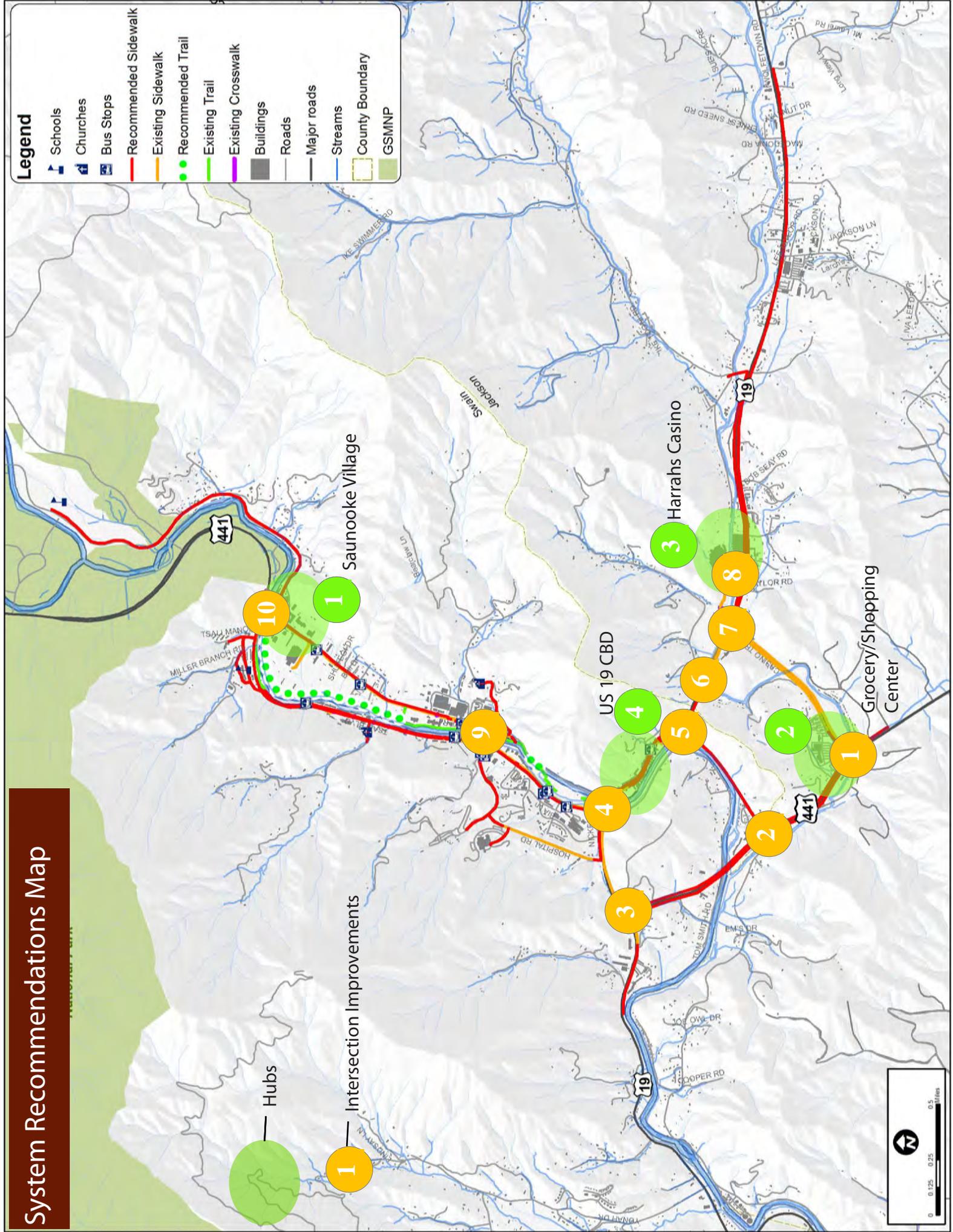
1 Saunooke Village

3 Harrahs Casino

1 Grocery/Shopping Center

US 19 CBD

0 0.125 0.25 0.5 Miles

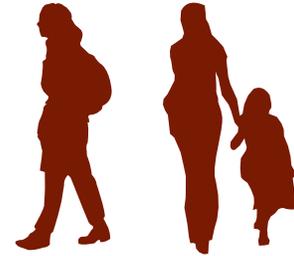




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Chapter 1: Introduction This section provides project background, the benefits of walkable communities, visions and goals for this Plan, and the Plan organization.



1.0 PROJECT BACKGROUND

The Eastern Band of Cherokee Indians (EBCI) received a pedestrian planning grant from the North Carolina Department of Transportation (NCDOT) in 2008. The planning process began in February 2009 leading to the development of this plan. An advisory steering committee composed of EBCI staff and citizens was formed to guide the planning process. This plan combines past planning efforts with new research and analysis, plus a full public input process. The result is a complete, up-to-date framework for moving forward with tangible pedestrian transportation improvements.

This document presents an assessment of existing pedestrian facilities in Cherokee, along with the findings of the public input process. From these findings, a set of phased recommendations is developed for a pedestrian system that meets the current and future needs of both residents and tourists (a large percentage of Cherokee pedestrians are tourists). These recommendations include an integration of both on-road and off-road pedestrian facilities along with improved roadway crossings. The recommendations include both physical changes and policy changes to help guide pedestrian-friendly growth. The Plan also provides program recommendations to promote walking and action steps to provide clear guidance in implementation.

1.1 BENEFITS OF WALKABLE COMMUNITIES

When considering the level of dedication in time and valuable resources that it will take to fulfill the goals of this plan, it is also important to assess the immense value of pedestrian transportation. Walking helps to improve people's health and fitness, enhance environmental conditions, decrease traffic congestion, and will contribute to a greater sense of community. This plan seeks to provide and promote for more walking opportunities.

CHAPTER OUTLINE:

1.0 PROJECT BACKGROUND

1.1 BENEFITS OF WALKABLE COMMUNITIES

1.2 GOALS AND OBJECTIVES

1.3 PLAN COMPONENTS



The Oconaluftee River flows through the heart of Cherokee.



The newly constructed river greenway trail provides a unique place for recreation and even transportation.

Scores of studies from experts in the fields of public health, urban planning, urban ecology, real estate, transportation, sociology, and economics have supported walking benefit claims and have acknowledged the substantial value of supporting walking as it relates to active living and alternative transportation. Communities across the United States and throughout the world are implementing strategies for serving the walking needs of their residents, and have been doing so for many years. They do this because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits of walking.

INCREASED HEALTH AND PHYSICAL ACTIVITY

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended daily 30 minutes of moderately intense physical activity (60 minutes for youth). According to the Centers for Disease Control and Prevention (CDC), "physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic" (1). The increased rate of disease associated with inactivity reduces quality of life for individuals and increases medical costs for families, companies, and local governments.

The CDC determined that creating and improving places to be active could result in a 25 percent increase in the number of people who exercise at least three times a week (2). This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits (3). The establishment of a safe and reliable network of sidewalks and trails in Cherokee will have a positive impact on the health of local residents. The Rails-to-Trails Conservancy puts it simply: "Individuals must choose to exercise, but communities can make that choice easier."

ECONOMIC BENEFITS

Walking is an affordable form of transportation. According to the Pedestrian and Bicycle Information Center (PBIC), of Chapel Hill, NC, the cost of operating a car for a year is approximately \$5,170, while walking is virtually free. The PBIC explains, "When safe facilities are provided for pedestrians and bicyclists, more people are able to be productive, active members of society. Car ownership is expensive, and consumes a major portion of many Americans' income" (4).



Walking becomes even more attractive from an economic standpoint when the rising price of oil (and decreasing availability) is factored into the equation. Since 2000, oil prices have more than quadrupled. The rising cost of fuel reinforces the idea that local communities should be built to accommodate people-powered transportation, such as walking and biking.

From a real estate standpoint, consider the positive impact of trails and greenways, which are essential components of a complete pedestrian network. According to a 2002 survey of homebuyers by the National Association of Home Realtors and the National Association of Home Builders, trails ranked as the second most important community amenity out of a list of 18 choices (incidentally, 'highway access' ranked first). Additionally, the study found that 'trail availability' outranked 16 other options including security, ball fields, golf courses, parks, and access to shopping or business centers (5). Findings from the American Planning Association (How Cities Use Parks for Economic Development, 2002), the Rails-to-Trails Conservancy (Economic Benefits of Trails and Greenways, 2005), and the Trust for Public Land (Economic Benefits of Parks and Open Space, 1999) further substantiate the positive connection between trails and property values across the country.

ENVIRONMENTAL IMPROVEMENTS

When people choose to get out of their cars and walk, they make a positive environmental impact. They reduce their use of gasoline, which then reduces the volume of pollutants in the air. Other environmental impacts can be a reduction in overall neighborhood noise levels and improvements in local water quality as fewer automobile-related discharges wind up in the local rivers, streams, and lakes. Furthermore, every car trip replaced with a pedestrian trip reduces U.S. dependency on fossil fuels, which is a national goal.

Trails and greenways are also part of the pedestrian network, conveying their own unique environmental benefits. Greenways protect and link fragmented habitat and provide opportunities for protecting plant and animal species. Aside from connecting places without the use of air-polluting automobiles, trails and greenways also reduce air pollution by protecting large areas of plants that create oxygen and filter air pollutants such as ozone, sulfur dioxide, carbon monoxide and airborne particles of heavy metal. Finally, greenways improve water quality by creating a natural buffer zone that protects streams, rivers and lakes, preventing soil erosion and filtering pollution caused by residential development and agricultural and road runoff.



Traffic is heavy at times along US 19 near the Harrah's Casino. Pedestrian options are provided to connect hotels to the casino, eliminating some trips by car.



By walking for our trips that are less than 2 miles, we could eliminate 40% of local car trips.

Pedestrian amenities provide spaces to socialize, exercise, and enjoy the outdoors.



TRANSPORTATION BENEFITS

In 1995, the National Household Travel Survey found that roughly 40% of all trips taken by car are less than 2 miles (6). This is the case in Cherokee where many residents walk to school, work, or even the grocery store. By taking these short trips on foot, rather than in a car, citizens can have a substantial impact on local traffic and congestion. Additionally, many people do not have access to a vehicle or are not able to drive. An improved pedestrian network provides greater and safer mobility for these residents.

According to the Brookings Institution, the number of older Americans is expected to double over the next 25 years. All but the most fortunate seniors will confront an array of medical and other constraints on their mobility even as they continue to seek an active community life (7). Trails that are built as part of the pedestrian transportation network generally do not allow for motor vehicles. However, they do accommodate motorized wheelchairs, which is an important asset for the growing number of senior citizens who deserve access to independent mobility.

Children under the age of 16 are another important subset of our society who deserve access to safe mobility. According to the U.S. Environmental Protection Agency, fewer children walk or bike to school than did so a generation ago: In the past few decades, the percent of students between the ages of 5 and 15 who walked or biked to or from school has dropped from roughly 42% to about 16% (8).

QUALITY OF LIFE

Many factors go into determining the quality of life for the citizens of a community: the local education system, prevalence of quality employment opportunities, and affordability of housing are all items that are commonly cited. Increasingly though, citizens claim that access to alternative means of transportation and access to quality recreational opportunities such as parks, trails, greenways, and bicycle routes, are important factors for them in determining their overall pleasure within their community. Communities with such amenities can attract new businesses, industries, and in turn, new residents. Furthermore, quality of life is positively impacted by walking through the increased social connections that take place by residents being active, talking to one another and spending more time outdoors and in their communities.



1.2 GOALS AND OBJECTIVES

The pedestrian plan steering committee formulated goals and objectives that helped guide the development of recommendations in this plan. They are, as follows:

Goal 1: Improve pedestrian safety along roadways, at intersections, and off-road

Objective A: Increase pedestrian connectivity across Cherokee by filling sidewalk gaps.

Objective B: Increase the ratio of roads with sidewalks.

Objective C: Increase the ratio of intersections with appropriate crossing devices including crosswalks and pedestrian signals.

Objective D: Reduce traffic speeds and increase traffic calming and pedestrian measures in downtown, casino, and shopping areas.

Objective E: Increase law enforcement efforts to educate and/or enforce proper behaviors for both pedestrians and motorists.

Objective F: Increase illumination and visibility for high-pedestrian traffic areas such as the business district and casino areas.

Goal 2: Increase routine walking for transportation and recreation

Objective A: Increase programs to promote walking for people of all ages and walks of life.

Objective B: Increase education efforts for local staff, decision-makers, full-time residents, part-time residents, and business-owners of the benefits of walkable spaces.

Objective C: Increase signage to promote safe walking.

1.3 PLAN COMPONENTS

This Plan document includes the following components:

This Introduction that presents the background, visions and goals, and the benefits of a walkable town (Chapter 1).

An assessment of Existing Conditions that overviews existing pedestrian conditions, land use, trip attractors, and also summarizes existing related plans of Cherokee (Chapter 2).

A recommended Pedestrian Network that puts forward a framework of recommended facilities (pedestrian corridors, intersection improvement projects, and greenways) (Chapter 3).



The Oconaluftee Islands Park is a wonderful destination in the center of Cherokee.

The US 19 CBD shopping area sees a large number of tourist pedestrians. Multiple high-visibility crosswalks are present but need improvements.





Program Recommendations for education, encouragement, enforcement, and Policy Recommendations (Chapter 4).

Implementation recommendations that outline specific steps for achieving the plan's key elements including phasing and prioritization of the Pedestrian Network (Chapter 5).

Design Guidelines to guide the Eastern Band of Cherokee Indians in current facility design and standards (Chapter 6).

Appendices that provide a summary of public input, a glossary, funding sources, acquisition strategies, and federal and state policies.

Footnotes

1 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (1996). Physical Activity and Health: A Report of the Surgeon General.

2 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. (2002). Guide to Community Preventive Services.

3 Rails-to-Trails Conservancy. (2006) Health and Wellness Benefits.

4 Pedestrian and Bicycle Information Center. Economic Benefits of Bicycling. http://www.bicyclinginfo.org/why/benefits_economic.cfm

5 Consumer's Survey on Smart Choice for Home Buyers, National Association of Realtors and National Association of Home Builders, April 2002.

6 Pedestrian and Bicycle Information Center. Transportation Benefits of Bicycling. http://www.bicyclinginfo.org/why/benefits_transportation.cfm

7 Brookings Institution (2003). The Mobility Needs of Older Americans: Implications for Transportation Reauthorization. (http://www.brookings.edu/reports/2003/07transportation_rosenbloom.aspx)

8 International Walk to School in the USA (2008 report). http://www.ecoact.org/PDF/SRTS/International_Walk2School_Talking_Points.pdf



Chapter 2: Existing Conditions

This chapter includes a summary of existing pedestrian conditions, important destinations, and summaries of existing documents relevant to this study. This analysis will lead towards the development of pedestrian network recommendations in Chapter 3.



2.0 OVERVIEW

The Eastern Band of Cherokee Indians (EBCI) municipality consists of 13,930 enrolled members. The jurisdictional boundaries border the Great Smoky Mountains National Park and the southern terminus of the Blue Ridge Parkway. The EBCI is well known for its vast natural and cultural heritage. Also home to Harrah's Cherokee Casino and Hotel (North Carolina's most visited tourist attraction), this area accounts for over 5 million visitors annually, with many coming for the variety of cultural offerings celebrating Cherokee heritage and history (Oconalufee Indian Village and Unto These Hills to name a few).

The implementation of initiatives concerned with foot traffic, public arts for example, has resulted in more pedestrians along the roadways than previously experienced. Also, the tourist population frequents a number of key destinations. Typically, visitors travel by vehicle, park their car, and walk around tourist hubs, creating heavy pedestrian and automobile traffic.

The infrastructure for the community is large due to the substantial number of visitors. The majority of this infrastructure can be found in the Central Business District (CBD), which encompasses areas along US Highway 441 and US Highway 19. US-19 has several construction projects including TIP project B-4696 (replacing US-19-441 Bus. bridge over Oconalufee River) which is under construction and does not provide adequate pedestrian facilities. A narrow section of US-19 between Whitewater Drive and Stillwell Bridge Road is also under construction with sidewalk only planned for one side of the roadway. The CBD also has seen several segments of a disjointed greenways system evolve.

Planning for pedestrians here requires a consideration of both tourists and residents. Many residents depend upon foot travel for utilitarian and transportation-related trips. Tourists travel

CHAPTER OUTLINE:

- 2.0 OVERVIEW
- 2.1 EXISTING PEDESTRIAN CONDITIONS
- 2.2 DESTINATIONS
- 2.3 CURRENT PEDESTRIAN USE AND NEEDS
- 2.4 DEMOGRAPHICS
- 2.5 LAND USE AND DEVELOPMENT
- 2.6 EXISTING DOCUMENT REVIEW



A local worker walks along US 441 near the US 19 intersection without safe pedestrian accommodation.



by foot within and between the many hubs and destinations of Cherokee. Planning for pedestrians is critical to address safety for future residents and visitors.

2.1 EXISTING PEDESTRIAN CONDITIONS

Through a combination of fieldwork and committee input, existing pedestrian conditions were analyzed. The following pages highlight the strengths and weaknesses of the existing pedestrian environment. A photo inventory and description of pedestrian conditions are also provided. Map 2.1 at the end of this chapter shows existing facilities.

STRENGTHS OF PEDESTRIAN SYSTEM

A significant amount of walkable places and facilities exist within Cherokee and serve as excellent building blocks for improvement. These include:

- Oconaluftee River greenway (1 mile) is a recently developed amenity.
- 5.6 miles of sidewalk and 1.25 miles of greenway or sidepath exist throughout Cherokee.
- 90% of Acquoni Road contains sidewalk on one side.
- Business US 441 has sidewalk along 90% of one side.
- Some intersections feature pedestrian signalization, marked crosswalks, and curb ramps.
- An unpaved, walking trail from the northeast entrance to Cherokee to the Great Smoky Mountains National Park Visitor Center provides a nice recreational opportunity.
- New bus stops provide benches and shelter at all locations.

Numerous activities and efforts have been undertaken in the past five years related to municipal pedestrian improvements. All projects initiated by the Office of Planning & Development have sought to incorporate pedestrian-friendly features such as riverwalks, proper traffic separation, expanded walk areas, common space, etc. Specifically, the river greenway project has added nearly one mile of pedestrian space along the Oconaluftee River in the Central Business District. Pedestrian bridges have been incorporated along the river as well to link recreation areas and economic pockets. The Central Business District Master Plan (2001) addresses the enhancement of streetscape and implementation of greenways and the Comprehensive Economic Development Strategy (CEDS) (2007) identifies greenways as one of the top priorities. Initial planning has begun that considers relocating street parking in downtown in order to make room for pedestrian improvements and increase continuity of the available features. All of these efforts address pedestrian movement, accessibility, and safety.



New bus stops throughout town offer convenient and comfortable access to the local bus system.

WEAKNESSES OF PEDESTRIAN SYSTEM

Lack of sidewalks: Many major roadways in the Cherokee area lack sidewalks. This is especially true in the CBD and Big Cove Road (site of new schools) where sidewalks are perhaps most needed.

Lack of connectivity: There are numerous gaps of varying lengths in the existing sidewalk network. These gaps create inhospitable space for pedestrians along major roadways between existing sidewalk.

Inadequate crossing facilities (Table 2.1): While some crossing features are present, both controlled and uncontrolled pedestrian crossings are incomplete and inadequate.

- Some marked crosswalks not highly visible
- Marked crosswalks leading directly into parking spaces
- Most crossings do not have pedestrian signalization and some do not have countdown signals present
- Some marked crosswalks need new paint
- Curb ramps are often incomplete or inadequate
- Curb extensions and bulb-outs are lacking and needed in some locations
- Placement of push buttons and signals incorrect at few sites

Driveway access management: There are numerous locations along US 19 and US 441 within the CBD that feature long, wide, and multiple driveway entrances for parking. This creates a situation in which a pedestrian does not have separated space or refuge for walking. This is a common problem, especially in the heavy pedestrian-traffic shopping areas.

Illumination/visibility: Because of tourist and resident pedestrian traffic in the evenings, lighting is critical for the recognition of crossing pedestrians. This is of particular concern near the Harrah's Casino area. Existing lighting at the Casino Trail shopping center at US 441 can be blinding to motorists as well.

Heavy traffic: Due to heavy tourist numbers and resident traffic during rush hours, traffic is heavy along the main corridors of Cherokee. This also includes Acquoni Rd., near the EBCI government offices making mid-block crossings dangerous. Congested traffic is common all along US 19 near the casino and the CBD shopping district making crossing particularly dangerous without signalization.

ADA Accessibility Issues: In some areas, especially in the US 19 shopping district, stairs are present and/or curb ramps are missing.



A number of students and teachers walk along Big Cove Road before and after school without an adequate and safe pedestrian facility.

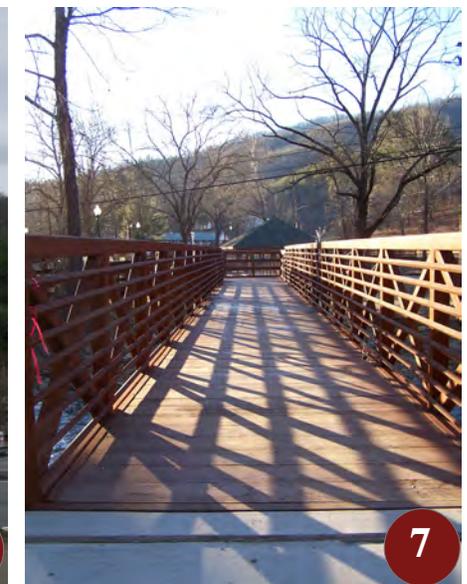


ADA accessibility is a key issue along the US 19 CBD with many stairs and curbs.





Strengths of Pedestrian System





- 1 US 19 CBD/Shopping: One of the key pedestrian “hubs” in Cherokee, this newer section of storefront and parking lot (on the west end of the area) is very pedestrian-friendly. Landscaping, bridges, and walkways are inviting places for families and children and connect directly to the storefront.
- 2 US 441 sidewalk (near GSMNP entrance): A relatively new stretch of sidewalk winds above the river along US 441. This connects areas of town to the GSMNP trail and pedestrian bridges over to Saunooke Village. Overall, there are nearly 6 miles of sidewalk including long stretches along Casino Trail, Hospital Road, and Acquoni Road.
- 3 River Greenway Trail: A one-mile section of greenway was completed in 2008-2009. The trail has clear signage, benches, and vistas along the river. It is a tremendous resource separated from the Acquoni Rd. environment.
- 4 Pedestrian crossing at Harrah’s (US 19): This intersection has nice pedestrian features that include signage, pedestrian-activated signalization, high-visibility crosswalk, and sidewalk access.
- 5 US 19/Stillwell Bridge intersection: This is one of the few intersections that has a high-visibility crosswalk. This type of crosswalk is very clear to motorists and pedestrians.
- 6 US 19/Casino Trail: While this intersection needs improvement, it is one of the intersections in Cherokee that already has a pedestrian-activated countdown signal.
- 7 Oconaluftee Islands Park: A wonderful resource used by residents and tourists for picnics, fishing, swimming, hiking, and relaxing, the park also features a number of trails and pedestrian bridges that connect both sides of the river. This bridge leads to the start of the river greenway trail.



Weaknesses of Pedestrian System



1



2



3



4



5



6



7



8



10



12



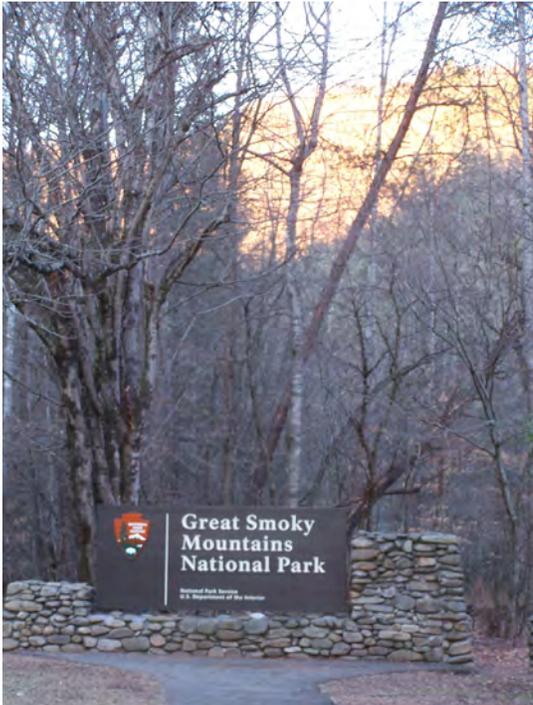
9



11



- 1 US 19 CBD/Shopping: One of the key pedestrian “hubs” in Cherokee, this stretch of US 19 lacks clearly defined sidewalks. There are multiple mid-block crossings which are simply marked crosswalks that often lead into parking spaces. Traffic can be heavy through this area.
- 2 US 19/US 441 Intersection: A large driveway entrance area on the far left corner of the picture is an unpleasant space for a pedestrian to access the intersection and crosswalk. Sidewalks and curb ramps are also lacking here.
- 3 Whitewater Dr. (Near US 441): A lower-income trailer park is located on Whitewater near a convenient store and less than a mile from the US 441/Casino Trail shopping center. People walk to the grocery store without a sidewalk.
- 4 US 19 (Harrah’s casino and Days Inn midblock crossing): This midblock crossing features a couple issues. On the casino side (photo #4), the crossing is lacking a safe curb ramp. In photo #5, the crossing leads directly into the parking lot entrance instead of a pedestrian-safe space.
- 5
- 6 US 19/Casino Trail intersection: In addition to lacking high visibility crosswalks, the right-hand slip turn lane creates a pork chop island which is not an elevated, clearly designated pedestrian refuge. It is currently a dangerous space for pedestrians in an automobile environment.
- 7 US 19 CBD/Shopping: On the opposite end of this shopping area from Photo #1, this depicts the driveway access management issue. Parking spaces and driveways are immediately adjacent to the roadway, leaving the pedestrian no space or refuge.
- 11
- 8 Casino Trail/US 441 shopping center: A continuous, long-distance sidewalk along Casino Trail stops abruptly at the shopping center and does not continue to US 441.
- 9 Saunooke Village: This shopping area, while smaller than the US 19 CBD/shopping area, has similar problems. A lack of pedestrian space and crosswalks leading directly into large, wide driveways and parking lots are inhospitable for pedestrians.
- 10 US 19/Harrah’s Casino: A gap in the existing sidewalk network, a worn foot path indicates significant pedestrian traffic which includes tourists walking from their lodging to the casino and casino workers making their way home.
- 12 US 441 South: A worn footpath along US 441 extends for a long distance indicating pedestrian traffic moving between residence and commercial destinations.



The Great Smoky Mountains National Park, adjacent to Cherokee, is a major destination and the most visited national park in the United States.

2.2 DESTINATIONS

There are a number of destinations in the Cherokee area that serve as pedestrian trip generators for residents and tourists. These destinations become key locations to provide pedestrian network connections. Currently, the majority of these destinations need improvements in pedestrian connectivity and safety both within and away from the destination. The following are key destinations, also shown in Map 2.3:

- Cherokee schools (at the time of this study, the schools were being relocated to Big Cove Road at the northeast end of Cherokee)
- US 19 Central Business District (shopping area)
- Oconuluftee Village/Unto These Hills
- Harrahs Casino
- Saunooke Village
- US 441 Attractions (Cherokee museum, shopping)
- Oconuluftee Islands Park
- Great Smoky Mountains National Park
- US 441/Casino Trail shopping center
- EBCI Government offices

2.3 CURRENT PEDESTRIAN USE AND NEEDS

Citizens are interested in quality of life issues particularly in relation to their personal health and fitness. Information about current pedestrian use and needs was gathered through an online comment form. Appendix A summarizes the various avenues of public outreach that were employed to gather input during the planning process (including the comment form), and features charts and graphs that outline the findings. Below are some key findings, according to the 68 people who completed comment forms, the dozens who attended the public workshop events, and the active citizens serving on the Steering Committee:

- Need to fill gaps in existing sidewalk network
- Need to improve lighting in heavy-pedestrian areas
- Parking issues need to be addressed alongside pedestrian issues
- Roadway crossing facilities need improvements
- Establish better enforcement of speed limits throughout Town.
- Improve pedestrian conditions near new school, US 19 CBD, and the Casino area



2.4 DEMOGRAPHICS

To help understand pedestrian needs, it is useful to understand population composition and demographics. Most of the demographic analysis here relies on 2000 US Census information.

Map 2.2 shows 2000 population density in the Cherokee area. The densest, most populated areas are along the major roadways in the topographically flatter areas. It is important to provide connections to these areas to serve larger portions of the populations.

2.5 LAND USE AND DEVELOPMENT

Current land use is a result of development activity over the past several decades. Multiple land uses can be found throughout the Cherokee area with distinct patterns emerging. These patterns and characteristics have a major influence on pedestrian transportation. Proximity of uses and types of uses matter in a person's choice to walk, along with the quality of environment, ease of access, and safety.

Because of topographic constraints, Cherokee has developed along its relatively few flat areas (floodplains and valleys). Because of this, development has occurred in a very linear fashion, along the major roadways. Commercial and institutional uses and destinations can be found along US 19 and US 441. Institutional and government offices are along Acquoni Road. Residential areas are typically found off roadways coming from the two major roadways, US 19 and US 441. A key shopping center with grocery store is also located at US 441 and Casino Trail. With a linear pattern of uses, linear connectivity is extremely important along those corridors with safe connectivity to adjoining shopping areas, natural features, parks, and residences.

Within development hubs (particularly tourist shopping hubs such as the US 19 CBD and Saunooke Village), pedestrian-friendly spaces and accommodations are generally lacking. These areas were designed to support automobile travel from other locations. There are some exceptions, especially in newer developments such as the west end of the US 19 business shopping district and the Harrahs casino which provide more attractive, legible, and safe pedestrian accommodations within their sites.



2.6 EXISTING DOCUMENT REVIEW

Cherokee Long Range-Transportation Plan (2008)

The Cherokee Long Range Transportation Plan addresses existing roadways, improvement projects, future growth patterns, traffic conditions, parking, and pedestrian needs and presents a recommendations and implementation plan for the future. The plan states that there has been too little emphasis on bicycle and pedestrian needs in Cherokee in the past and safety is an issue, especially in specific areas. Because of inconsistent development patterns, there are only partial sections of sidewalk. The development of a comprehensive bicycle and pedestrian plan is recommended. The plan focuses in detail on pedestrian issues in three regions of Downtown Cherokee:

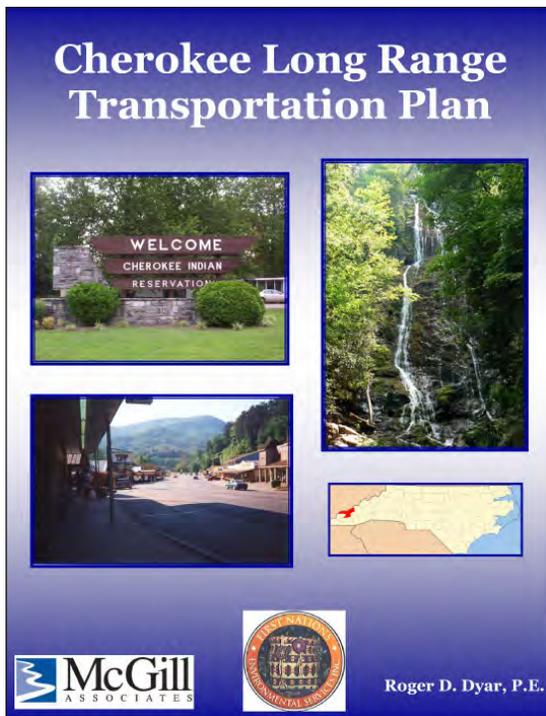
- US-19 from Old US-441 to Acquoni Road: This roadway is heavily congested with high pedestrian volumes, especially in the summer and vehicle-pedestrian conflict is present even with highly-visible marked crosswalks. Parking conflicts also exist with vehicular movement and pedestrian circulation. Connecting and coordinating pedestrian crosswalks and sidewalks will be critical for this area. Two plan-view alternatives were developed for this section for downtown parking recommendations and improvements to pedestrian safety.

- Oconaluftee River Bridge: The new bridge design should design pedestrian facilities to be separated from vehicular traffic and connected to the adjacent park's trail system.

- US-441 N from the Oconaluftee River Bridge to Acquoni Road: Pedestrian design goals should be to extend the pedestrian sidewalk system and fill gaps in the current sidewalk system.

Key pedestrian recommendations as part of the recommendations and implementation plan:

- Pedestrian features should be improved at intersections.
- Consider alternative designs for US-19 business district.
- An access management plan should be established.
- Make improvements to Acquoni Road, making it a three-lane section with left-turn options where needed and landscaped median elsewhere. Lanes should be wide enough for bicycle travel and sidewalks should be provided along both sides.
- Further study should occur on US-19 business corridor to consider options such as a road diet to improve pedestrian conditions and make this more of a destination than a commercial arterial.





- A study should occur to determine best placement of multiple marked crosswalks at US 19 business area.
- Add street lighting for motorists and pedestrians.
- Add curb ramps where they are missing to comply with ADA regulations.

Cherokee CBD Master Plan

This Master Plan was developed to guide the orderly growth and development of the Central Business District (CBD) and to address current issues such as parking, pedestrian circulation, cultural heritage, etc. The ultimate goal of the plan was to create a Downtown space that is efficient and appealing to both residents and tourists.

Specific, current issues included:

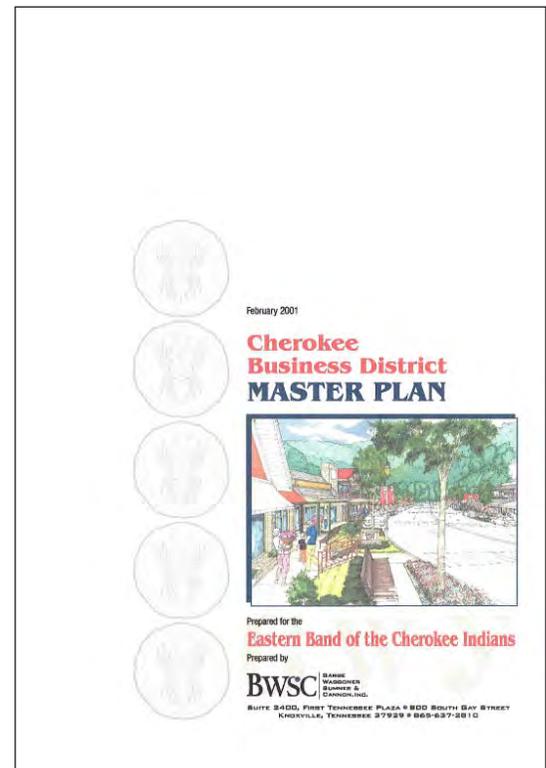
- Disconnect of commercial activity
- Topographic constraints for development and parking space
- Lack of pedestrian facilities as deterrent to tourism
- On-street parking

The vision established for this plan states that the CBD will be a tourist destination center, developed in harmony with nature and reflecting Cherokee culture, with the river as a focal point and with an extensive network of sidewalks and pathways for people to move about easily and safely.

Pedestrian traffic was discussed as part of an inventory and analysis effort. Sidewalks are described as "sporadic" and that on-street parking hinders the possibility of a suitable pedestrian system. Sidewalks or pathways connecting businesses is lacking necessitating travel by vehicle. Access to the river is also lacking.

Key recommendations include:

- Enhance gateway features into Cherokee.
- Improve pedestrian circulation in developed areas.
- Sidewalks should connect parking areas to businesses, connect individual commercial areas, allow access from surrounding residential areas, and provide access through all developed parts of Cherokee
- Promote greenway/riverwalk that links developed nodes.
- When possible, buffers should separate sidewalk from roadway.
- Pedestrians should be given higher priority than on-street parking in front of shops.





- Streetscape design should be implemented through the commercial nodes.
- Riverwalk/greenway should be developed on both banks with access to island park.
- A riverwalk can be a unifying element and an opportunity to tell the Cherokee story through pavement icons and historic signage.
- A Conceptual Master Plan was developed for the Riverwalk concept (composed of four separate riverwalks as integral parts of the Downtown's overall pedestrian circulation).
- In the long term, parking garages should be constructed to remove on-street parking.

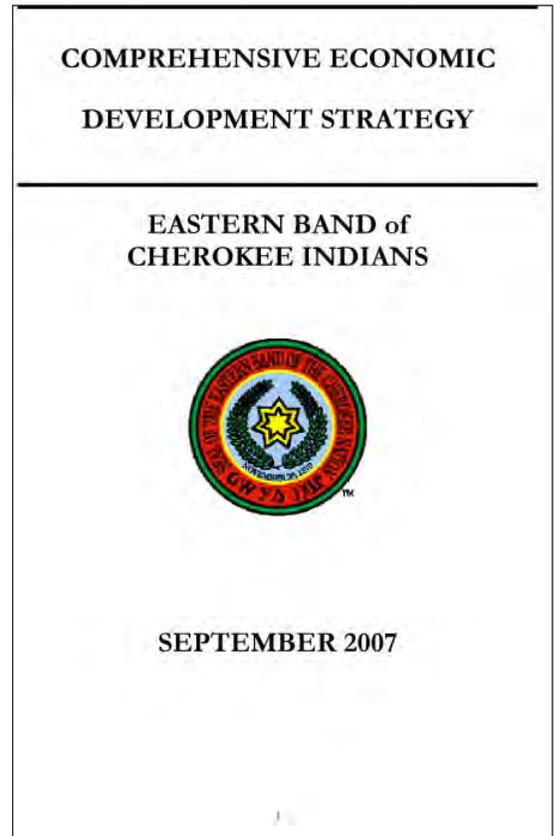
Implementation strategies include:

- Public education
- Revisions to existing regulations
- Enactment of new regulations
- Capital expenditures
- Acquisition of easements for streetscape improvements
- Public-private partnerships

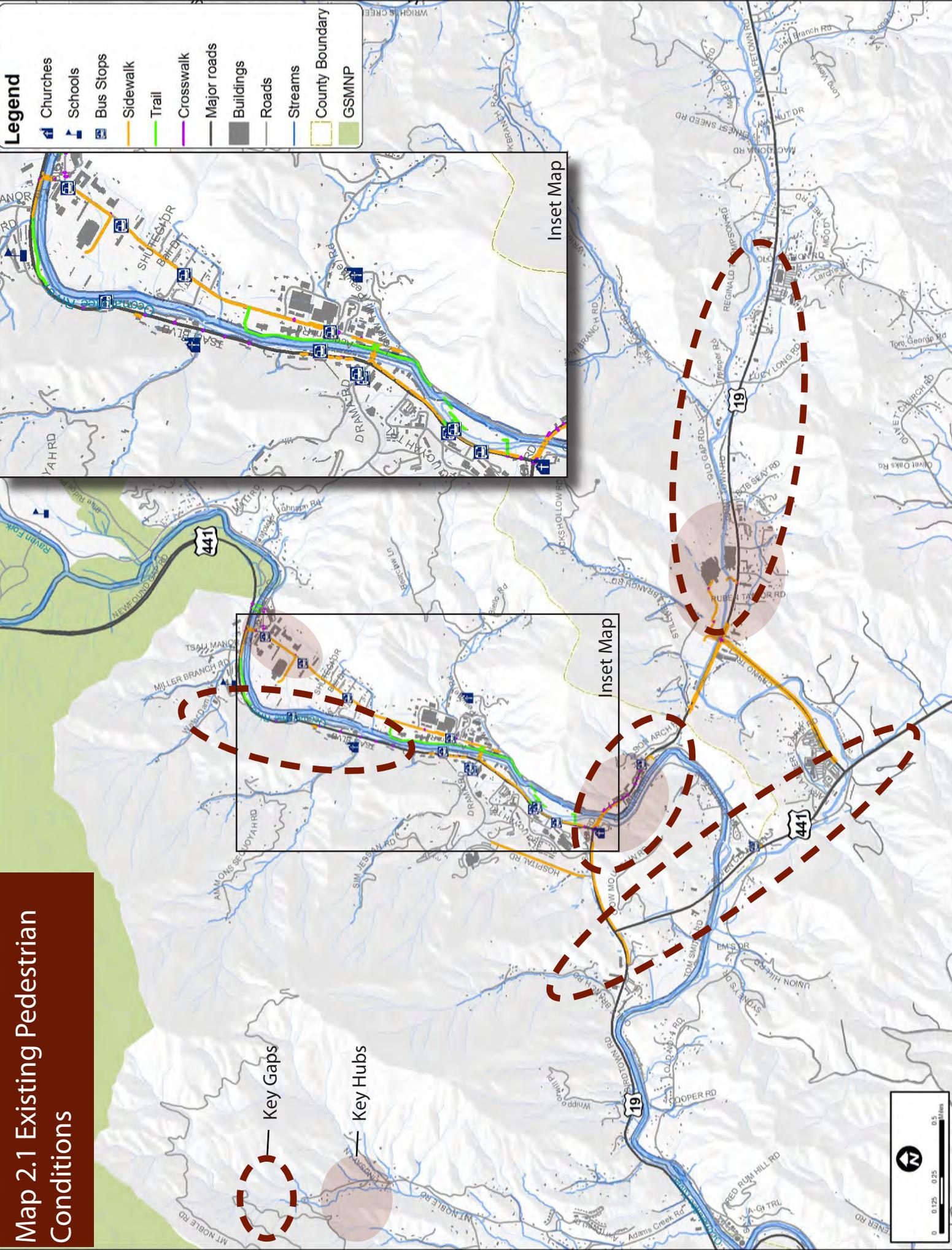
Cherokee Comprehensive Economic Development Strategy

The Eastern Band of Cherokee Indians prepared this document to develop an economic strategy that reflects an appreciation of its cultural and economic heritage and that creates goals, objectives, strategies, and an action plan to achieve its vision. Strengths identified included the Native American culture, beautiful environment, gateway to the Great Smoky Mountains National Park and opportunities noted included a downtown redevelopment to make Cherokee more of a destination.

One of the focus areas of this study was adding and improving trails and sidewalks in Downtown Cherokee and along the Oconaluftee River. The #1 vital project was a greenways program expansion that would create pocket parks and green spaces to encourage walking for recreation, tourism, and shopping. The #7 vital project was creating a downtown pedestrian mall by increasing off-street parking and creating additional pedestrian opportunities. This would be done by building a parking deck downtown and turning a portion of downtown into a pedestrian mall and would improve the tourist experience.



Map 2.1 Existing Pedestrian Conditions



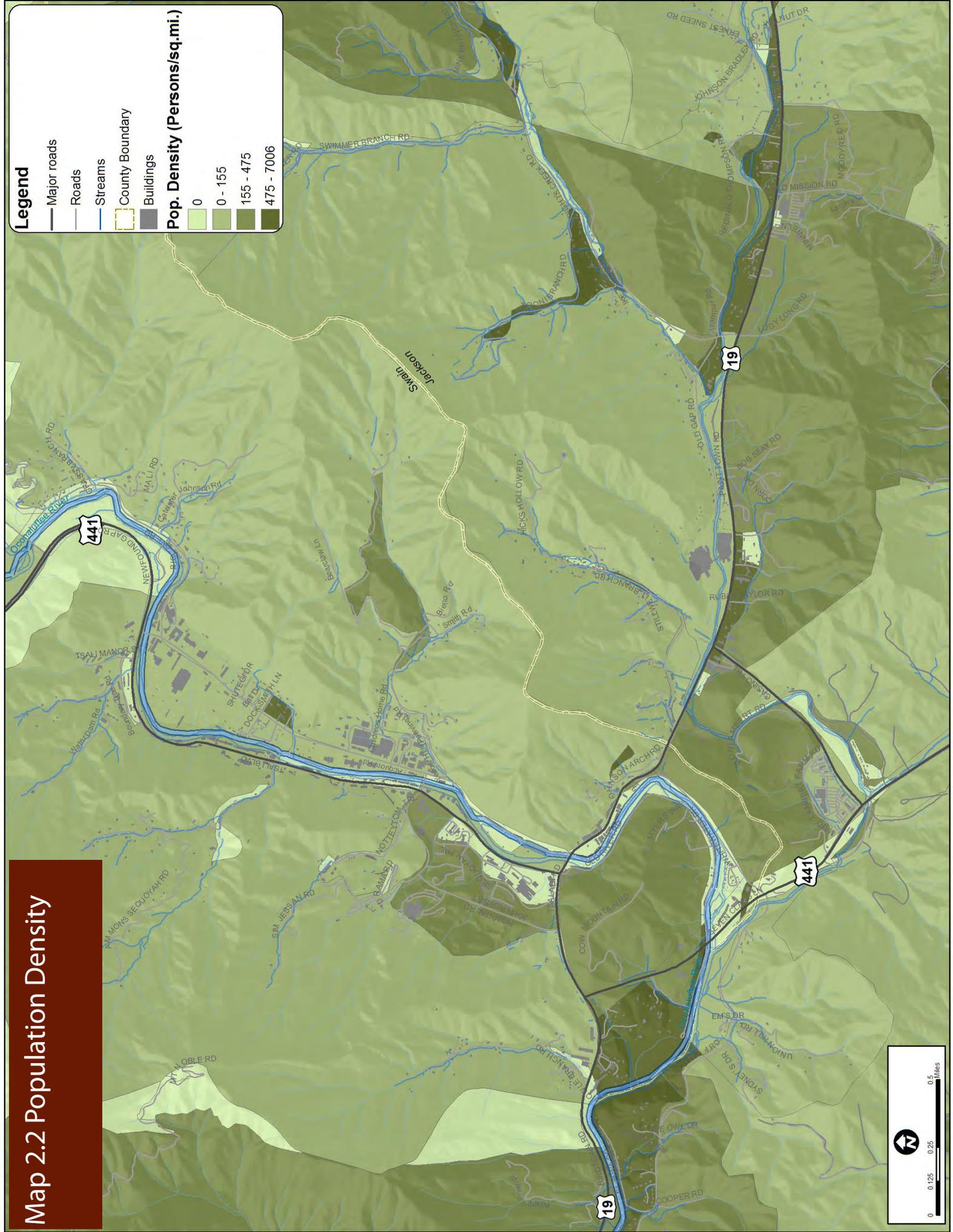
Map 2.2 Population Density

Legend

- Major roads
- Roads
- Streams
- County Boundary
- Buildings

Pop. Density (Persons/sq.mi.)

- 0
- 0 - 155
- 155 - 475
- 475 - 7006

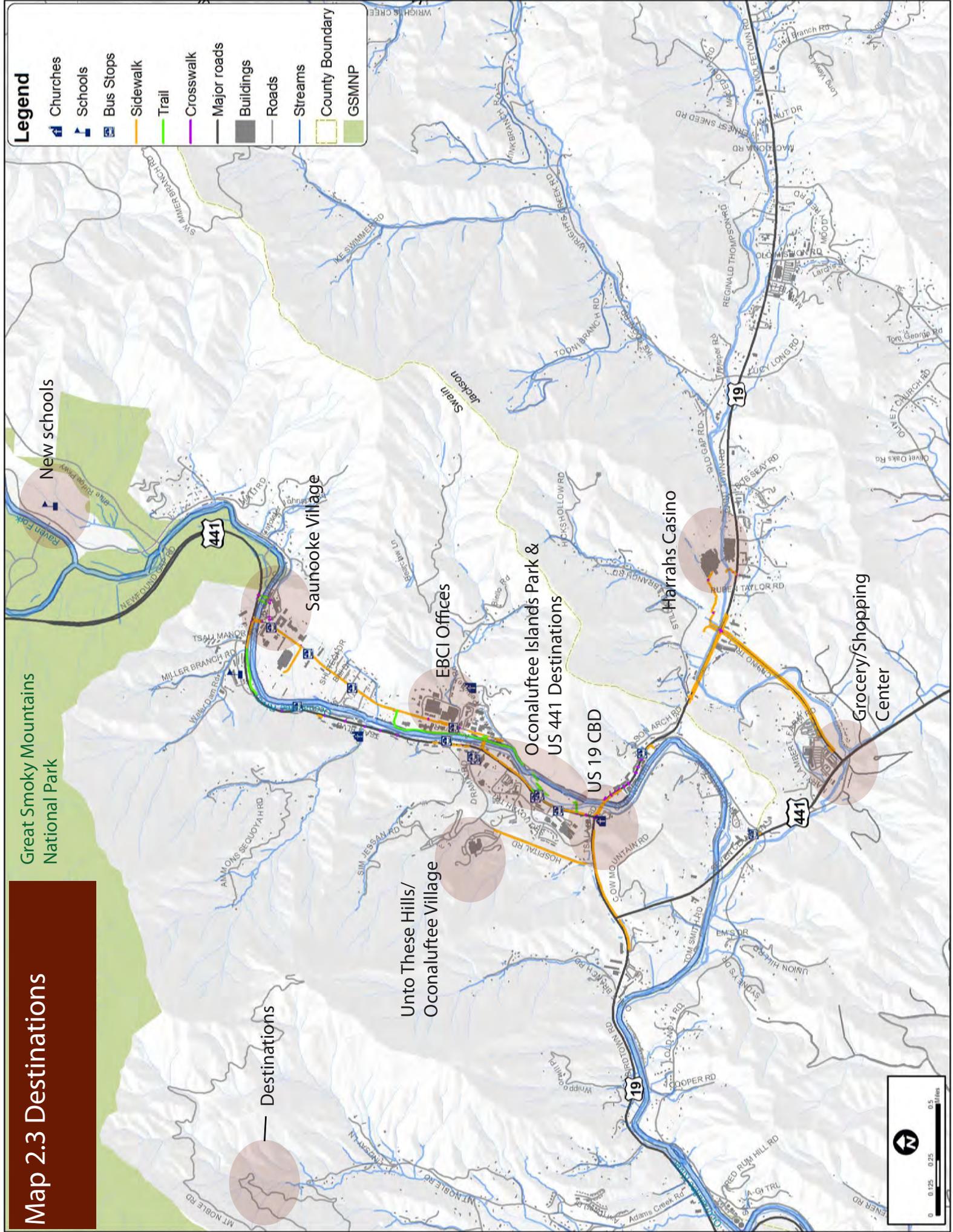


Map 2.3 Destinations

Great Smoky Mountains National Park

Legend

-  Churches
-  Schools
-  Bus Stops
-  Sidewalk
-  Trail
-  Crosswalk
-  Major roads
-  Buildings
-  Roads
-  Streams
-  County Boundary
-  GSMNP



Destinations

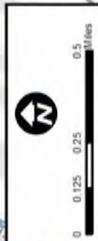


Table 2.1 Intersection Inventory



Intersection Improvement Project #	Road 1	Road 2	Reason Major intersection, school, connectivity, etc	Sight Distance (Good, Fair, Poor)	Signage (Y/N)	Controlled/Uncontrolled	Stop Light/Stop Sign	Curb Ramp (Y/N)	Curb Ramp (Complete/Incomplete)	Curb Radius (Very Wide, Wide, Average, Narrow, No Curb)	Marked Crosswalk (Y/N)	Nearby and Location of Crosswalks Adequate (Y/N)	Highly Visible (Y/N)	Crosswalk Condition (Good/Fair/Poor)	Pedestrian Xing Signal (Y/N)	Type of Signal (Regular, Countdown)	Curb Extension (Y/N)	Sidewalk (Y/N)	Sidewalk Complete/Incomplete	Median Island (Y/N)	Median Island Curb and Width	Estimated Traffic Volume (High/Medium/Low)	Speed Limit
1	441	Casino Trail	Cherokee Crossing Shopping Center; Major roads	Fair (guardrail)	N	C	SL	N	-	W	N	-	-	-	N	-	N	N	-	-	High	45/55	
2	441	Whitewater	Major roads; Commercial/Residential	Fair (guardrail)	N	C	SL	N	-	VW	N	-	-	-	N	-	N	N	-	-	Medium	45	
3	441	19	Major roads	Poor (hills)	N	C	SL	Y	Complete (where sidewalks present)	W	N	-	-	-	N	-	N	Y	Incomplete	-	Medium	35	
4	441	19 (near bridge)	Major roads; Commercial; Park	Fair (curves)	N	C	SL	(NO CURB)	-	W	Y	N	N	Fair	N	-	N	Y	Incomplete	-	High	25	
5	19	Whitewater	Major roads; Commercial	Poor (hills and curves)	N	C	SL	Y	Incomplete	VW (Right-hand slip turn lane turn onto Whitewater)	N	N	-	-	N	-	-	Y	Incomplete	-	High	25	
6	19	Siltwell Branch	Major road; Commercial	Poor (curves)	N	C	SL	Y	Incomplete	W	Y	N	Y	Fair	Y	Regular, push-button	N	Y	Complete	-	High	25	
7	19	Casino Trail	Major roads; Commercial; Casino	Fair (buildings)	Y	C	SL	Y	Incomplete	VW (Right-hand slip turn lane turn onto Casino Trail)	Y	Y	N	Poor	Y	Countdown, push-button	N	Y	Complete	2 foot concrete on Casino	High	35	
8	19	Casino Entrance	Casino; Hotels	Good	Y	C	SL	Y	Incomplete	W	Y	Y	One is highly visible	Fair	Y	Countdown, push-button	N	Y	Incomplete	-	High	35	
9	441	Teah Blvd.	Commercial; Cultural center; River; Traffic	Poor (vegetation)	N	C	SL	Y	Complete	VW	Y	N	Y	Good	Y	Countdown, push-button	N	Y	Incomplete	-	High	35	
10	441	Acquoni Rd.	Connectivity; Samake Village; New schools	Good	N	C	SL	N	-	VW	Y	N	Y	Fair	Y	Regular, push-button (not properly located)	N	Y	Incomplete	2 foot concrete on Acquoni	Medium	35	

This table provides an inventory of pedestrian accommodations that exist or are lacking at key intersections in Cherokee.



CHAPTER 2 EXISTING CONDITIONS

Chapter 3: Recommended Pedestrian Network

This chapter describes the key recommendations to make Cherokee more pedestrian-friendly. A combination of linear corridor connections, crossing improvements, and pedestrian hub improvements are recommended.

3.0 OVERVIEW

The proposed pedestrian network for Cherokee is a series of pedestrian improvements that creates a more connected, comprehensive system. It has been developed from past planning efforts, public input, field analysis, and geographic information systems (GIS) mapping. This chapter presents the methodology, recommended pedestrian network facilities, and overall pedestrian network map. It also provides detailed recommendations for important pedestrian hub areas and intersection improvements.

The guiding philosophy in devising this network is the hubs and spokes model. Pedestrian corridors (spokes) should connect to trip attractors (hubs) such as parks, schools, Downtown, shopping centers, and other pedestrian corridors. The network then becomes a practical solution for pedestrian connectivity.



CHAPTER OUTLINE:

- 3.0 OVERVIEW
- 3.1 METHODOLOGY
- 3.2 NETWORK FACILITY TYPES
- 3.3 CORRIDOR IMPROVEMENTS
- 3.4 HUB IMPROVEMENTS
- 3.5 CROSSING IMPROVEMENTS
- 3.6 REGIONAL CONNECTIVITY

The 'hub and spokes' model (right) illustrates how key destinations can be linked through various types of pedestrian facilities.

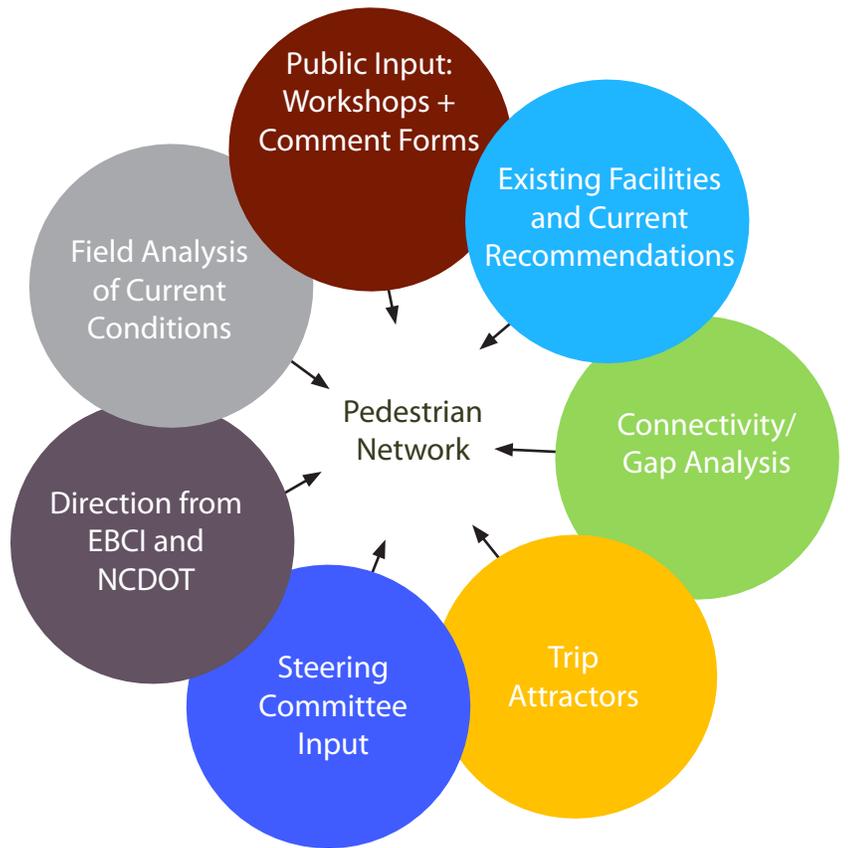




Successful development of the pedestrian network will require a long-term, cooperative effort between the EBCI, the local North Carolina Department of Transportation Division 13, and other local and state agencies. Cooperative effort is important because Cherokee cannot implement recommendations for pedestrian facilities on state and federal roads without DOT sanction.

3.1 METHODOLOGY

A variety of sources were consulted during the development of the Pedestrian Network: previous plans and studies, maps of existing pedestrian conditions, the consultant's fieldwork inventory, public input, and noted pedestrian trip destinations. Fieldwork included an examination of conditions at all major intersections, conditions along primary corridors, conditions at pedestrian hubs, and a consideration of gap connectivity. Map discussion and analysis was conducted at steering committee meetings and public meetings to pinpoint specific areas in need of pedestrian improvements.



3.2 NETWORK FACILITY TYPES

The Proposed Pedestrian Network for Cherokee consists of three types of projects:

- Corridor projects (sidewalks/greenways) - The recommended sidewalks and greenways in Cherokee aim to expand upon the existing network of sidewalks to provide a more connected system.
- Hub improvements - Sites with intense pedestrian activity require more specific recommendations and additional pedestrian treatments are recommended here.
- Crossing improvements - Pedestrians have a much greater risk of being struck by a vehicle when crossing a roadway as opposed to walking on the shoulder or sidewalk beside it. Nationally, nearly 75% of all police-reported pedestrian crashes involve pedestrians crossing roadway travel lanes.

All intersections and mid-block crossings in Cherokee need some form of improvement. Some of the treatments recommended in this chapter have been proven to reduce crashes, as shown in the 2007 FHWA Crash Reduction Factors Study (<http://safety.fhwa.dot.gov>). The table below shows some typical countermeasures and associated crash reduction factors from that study.

Countermeasure	Crash Reduction Factor
Install sidewalk	74%
Install pedestrian countdown signal heads	25%
Install pedestrian refuge islands	56%
Improve/install pedestrian crossings	25%

Together these proposed facilities should be developed or improved to create a safe and connected pedestrian network throughout Cherokee. On-road and off-road components should be integrated to provide a connected pedestrian transportation and recreation network. All pedestrian facility projects undertaken by the EBCI should aim to meet the highest standards possible when topography and right-of-way allows. Design guidelines in Chapter 6 provide detailed information regarding facility type, treatment, and proper placement.

**The following recommendations for each project type are developed at a planning level. Each of these locations will need a more detailed project-level review. The conclusions reached through more detailed review may vary from those presented herein.*



3.3 CORRIDOR IMPROVEMENTS

Corridor projects aim to create greater connectivity across all of Cherokee and utilize major roadway corridors. In total, 11 miles of sidewalk are recommended along with 1 mile of trail. All sidewalk gaps should be filled along the following routes using design standards presented in Chapter 6. See Map 3.1 on adjoining page.

Driveway access management is critical. This is achieved by limiting or decreasing the number of driveway/parking lot entrances and width of the entrances. This lessens the number of crossings for pedestrians and shortens the crossings as well.



The US 441 corridor, south of US 19, sees regular foot traffic (footpath resulting in above picture). Sidewalk that extends to the Casino Trail/US 441 shopping center would make the walk safer and more enjoyable (photo visualization in bottom picture). The Draft Jackson County CTP includes pedestrian elements along US 441 to the Casino Trail intersection.

- 7** Big Cove Road
- Provide sidewalk on one side of road from Acquoni Road to new schools. If space is limited, provide clearly designated shoulder or sidewalk without buffer.
- Constraints: Few, some locations where space and ROW is an issue*

- 1** US 19 CBD
- Create a continuous, separated pedestrian space from US 441 to Whitewater Drive on both sides
 - Provide ADA accessible ramps and curb ramps
- Constraints: Multiple businesses, inconsistent storefronts, sidewalk clutter, stairs, on-street parking and parking lots; will require big expenditure/effort*

- 2** US 19 East of Casino
- Provide separated sidewalk or sidepath from casino eastward to residential areas (both sides from Casino to Wrights Creek Road; one side eastward from Wrights Creek Road)
- Constraints: Few, homeowners concern and drainage issues*

- 3** US 441 North
- Create a continuous, separated pedestrian space from trail-head southward to US 19 (both sides where topographically feasible)
- Constraints: Businesses, inconsistent storefronts, parking lots, will require significant expenditure/effort*

- 4** US 441 South
- Provide separated sidewalk along US 441 from US 19 southward to Casino Trail (both sides from US 19 to Casino Trail; east side of US 441 southward from US 441 to residential street)
- Constraints: Few*

- 5** Whitewater Drive
- Provide separated sidewalk (or clearly designated shoulder in spaces where topography does not allow) on the river side.
- Constraints: Space between road and river*

- 6** River Greenway Trail
- Complete trail from current end at day care center to Acquoni Rd/441 intersection
 - Complete short connection between current southern end through parking lot to pedestrian bridge (creating a more clear designated space for pedestrians through parking area)
- Constraints: Homeowners concern*



3.4 HUB IMPROVEMENTS

Hub improvement projects are recommended in areas of Cherokee in which pedestrian traffic can be particularly heavy and where safety is a concern (See Map 3.2). This is due in large part to visitors to Cherokee. These areas should be improved to the highest quality standard, using the design guidelines in Chapter 6. The recommendations provided here are planning-level analysis only. Further study and engineering is required.

1

SAUNOOKE VILLAGE

- Decrease number and size of driveway entrances into parking lots - replace with curb/planted strip/sidewalk.
- Slightly reduce and/or re-orient parking spaces to facilitate pedestrian accommodations. Consider utilizing parking lot across US 441 for people accessing this shopping center. A few parking spaces may need to be eliminated to provide space for bulb-outs. Also, parking that is currently adjacent to roadway will need to be reduced where curb and sidewalk is added.
- Connect hotels and businesses through walking paths and crosswalks.
- Provide consistent, safe, accessible pedestrian walkway accommodations along storefronts.
- Add clear signage indicating sites of pedestrian travel and crossings.
- Improve intersection of Acquoni Road/US 441 by adding highly visible marked crosswalks, curb ramps, and countdown signals.
- Provide pedestrian connection across large parking lot.
- Improve one of river bridges and make more publicly accessible.
- Add highly visible marked crosswalks across all driveway entrances.

Constraints: need to negotiate with local business owners for parking modifications, will require significant expenditure/effort



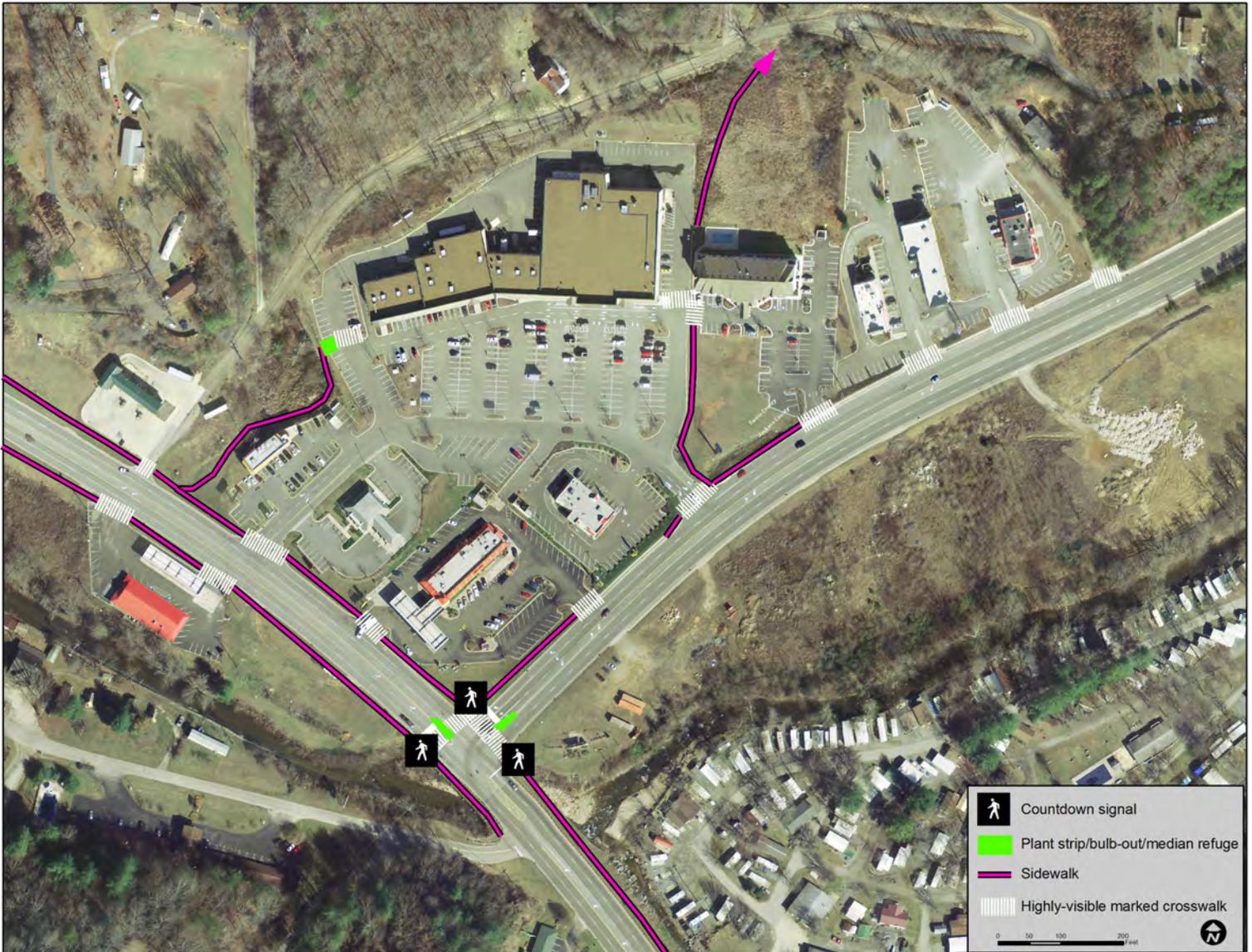
2

CASINO TRAIL/US 441 GROCERY/SHOPPING CENTER

This is an important destination as it provides a grocery store and other shopping options for residents. The Draft Jackson County CTP includes pedestrian elements along US 441 to the intersection of Casino Trail.

- Add sidewalk along US 441 with highly visible marked crosswalks across entrances.
- Improve Casino Trail/US 441 intersection with highly visible marked crosswalks, curb ramps, advanced stop lines, pedestrian countdown signals, and median refuge islands.
- Complete sidewalk on north side of Casino Trail to intersection of US 441 (Add highly visible marked crosswalks at all entrances).
- Add sidewalk into shopping center from US 441 and Casino Trail; Provide curb bulb-outs and highly visible marked crosswalks at parking lot crossings.
- Consider enhancing pedestrian connectivity from housing behind shopping center (paved trail) and trailer park across Casino Trail (paved trail and creek bridge to intersection crossing).
- Improve illumination by providing pedestrian-scale lighting that illuminates area for pedestrians and makes pedestrians more visible to motorists.

Constraints: need to work with NCDOT to improve intersection, will need to work with shopping center owners to improve access within parking lot area





CASINO AREA/US 19

3

- Add sidewalk along US 19 both sides from existing sidewalk (west side of map) eastward beyond the Casino.
- Work with business owners along US 19 (especially southern side) to reduce the number of driveways and size of driveways. Where driveways must stay, provide highly visible marked crosswalks.
- Add small curb extensions at main Casino entrance and US 19 to shorten crossing distance for pedestrians.
- Shift existing marked crosswalk from Days Inn to the Casino slightly to west so that it does not direct pedestrians into driveway. Provide curb ramp and signage.
- Add highly visible crosswalks throughout Casino property where sidewalk crosses a driveway.
- Add in-roadway pedestrian crossing signs at Casino main entrance crosswalk/pedestrian signal.
- Provide pedestrian-scale lighting from Casino Trail eastward beyond the Casino (This will create safer illumination for pedestrians and drivers. Many visitors stay in hotels across US 19 and many Casino workers walk to and from work).
- Remove portion of Casino driveway entrance and add planting strip/curb/sidewalk (see west side of map).
- Add median refuge island and pedestrian crossing at west end of parking lot to Casino pedestrian walkway.

Constraints: need to work with NCDOT to improve crossings over US 19, will need to work with business owners on south side of US 19 to incorporate sidewalks and reduce driveway sizes and entrances



Map 3.2 Pedestrian Hub Improvements

Great Smoky Mountains National Park

Legend

- Schools
- Churches
- Bus Stops
- Recommended Sidewalk
- Existing Sidewalk
- Recommended Trail
- Existing Trail
- Existing Crosswalk
- Buildings
- Roads
- Major roads
- Streams
- County Boundary
- GSMNP

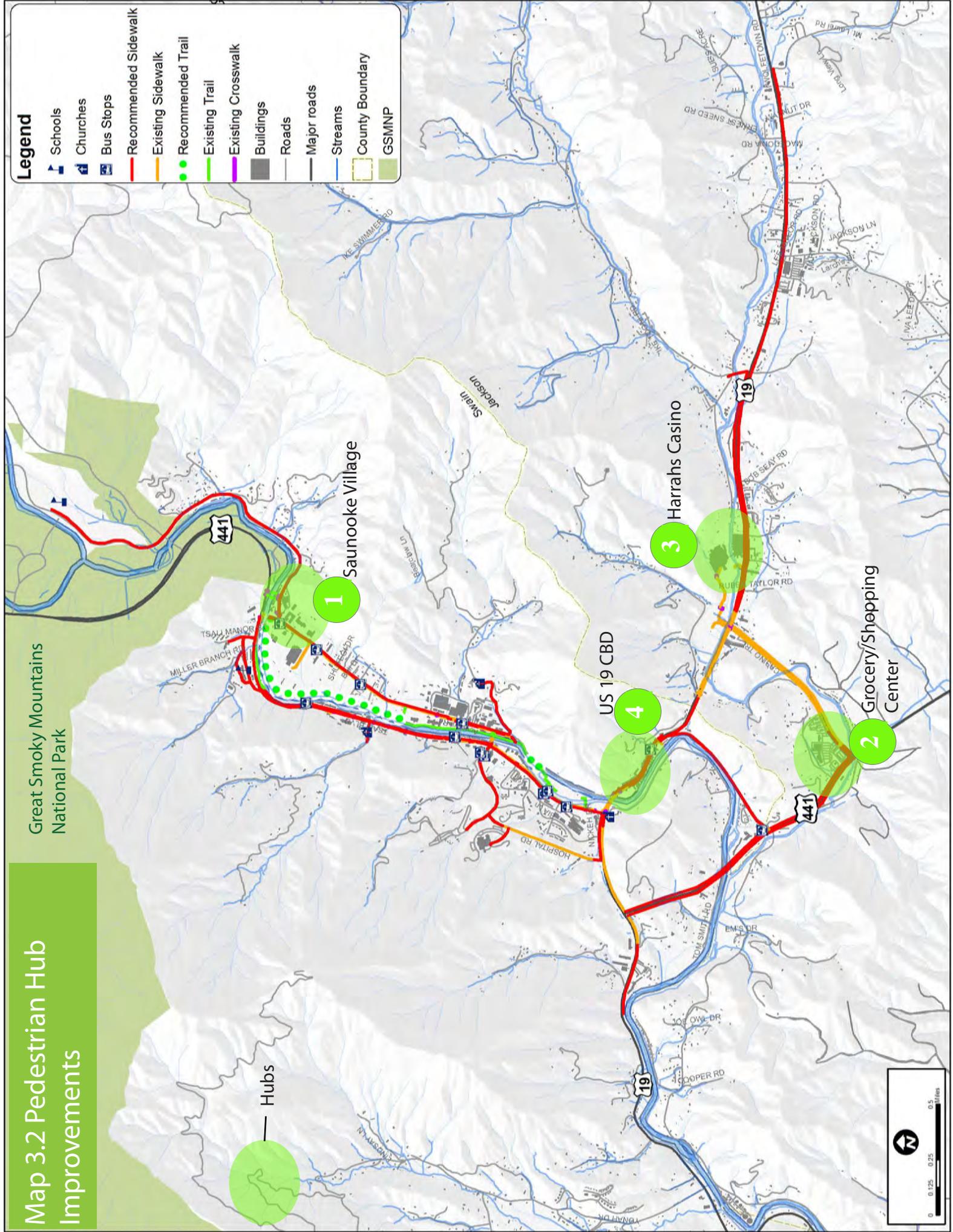
Hubs

1 Saunooke Village

3 Harrahs Casino

4 US 19 CBD

2 Grocery/Shopping Center





CHAPTER 3 PEDESTRIAN NETWORK

Photo Visualizations: The following renderings present improved pedestrian conditions in the US 19 Casino area.



The US 19 corridor near Harrahs casino (one of the four hub projects) would be greatly improved with pedestrian connectivity along both sides of US 19. Tourists and Casino workers often walk at night so pedestrian lighting is critical with overall pedestrian improvements.





As part of addressing Hub 3 (US 19/Casino area), traffic calming and safe crossings should be developed. A number of pedestrians will cross the road from their hotels anywhere west of the casino. By providing continuous sidewalk, lighting, and an additional clearly designated crossing (as shown below), the pedestrian environment would be improved dramatically. In order to achieve the median refuge, coordination will need to occur with Harrah's casino.



All photo renderings in this chapter are simply visualizations and do not substitute for accurate design.



US 19 CBD SHOPPING AREA

4

Perhaps the most important hub for pedestrian improvements, a few scenarios for improvement are provided. While rough measurements were made to develop these, the scenarios are truly conceptual in nature and further analysis, design, and engineering guidance is necessary. Ideally, parking would be reduced and/or moved to another location such as a parking garage.

Scenario 1: Reduce US 19 to three lanes with center median and turn lane (Roadway reconfiguration)

- Best scenario for pedestrians with traffic calming, shorter crossing distances, and wider sidewalks
- Fewer marked crosswalks but more clearly defined with bulb-outs, thus removing some parking
- Major, center crosswalk with pedestrian-activated signal to stop traffic
- Continuous sidewalk on both sides separated from roadway/parking driveways
- Reduction in number of driveways and entrances
- Median island in sections where center turn lane isn't necessary
- Tree plantings and landscaping to enhance aesthetic
- Traffic counts here range from 11,000 to 14,000 according to NCDOT, well within range of typical road diet application (See Chapter 6: Design Guidelines for more information on road diets).

Constraints: need to work with NCDOT on all modifications and crossings to US 19, will need to work with business owners on pedestrian improvements in front of their stores and possible parking modifications; will require big expenditure/effort.



Scenario 2: Keep US 19 four lanes but enhance pedestrian conditions

- Fewer marked crosswalks but more clearly defined with bulb-outs, thus removing some existing parking
- Major, center crosswalk with pedestrian-activated signal to stop traffic
- Continuous sidewalk on both sides separated from roadway/parking driveways
- Reduction in number of driveways and entrances.
- Tree plantings and landscaping to enhance aesthetic

Constraints: need to work with NCDOT on all modifications and crossings to US 19, will need to work with business owners on pedestrian improvements in front of their stores and possible parking modifications; will require big expenditure/effort





Scenario 3: Keep US 19 four lanes but change parking to parallel parking along roadway and enhance pedestrian conditions.

- Fewer marked crosswalks but more clearly defined with curb bulb-outs, thus removing some existing parking
- Major, center crosswalk with pedestrian-activated signal to stop traffic
- Continuous sidewalk on both sides separated from roadway/parking driveways
- Tree plantings and landscaping to enhance aesthetic

Constraints: need to work with NCDOT on all modifications and crossings to US 19, will need to work with business owners on pedestrian improvements in front of their stores and possible parking modifications; will require big expenditure/effort



Photo Visualization: The following renderings present improved pedestrian conditions in the US 19 CBD area. Below are two visualizations of the same crosswalk from different angles. A raised, marked crosswalk, with curb extensions (in place of existing parking), curb ramps, plantings, and in-roadway pedestrian crossing signs would slow traffic and lessen the crossing distance for pedestrians.



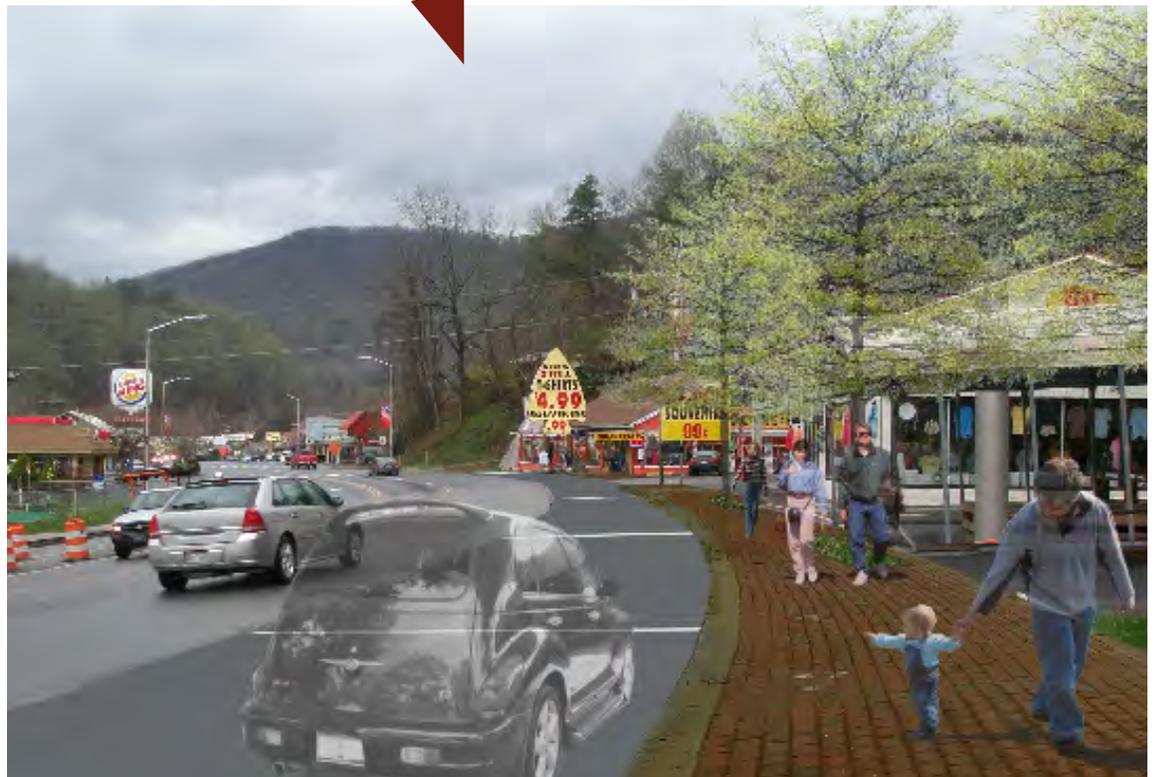


CHAPTER 3 PEDESTRIAN NETWORK

The rendering below shows US 19 CBD, viewing west, near the Whitewater intersection. Currently, parking adjoins the roadway, creating hazardous conditions for pedestrians. Creating a clearly defined and separated pedestrian space, as shown in the rendering, will encourage more walking and browsing in stores.



Driveway access management is critically important to providing pedestrians a separated space for walking. This may be addressed in a number of ways along the highly-varied storefront along US 19.

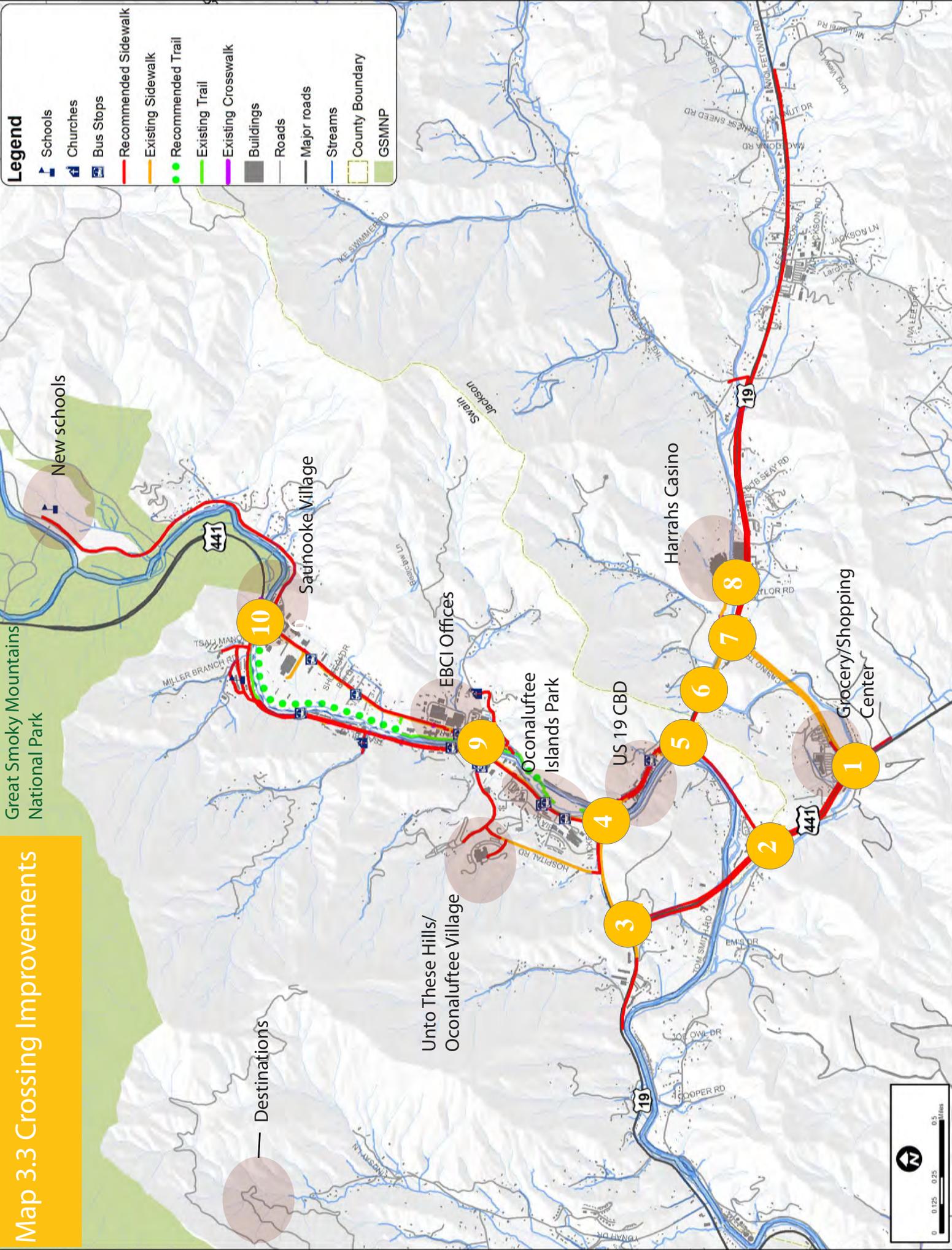


All photo renderings in this chapter are simply visualizations and do not substitute for accurate design.

Map 3.3 Crossing Improvements

Legend

- Schools
- Churches
- Bus Stops
- Recommended Sidewalk
- Existing Sidewalk
- Recommended Trail
- Existing Trail
- Existing Crosswalk
- Buildings
- Roads
- Major roads
- Streams
- County Boundary
- GSMNP



Great Smoky Mountains National Park

Destinations

0 0.125 0.25 0.5 Miles



3.5 CROSSING IMPROVEMENTS

Safe pedestrian crossings are critical for providing a comprehensive, connected system. At minimum, all intersections should feature highly-visible marked crosswalks and curb ramps. Any pedestrian signal added must be countdown due to new MUTCD regulations.

A detailed inventory of design features for the intersection improvements discussed below may be found in Chapter 2, Table 2.1



US 441 and Casino Trail.

1

US 441/Casino Trail

- Needs sidewalk all directions
- Stripe highly-visible marked crosswalks with advance stop lines (crossing US 441 on NW side and crossing Casino Trail)
- Provide countdown signals (crossing US 441 on NW side and crossing Casino Trail)
- Construct new curb ramps
- Provide median refuge islands
- Reduce turning radius with small curb extensions
- Provide pedestrian warning signs on roadways leading to intersection



US 441 and Whitewater Drive.

2

US 441/Whitewater Dr.

- Needs sidewalk all directions (one side of Whitewater only)
- Stripe highly-visible marked crosswalks with advance stop lines
- Provide countdown signals
- Construct new curb ramps
- Provide median refuge islands (for crossing US 441)
- Reduce turning radius with small curb extensions



3

US 441/US 19 (west)

- Needs sidewalk on both sides (US 441)
- Stripe highly-visible marked crosswalks with advance stop lines
- Provide countdown signals
- Construct new curb ramps
- Provide median refuge islands



US 19 and US 441.

4

US 441/US 19 (east, at bridge)

- Needs sidewalk on US 19/US 441 west of intersection
- Stripe and restripe highly-visible marked crosswalks with advance stop lines
- Provide countdown signals
- Construct new curb ramps
- Initiate driveway access management for businesses on northwest side of intersection



US 19 and US 441, from front of church with construction occurring at the river bridge.



Driveway access management issues at US 19 and Whitewater Drive, facing west from intersection along US 19.

5

US 19/Whitewater Dr.

- Needs sidewalk all directions (one side of Whitewater) - Driveway access management needed on US 19
- Stripe highly-visible marked crosswalks with advance stop lines
- Provide countdown signals
- Construct elevated, planted pork chop island as a pedestrian refuge with curb ramps
- Construct new curb ramps
- Provide median refuge islands



US 19 and Stillwell Branch Rd.

6

US 19/Stillwell Branch Rd.

- Stripe highly-visible marked crosswalks with advance stop lines
- Provide countdown signals
- Construct new curb ramps and reconstruct existing curb ramps following design guidelines in Chapter 6



7

US 19/Casino Trail

- Restripe existing marked crosswalks to make highly-visible marked crosswalks with advance stop lines
- Provide countdown signals at “pork chop” islands.
- Reconstruct existing curb ramps following design guidelines in Chapter 6
- Construct elevated, planted pork chop island as a pedestrian refuge with curb ramps
- Provide median refuge islands



The US 19 and Casino Trail intersection can be dramatically improved for pedestrians by developing an elevated “pork chop” island and highly-visible marked crosswalks.

8

US 19/Casino Main Entrance

- Needs sidewalk both sides of US 19
- Restripe existing marked crosswalks to make more highly-visible marked crosswalks with advance stop lines
- Reduce turning radius with small curb extensions into and out of Casino entrance
- Reconstruct existing curb ramps following design guidelines in Chapter 6



US 19 and Casino entrance, picture taken just west of intersection along US 19.



A family crosses US 441 at the Tsali Blvd/Drama Rd. intersection.



Above and below: US 441/Acquoni Road features some crossing features but is still lacking important treatments features.



9

US 441/Drama Rd (Tsali Blvd.)

- Needs sidewalk on west side of US 441 and on Drama Rd.
- Stripe highly-visible marked crosswalks that cross US 441 on north side of intersection
- Provide advanced stop lines
- Construct new curb ramps following design guidelines in Chapter 6
- Provide curb extensions to reduce turning radii
- Provide countdown signals crossing US 441 on north side
- Cut back vegetation that causes sight obstruction
- Provide pedestrian warning signs

10

US 441/Acquoni Rd.

- Needs sidewalk on north side of US 441
- Stripe new highly-visible marked crosswalks that cross Acquoni Rd.
- Provide advanced stop lines
- Construct new curb ramps following design guidelines in Chapter 6
- Make existing pedestrian refuge island wider
- Provide curb extensions to reduce turning radii
- Provide additional countdown signals and re-locate push-button for improved access for pedestrians.

3.6 REGIONAL CONNECTIVITY

The EBCI should look beyond its city limits and link pedestrian facilities to neighboring and regional destinations, such as the the Great Smoky Mountains, Bryson City, and Maggie Valley.

It is recommended that Cherokee coordinate efforts with surrounding communities to create long distance connections for alternative transportation and recreation, particularly through greenway corridor development. Regional greenway trail connections will encourage and draw individuals to Cherokee from surrounding areas. Opportunities can come along stream or rail corridors.

To date, a number of groups have developed a vision of connecting Cherokee to Maggie Valley via a greenway that follows a sewer easement and along Soco Road. Also, there is a rail-trail vision connecting Dillsboro, Bryson City, and Cherokee along an old railroad bed. The EBCI should work with these groups as long-distance trails provide substantial economic opportunity.



Chapter 4: Program and Policy Recommendations

This section provides guidance for education, encouragement, and enforcement programs. It also establishes key policies for the EBCI to ensure that future development provides appropriate pedestrian accommodation.



4.0 OVERVIEW

Meeting the goals of the Cherokee Pedestrian Transportation Plan will require more than construction and installation of recommended pedestrian facilities. It will also require the initiation and continued support of pedestrian-related programs from the local officials, local residents, and community organizations. In addition, the implementation of these facilities and programs will require the adoption and enforcement of new pedestrian-related policies. This chapter outlines recommended programs, policies, and in some cases, policy changes for Cherokee to meet the needs of pedestrians that cannot be met through facility construction alone.

4.1 PROGRAM RECOMMENDATIONS

Pedestrian-related programs fall into three main categories: education, encouragement, and enforcement. The programs listed below are provided to demonstrate the variety of opportunities that exist for promoting walking and active lifestyles in Cherokee. Communities all across North America are using these programs. Cherokee should work closely with local volunteers and community organizations to initiate at least one of the following programs or events (whichever are deemed the most appropriate and/or feasible to those organizing) within the first year of adopting this plan. Also, it will be necessary for staff to be assigned to focus on programming, researching additional program ideas, and working with local groups, non-profits, schools, and citizens to develop programs further.

4.2 EDUCATION PROGRAMS & RESOURCES

Education Actions

- Create a local pedestrian advocacy group.
- Consider sponsoring annual training sessions for pedestrian design/review
- Consider sponsoring a session for law enforcement focusing

CHAPTER OUTLINE:

4.0 OVERVIEW

4.1 PROGRAM RECOMMENDATIONS

4.2 EDUCATION PROGRAMS & RESOURCES

4.3 ENCOURAGEMENT PROGRAMS & RESOURCES

4.4 ENFORCEMENT PROGRAMS & RESOURCES

4.5 POLICY RECOMMENDATIONS



on pedestrian issues

- Create a self-guided walking tour of downtown historical/cultural sites utilizing the existing island park and greenway.
- Establish outdoor classrooms utilizing interpretative signage in open space, parks, greenways, etc.
- Produce and/or obtain a variety of safety materials for distribution to various age groups and at various events/locations

Education Program Information

Pedestrian Advocacy Groups (Parks and Recreation Advisory Board)

Cherokee should actively participate in the creation of a local pedestrian advocacy group, including members of the Eastern Band of Cherokee Indians. Local advocacy groups are beneficial resources for promoting safe pedestrian travel, providing feedback on opportunities and obstacles within the pedestrian system, and coordinating events and outreach campaigns (such as the programs outlined throughout this section). Advocacy groups also play a critical role in encouraging and evaluating the progress of overall plan implementation.

Public Education

Educational materials can focus on safe behaviors, rules, and responsibilities. Information may include important pedestrian laws, bulleted keys for safe pedestrian travel, safe motor vehicle operation around pedestrians, and general facility rules and regulations. This safety information is often available for download from national pedestrian advocacy organizations, such as the Pedestrian and Bicycle Information Center website, www.walkinginfo.org.

Information can be distributed through brochures, newsletters, newspapers, bumper stickers, and other print media that can be inserted into routine mailings. It can also be posted on municipal websites. Local events should be utilized to distribute information and a representative from the pedestrian advocacy group can answer questions related to pedestrian safety. A booth could also be used to display safety information at various community events.

Internal Education

'Internal' education refers to the training of all people who are involved in the actual implementation of the Pedestrian Transportation Plan. Internal training will be essential to institutionalizing pedestrian issues into the everyday operations of engineering, planning, and parks and recreation departments. In addition to relevant Town staff, members of the Cherokee De-





partment of Transportation, NCDOT Division 14 staff should also be included in training sessions whenever possible. This training should cover all aspects of the transportation and development process, including planning, design, development review, construction, and maintenance. This type of 'inreach' can be in the form of brown bag lunches, professional certification programs and special sessions or conferences. Even simple meetings to go over the Pedestrian Plan and communicate its strategies and objectives can prove useful for staff and newly elected officials that may not have otherwise learned about the plan. Pedestrian planning and design issues are complex, and national research and guidelines continue to evolve. Therefore, training sessions need to be updated and repeated on a regular basis.

Local law enforcement should be trained in accurate reporting of pedestrian crashes involving automobiles. In many communities, police do not always adequately understand the rights of pedestrians. Proper interpretation of individual circumstances and events is critical for proper enforcement and respect between motorists and pedestrians. Special training sessions should be instituted and occur annually for new employees within the Police Department that focus on laws relating to pedestrian travel.

Environmental and Historic Education/Interpretation

Educational programs and interpretative signage could be developed along greenways, trails, and pedestrian routes. Greenways provide opportunities for learning outside the classroom. Specific programs that focus on water quality and animal habitat are popular examples. Events such as learning walks about specific animals or insects, tree identification, wildflower walks, environmental issues, stewardship education, and sustainability could be led by area experts. Also, simple educational signage would offer interactive learning opportunities for people who use the trail. A great location this could be implemented at is the Oconaluftee Islands Park and newly constructed boardwalk greenway as mentioned in the Cherokee CBD Master Plan.

Interpretive Trails/Guided Tours

An educational component to the pedestrian network could be added by developing historical, cultural, and environmental themes for the facilities. This idea can be adapted to create walking tours throughout Cherokee, using signage to identify the events, architecture, and landmarks that make Cherokee unique. These tours should be simple to navigate and should stand alone as an amenity. However, brochures can be used





CHAPTER 4 PROGRAM & POLICY RECOMMENDATIONS

to supplement signage with more detailed information and a map of the tour. Other ideas to supplement the signage could be organized “talks” or lectures by local experts.

Education Resources

America Walks is a national coalition of local advocacy groups dedicated to promoting walkable communities. Their mission is to foster the development of community-based pedestrian advocacy groups, to educate the public about the benefits of walking, and, when appropriate, to act as a collective voice for walking advocates. They provide a support network for local pedestrian advocacy groups. <http://americawalks.org>

Safe Communities is a project of the National Highway Traffic Safety Administration (NHTSA). Nine agencies within the U.S. Department of Transportation are working together to promote and implement a safer national transportation system by combining the best injury prevention practices into the Safe Communities approach to serve as a model throughout the nation. <http://www.nhtsa.dot.gov/safecommunities>

Additional resource: <http://safety.fhwa.dot.gov/ped%5Fbike/education/>





Utilize the Speed Campaign Tool Kit. The intent of this National Highway Traffic Safety Administration (NHTSA) tool kit is to provide marketing materials, earned media tools, and marketing ideas for communities to distribute to fit local needs and objectives while at the same time partnering with other states, communities, and organizations all across the country on a speed management program. It includes messaging and templates you may choose from to support your speed management initiatives. Free TV and radio materials, posters, billboards, and other media materials can be downloaded here: <http://www.nhtsa.gov/speed/toolkit/index.cfm>.

Stepping Out is an online resource for mature adults to learn about ways to be healthy by walking more often, and walking safely. www.nhtsa.dot.gov/people/injury/olddrive/SteppingOut/index.html

Pedestrian Fatalities Related to School Travel is a fact sheet pertaining to school age children (NHTSA). <http://www.nhtsa.gov/gtss/kit/pedestrian.html>

Safe Kids Worldwide is a global network of organizations whose mission is to prevent accidental childhood injury, a leading killer of children 14 and under. More than 450 coalitions in 15 countries bring together health and safety experts, educators, corporations, foundations, governments and volunteers to educate and protect families. Visit their website to receive information about programs, involving media events, device distribution and hands-on educational activities for kids and their families. <http://www.safekids.org/>

Rules of the Road for Grandchildren: Safety Tips is an information website for grandparenting. If you are a grandparent, you can play an important role in teaching your grandchildren the "rules of the road." AARP- <http://www.aarp.org/family/grandparenting/>

<http://www.aarp.org/confacts/grandparents/rulesroad.html>
Streets in America are Unsafe and Unforgiving for Kids. Article by the Pedestrian Safety Roadshow. U.S. Department of Transportation. Federal Highway Administration.

<http://www.tfhrc.gov/safety/pedbike/articles/unsafe.htm>
Focusing on the Child Pedestrian. Pedestrian information related to children from the FHWA. <http://safety.fhwa.dot.gov/roaduser/pdf/PedFacts.pdf>



Eat Smart, Move More is a statewide movement that promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play and pray. <http://www.eatsmartmovemorenc.com/>

NCDOT Division of Bicycle and Pedestrian Transportation provides significant information related to pedestrian programming.

<http://www.ncdot.org/transit/bicycle/>

4.3 ENCOURAGEMENT PROGRAMS & RESOURCES

Encouragement Actions

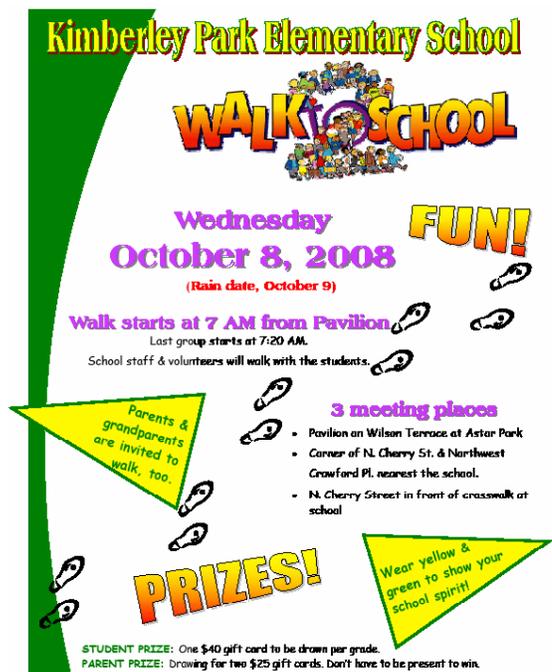
- Encourage children to walk to school, safely, through a combination of programs, listed under encouragement resources
- Establish awareness days
- Encourage the establishment of walking clubs
- Use pedestrian facilities, particularly trails, to promote causes and hold special events for causes
- Utilize greenways for artwork and plantings

Encouragement Program Information

School Programs

Many programs exist to aid communities in developing safer pedestrian facilities around schools. Programs can be adopted by parents or the schools to provide initiatives for walking or biking. Information is available to encourage group travel, prevent pedestrian related injuries, and sponsor commuter related events. For example, a 'Walking School Bus' is an encouragement program that provides an alternative way to transport children to school. A parent can be responsible for accompanying a group of children to school by utilizing the pedestrian system in Cherokee.

Community leaders, parents and schools across the U.S. are using Safe Routes to School programs to encourage and enable more children to safely walk and bike to school. The National Center for Safe Routes to School aims to assist these communities in developing successful Safe Routes programs and strategies. The Center offers a centralized resource of information on how to start and sustain a Safe Routes to School program, case studies of successful programs as well as many other resources for training and technical assistance. For more information on Safe Routes to School, refer to the 'Encouragement Resources' section below.





Awareness Days/Events

A specific day of the year can be devoted to a theme to raise awareness and celebrate issues relating to that theme. A greenway and its amenities can serve as a venue for events that will put the greenway on display for the community. Major holidays and popular local events serve as excellent opportunities to include pedestrian information distribution. The following are examples of other national events that Cherokee can use to improve usage of pedestrian facilities:

Walk to Work Day/International Car Free Day (September 22)

Designate one day a year for people to walk to work to help advance programs, promote active living, and raise awareness for environmental issues. Walk to Work Day can be at the end of an entire week or month of pedestrian promotional activities, including fitness expos, walking and jogging group activities, running and bicycling races and rides, etc.

“Strive Not to Drive Day”

This event example, from the Town of Black Mountain, NC, is an annual event to celebrate and promote the Town’s pedestrian achievements for the year throughout their region. Awards for pedestrian commuters, as well as booths, contests, and other events are organized through their local MPO Bicycle and Pedestrian Task Force and the Land-of-Sky Regional Council. A similar event could be held in Cherokee, as the Pedestrian Plan is implemented.

National Trails Day

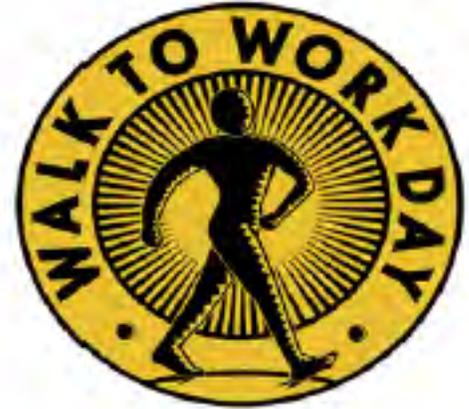
This event is held every year in June. Other events, competitions, races, and tours can be held simultaneously to promote trail use within Cherokee. The Parks and Recreation-Trails Division sponsors National Trails Day for the City of Greensboro every year and it has become a huge event for the City.

Earth Day

Earth Day is April 22nd every year and offers an opportunity to focus on helping the environment. Efforts can be made to encourage people to help the environment by walking to destinations and staying out of their vehicles. This provides an excellent opportunity to educate people of all ages in Cherokee.

Walk to School Day

Walk to School Day is an annual, international event that occurs in October. The goal of the event is to enhance the health of kids, improve air quality and the environment, and to cre-





ate safer route for walking and bicycling. (<http://www.walktoschool.org>).

Use Facilities to Promote Other Causes

Network facilities, especially trails, could be used for events that promote other causes, such as health awareness. Not only does the event raise money/publicity for a specific cause, but it encourages and promotes healthy living and an active lifestyle, while raising awareness for pedestrian activities. Non-profit organizations such as the American Cancer Society, American Heart Association, and the Red Cross sponsor events such as Breast Cancer Walk, Diabetes Walk, etc.

Pedestrian Activities/Promotion Within Local Organizations

Cherokee has numerous organizations that could be utilized to promote pedestrian activities (Eastern Band of Cherokee Indians, Cherokee Chamber of Commerce, local schools/PTAs, neighborhood groups, store owners, etc). Education, enforcement, and encouragement programs can be advertised and discussed in local organization newsletters, seminars, and meetings. Such organizations could even organize their own group walks, trail clean-ups, and other activities listed in this section.

Art in Landscape

The inclusion of art along pedestrian corridors and trails would encourage use of facilities and provide a place for artwork and healthy expression to occur. Artwork could be displayed in a variety of ways and through an assortment of materials. Living artwork could be “painted” through the design and planting of various plant materials. Sculpture gardens could be arranged as an outdoor museum. Art through movement and expression could be displayed during certain hours during the day or during seasonal events. An “Art Walk” could be established as an event featuring destinations throughout Cherokee that display local art. Artwork can be provided by local schools, special interest clubs and organizations, or donated in honor or memory of someone. A great example of this is the pedestrian plaza in Downtown Cherokee. This plaza’s theme could be mimicked throughout Cherokee to provide a cohesive focus within all of Cherokee as mentioned in the Cherokee Comprehensive Economic Development Strategy.

Walking/Running Clubs

Neighborhoods, local groups, or businesses could promote walking or running clubs for local residents or employees to meet at a designated area and exercise on certain days before





or after work, during lunch breaks, or anytime that works for the group. This informal group could be advertised on local bulletin or information boards. These clubs could be specialized to attract different interest groups. Examples include:

- Relay for Life (cancer support)
- Mother’s Morning Club (mom’s with strollers)
- Walking Wednesdays (senior groups)
- Lunch Bunch (office workers who run during their lunch hour)

Adopt-a-Trail

Local clubs and organizations provide great volunteer services for maintaining and patrolling trails. This idea could be extended to follow tour routes or specified streets/sidewalks. A sign to recognize the club or organization could be posted as an incentive to sustain high quality volunteer service. The Boy Scouts of America serve as a good model for participation in this type of program.



Revenue Generating Programs

Cherokee should be proactive in increasing revenue from programs and events that can help fund the building, management, and maintenance of future facilities. Fees could be increased in events annually or biannually to increase revenue. Specific program and event ideas that are being used to generate revenue across the country include:

- Races/triathlons (fees and/or donations)
- Concessions
- Educational walks/Nature walks/Historic walks (fees and/or donations)
- Fund-raisers including dinners/galas
- Moonlight bike rides and walks (fees and/or donations)
- Greenway parade (fees and/or donations)
- Concerts (fees and/or donations)
- Art events along greenway (fees and/or donations)
- Events coincident with other local events such as fairs, festivals, historic/folk events, etc.
- Media events and ribbon-cuttings for new walkways (donations)

Encouragement Resources

Safe Routes to School is a national program with \$612 million dedicated from Congress from 2005 to 2009. Local Safe Routes to School programs are sustained by parents, community leaders, and citizens to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. Recently, the state of North Carolina has started the NC Safe Routes to School Program based off of the national program. The state has \$15 million over the next 5 years for





infrastructure improvements within 2 miles of schools. This funding can also be used towards the development of school related programs to improve safety and walkability initiatives. The state requires the completion of a competitive application to apply for funding and a workshop at the school to determine what improvements are needed. <http://www.safer-outesinfo.org>

National Walk our Children to School Day is usually held in October with the objective to encourage adults to teach children to practice safe pedestrian behavior, to identify safe routes to school, and to remind everyone of the health benefits of walking. To register walking events in Cherokee, go to the main webpage, and follow the International Walk to School links: www.walktoschool-usa.org

Walk a Child to School in North Carolina. Forty years ago, half of all U.S. school children walked to school. Today, according to the Centers for Disease Control, only an estimated 10 percent walk to school. In many communities, as much as 30 percent of morning commuter traffic is generated by parents driving their children to school. These traffic habits and children's lifestyle choices can have serious consequences. Traffic jams around our schools foul the air, waste fuel, and create safety problems for children. In addition, the U.S. Surgeon General recently reported that thirteen percent of children aged 6 to 11 years and 14 percent of adolescents aged 12 to 19 were overweight in 1999. This statistic has nearly tripled in the past two decades for adolescents. A growing number of community groups throughout the nation, such as health professionals, 'Smart Growth' advocates, traffic safety groups, local PTAs, and elected officials, are promoting walking to school initiatives. In North Carolina, Walk a Child to School Programs have gained a foothold and are growing each year. To date more than 5,000 students in 12 communities in the state have participated. <http://www.walktoschool.org>

Preventing Pedestrian Crashes: Preschool/Elementary School Children provides information to parents on pedestrian risks for preschool and elementary school children. Information about the Safe and Sober Campaign is available on the NHTSA website. www.nhtsa.dot.gov/people/outreach/safesobr/15qp/web/sbprevent.html

Kidswalk-to-School is a resource guide to help communities develop and implement a year-long walk-to-school initiative; sponsored by the Centers for Disease Control and Prevention. <http://www.cdc.gov/nccdphp/dnpsa/kidswalk/>



4.4 ENFORCEMENT PROGRAMS & RESOURCES

Enforcement Actions

- Target and enforce all illegal motorist and pedestrian behavior that may jeopardize the success of the Pedestrian Network
- Require all crossing guards to complete an NCDOT Crossing Guard Training Program
- Establish a crossing guard program for peak school hours
- Establish a local “Pedestrian/Trail Patrol”
- Establish an enforcement hot line
- Develop a simple brochure that outlines local leash laws, to be distributed as warnings from police officers and as education tools at pet stores and veterinarian offices. This may help to reduce incidents where pedestrians are intimidated or even harmed by unleashed dogs.

Enforcement Program Information

Motorist Enforcement

Based on crash data analysis and observed patterns of behavior, law enforcement can use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, parking on sidewalks, etc. Sidewalk parking, for example, is often not enforced but should be in order to maintain pedestrian accessibility, avoid maintenance issues, and comply with local ordinances. All of these key issues should be targeted and enforced consistently. The goal is for pedestrians and motorists to recognize and respect each other’s rights on the roadway.

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





Pedestrian Enforcement

Observations made by local trail and pedestrian facility users can be utilized to identify any conflicts or issues that require attention. To maintain proper use of trail facilities, volunteers could be used to patrol the sidewalks and trails, particularly on the most popular trails and on days of heavy use. The volunteer patrol can report any suspicious or unlawful activity, as well as answer any questions a trail user may have. The volunteer patrol could be a responsibility of the pedestrian advocacy group. When users of the pedestrian network witness unlawful activities, they should have a simple way of reporting the issue to police. A hot line should be created, which would compliment trail patrol programs. People could call in and talk to a live operator or to leave a voice mail message about the activity they witnessed. Accidents could also be reported to this hot line. Accident locations could then be mapped to prioritize and support necessary facility improvements.



Enforcement Resources

NCDOT School Crossing Guard Program

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

NCDOT's A Guide to North Carolina Bicycle and Pedestrian Laws. For an online resource guide on laws related to pedestrian and bicycle safety (provided by the National Highway Traffic Safety Administration), visit

<http://www.ncdot.org/transit/bicycle/laws/resources/BikePedLawsGuidebook-Full.pdf>

School Zone Safety Study

http://www.ncdot.org/transit/bicycle/safety/research_walk-zone.html





4.5 POLICY RECOMMENDATIONS

While the physical recommendations described in this Plan represent an overall pedestrian network, strong pedestrian-oriented policies and regulations are also necessary to ensure these facilities are developed, especially when new development takes place. All recommended policy statements would help Cherokee achieve its vision of becoming a pedestrian-friendly community. Cherokee planning staff should become familiar with these policies and regulations to ensure the full suite of policy tools are used and enforced. Design guidelines to initiate pedestrian development are described in Chapter 6.

Policy statements that require pedestrian facilities with development must be somewhat flexible and practical within regulations for physical restrictions. All decisions need to be environmentally sensitive. Sidewalk locations and widths may need to be modified on a case-by-case basis. There must be a proven environmental constraint for pedestrian modifications.

It is NCDOT policy statewide to consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects. The 2009 NCDOT Complete Streets Policy is found here: http://www.bytrain.org/fra/general/ncdot_streets_policy.pdf.

NCDOT also provides Traditional Neighborhood Development (TND) Street Design Guidelines. These guidelines are available for proposed TND developments, and permits localities to design certain roadways according to TND guidelines rather than conventional subdivision street standards. The guidelines recognize that in TND developments, mixed uses are encouraged and pedestrians and bicyclists are accommodated on multi-mode/shared streets. These guidelines may be found here: <http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf>

It is also recommended that Cherokee complete a Bicycle Transportation Plan similar to this Pedestrian Transportation Plan.

Updates to the Code of Ordinances

The EBCI has a Code of Ordinances that does not address transportation, development, or pedestrian accommodations. For this reason, it is recommended that a new ordinance section



be added that addresses pedestrian accommodations with future development. This section would clearly make bicycle and pedestrian travel a priority.

Several high priority policies for pedestrian facilities are listed below as part of a new Alternative Transportation Chapter. These requirements create a safer and more convenient environment for pedestrian transportation and should be integrated into all policy documents for Cherokee. They apply to all new roadway construction and roadway reconstruction projects in Cherokee (e.g., areas where new developments are being constructed).

Addition of an Alternative Transportation Chapter

The addition of an Alternative Transportation chapter to the Cherokee Code of Ordinances should mandate the inclusion of pedestrians, bicyclists, and the physically disabled in all new development within Cherokee. Language similar to the following could be used:

- The design and construction of streets and intersections in Cherokee should aim to serve all types of users, including pedestrians, bicyclists, and motorists, and should be inclusive of all levels of ability, such as those in wheelchairs, the elderly and the young.
- This Code encourages the development of a network of interconnecting streets that work to disperse traffic while connecting and integrating neighborhoods with the existing urban fabric of the City. Equally as important, the Code encourages the development of a network of sidewalks and bicycle lanes that provide an attractive and safe mode of travel for pedestrians and cyclists.
- It is the intent of this ordinance to build streets that are integral components of community design. Streets shall be detailed to compliment neighborhoods and commercial centers and shall be pedestrian in scale.
- Sidewalks: Sidewalks shall be constructed along both sides of all streets except alleys and lanes. Residential sidewalks shall be a minimum of 5 ft in width. Sidewalks serving mixed use and commercial areas shall be a minimum of 8 ft in width (10-12 ft is preferable in front of shopfronts). All sidewalks shall be paved with brick or concrete pavers, concrete, or a similar material. Concrete sidewalks shall be a minimum of 4" in depth. Sidewalk material may vary according to the overall design and character of the development.
- Street lighting shall be provided to aid in the safety of motorists and pedestrians. Street lighting should complement the aesthetics of the street and pedestrian environment while not hindering the accessibility and network of the sidewalk.



- All on-street parking provided shall be parallel. Curb or angle parking is permitted upon approval of the Cherokee planning staff when the fronting buildings are more than 22 feet in height to ensure a safe and usable pedestrian realm.
- The use of traffic calming devices such as raised intersections, landscaping bulb-outs, and traffic circles are encouraged as alternatives to conventional traffic control measures.
- All intersections shall be designed with high visibility crosswalks and pedestrian activated signals shall be installed on all signaled intersections.
- Streets shall be designed with street trees planted in a manner appropriate to their function. Commercial streets shall have trees which compliment the face of the buildings and which shade the sidewalk. Residential streets shall provide for an appropriate canopy, which shades both the street and sidewalk, and serves as a visual buffer between the street and the home.
- Parking lots shall be designed to allow pedestrians to safely move from their vehicles to the building. On small lots (36 spaces or less), this may be achieved by providing a sidewalk at the perimeter of the lot. On larger lots, corridors within the parking area should channel pedestrians from the car to the perimeter of the lot or to the building. These corridors are delineated by a paving material that differs from that of vehicular areas and are planted to provide shade. Small posts or bollards may be included.
- All pedestrian facilities should be designed in accordance with the Cherokee Pedestrian Plan Design Guidelines.
- Driveway access should be limited in all new development and reduced in existing development in order to provide safer, separated spaces for pedestrians.
- Greenway set-asides should be provided in new developments where recommendations occur and/or where the EBCI deems necessary.

Additional Policy Recommendations

More recommended policy statements and paragraphs by category are provided below that facilitate specific changes. These recommendations are presented here to further guide policy decisions and revisions to future local ordinances and regulations to achieve a more pedestrian-friendly environment. These policy categories and recommendations should become integral components of future planning, ordinance, and development efforts. The categories include pedestrian network and connectivity, safety, aesthetics, land use and development, and greenways.



Pedestrian Network and Design

Goal: Create and maintain a pedestrian route network that provides direct connections between downtown, trip attractors, schools, and residential/commercial areas.

- To the maximum extent possible, make walkways accessible to people with physical disabilities.
- Develop a system of informational and directional signage for pedestrian facilities and greenways.
- All roads surrounding schools should have sidewalks on both sides of the road with safe crosswalks.
- Pedestrian access should be provided through culs-de-sac and large parking lots, which are typical obstacles to pedestrian connectivity.
- Pedestrians and bicyclists should be accommodated on roadway bridges, underpasses, and interchanges and on any other roadways that are impacted by a bridge, underpass, or interchange project (except on roadways where they are prohibited by law). All new bridges should be constructed with bicycle lanes and wide sidewalks.
- Sidewalks and greenways should be developed in order of priority where possible as listed in Chapter 5 - Implementation. These segments facilitate immediate improvements and connections to major trip attractors within Cherokee.

Safety

Goal: Strive to maintain a complete, safe sidewalk network free of broken or missing sidewalks, curb cuts, or curb ramps and that include safety features such as traffic calming, lighting, and sidewalk repairs.

- Raised medians or pedestrian refuge islands should be provided, where practical, at crosswalks on streets with more than three lanes, especially on streets with high volumes of traffic. They should be six- to ten-foot wide.
- Identify pedestrian facilities that are not ADA-compliant including missing, damaged, or non-compliant curb ramps, stairs, or sidewalk segments of inadequate width and create a plan for improving them.
- Develop a traffic calming program to slow traffic through downtown and on major corridors, making them aware that they share the corridors with pedestrians.
- Make pedestrian crossings a priority and initiate improvements recommended in Chapter 3. Consider variations in pavement texture and clear delineation of crosswalks. Also, ensure that crosswalks are properly lit at night.
- Implement pedestrian-scale lighting at regular intervals in areas of high pedestrian activity to promote pedestrian safety and discourage criminal activity.



- Develop and expand Cherokee's maintenance program of sidewalk repairs, debris removal, and trimming of encroaching vegetation.
- The buffer space between the sidewalk and the curb and gutter should be maximized within the available right-of-way. 4' is suggested as a minimum on major thoroughfares, but could be decreased in areas with slower and lower volume automobile traffic. Larger buffers are preferred for street tree health and pedestrian comfort. Suggested width is flexible related to environmental constraint.

Aesthetics

Goal: Encourage the inclusion of art, historic, and nature elements along with street furniture, landscaping, and lighting in pedestrian improvement projects.

- Develop street design guidelines to incorporate recommendations of this plan (See Chapter 6 - Design Guidelines)
- Require street trees and planting buffers between the sidewalk and the street along all new roadways and sidewalk construction. Keep all vegetation trimmed.
- Encourage and/or require private owners (of residences and businesses) to keep their area in and around the sidewalk free of debris and litter.

Land Use Development

Goal: Promote land uses and site designs that make walking convenient, safe, and enjoyable.

- Use building and zoning codes to encourage a mix of uses, connect entrances and exits to sidewalks, and eliminate "blank walls" to promote street level activity.
- Sidewalks should have a minimum width of five feet but should be wider where pedestrian traffic is higher, including near schools, senior centers, and commercial areas or where sidewalks connect or overlap with recommended on-road greenway connections.
- Applicable buildings should be required to build to the sidewalk. Also, parking lots should be prohibited in front of buildings where possible to develop pedestrian oriented areas.
- Promote parking and development policies that encourage multiple destinations within an area to be connected by pedestrian trips. Specifically, promote the connectivity of parking lots between businesses for increased safety and avoidance of roadway traffic.
- Parked vehicles shall not block pedestrian walkways.
- Require benches, shelters, sheltered transit stops, trees, and other features to facilitate the convenience and comfort of pedestrians.



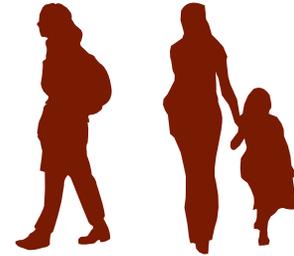
Greenways

- ‘Greenways’ should be defined as part of Cherokee’s public infrastructure. Greenways are public infrastructures that provide important functions to not only offer transportation alternatives, but to protect public health safety and welfare. Within flood prone landscapes, greenways offer the highest and best use of floodplain land, mitigate the impacts from frequent flooding and offer public utility agencies access to floodplains for inspection, monitoring and management. Greenways filter pollutants from stormwater and provide an essential habitat for native vegetation that serves to cleanse water of sediment. Greenway trails provide viable routes of travel for cyclists and pedestrians and serve as alternative transportation corridors for urban and suburban commuters. Greenways serve the health and wellness needs of our community, providing close-to-home and close-to-work access to quality outdoor environments where residents can participate in doctor prescribed or self-initiated health and wellness programs. All of these functions make greenways a vital part of community infrastructure.
- Subdividers are required to provide natural buffers along both sides of all perennial streams. Public greenway trails with limited disturbance along perennial and intermittent streams are excellent uses for these spaces and should be dedicated during the subdivision process.
- Encourage utility corridor development practices that allow for maximum compatibility with pedestrian and bikeway corridors. Land and easements purchased for the purpose of providing utilities (such as water and sewer) can serve a greater community benefit if developed to accommodate a multi-use trail.



Chapter 5: Implementation

This section provides guidance for making the recommendation of the previous two chapters a reality. It details key action steps, top priority project packages, staffing needs, performance measures to evaluate future progress, and facility development methods.



5.0 OVERVIEW

The primary barrier to pedestrian facilities—such as sidewalks, safe intersections, and greenways—is funding. Cherokee is a small town with a small tax base situated at a main entrance to a National Park that receives high amounts of tourists and seasonal workers. In addition to the National Park, Cherokee is home to a large casino that draws many visitors each year and provides the majority of jobs for the EBCI. Therefore, being a major tourist destination is precisely the rationale to prioritize the pedestrian improvements with the greatest impact for residents and visitors for the fewest dollars.

Successful implementation will also require the dedication of EBCI staff, the creation of a Pedestrian and Bicycle Advisory Board, and the support of local advocates. This chapter will serve as a simple guide with key action steps, top priority projects, staffing recommendations, an evaluation and monitoring process, methods of pedestrian facility development and greenway acquisition.

5.1 KEY ACTION STEPS

These following steps are integral to achieving the goals and vision of this Plan. Additional action steps may be found on page 5-15. As guiding recommendations and the clearest representation of specific items to accomplish, they should be referred to often. With the exception of the first step, there is no particular order in which these should be addressed.

ADOPT THIS PLAN.

Through adoption, the Plan becomes a legitimate planning document of the EBCI. Adoption shows that the EBCI has undergone a successful, supported planning process. The EBCI can then use this document to receive funding through NC-DOT and other resources. The EBCI Boards and Planning staff should become knowledgeable of this Plan and support ordinance amendments and policy recommendations. Finally,

CHAPTER OUTLINE:

5.0 OVERVIEW

5.1 KEY ACTION STEPS

5.2 TOP PRIORITY PROJECTS

5.3 STAFFING AND COORDINATION

5.4 PERFORMANCE MEASURES

5.5 PEDESTRIAN FACILITY DEVELOPMENT

5.6 GREENWAY ACQUISITION

5.7 ACTION STEPS TABLE



this Plan should also be integrated into future EBCI planning documents.

CREATE A PEDESTRIAN AND BICYCLE ADVISORY BOARD.

The EBCI should create a Pedestrian and Bicycle Advisory Board to embrace an advocacy role for on-road bicycle and pedestrian issues to provide a network of off-road and on-road facilities that connects people to places. Many communities across the State have commissions for this purpose. The Board should help coordinate the implementation of this Plan, develop programs, listen to community needs, promote the pedestrian network, and keep positive momentum going. Consider appointing a liaison or providing formal reports to the Planning Board and EBCI Board of Commissioners on development review issues related to pedestrian, bicycle, and greenway planning.

The Pedestrian and Bicycle Advisory Board can also help monitor the progress of the EBCI and NCDOT as they develop new facilities and programs. This group can push for additional improvements to build upon the recommendations of this plan. Coordination with NCDOT, specifically the Division of Bicycle and Pedestrian Transportation and the local Division 14 office, will prove critical if this plan is to be implemented successfully.

BEGIN TOP PRIORITY PROJECTS.

The prioritization of corridor, intersection and hub projects in Chapter 3 provides a list of the most important projects to improve connectivity and safety. Steering Committee input, public input, and criteria such as sidewalk gap closure and proximity to schools, tourist destinations, and other trip attractors were used to develop this list. Immediate attention to the high priorities will instantly have a large impact on pedestrian conditions in Cherokee. These high priority projects should be supported by local funding and part of the local Capital Improvement Program (CIP). Work should begin by working with local NCDOT on a conceptual plan to complete a “road diet” for the US 19 CBD.

IMPROVE AND ENFORCE EBCI REGULATIONS.

To ensure future development provides pedestrian facilities and improves pedestrian friendliness, the Code of Ordinances should be updated and enforced. These policy recommendations are provided in more detail in Chapter 4. It should be the goal of the Planning Department to update regulations as soon as possible and to enforce these. All pedestrian-related regulations should be subject to case-by-case environmental evaluation. The most important regulation updates are:



- Adopt and implement Design Guidelines (Chapter 6).
- Mandatory development of sidewalk and greenway network when on adopted EBCI Pedestrian Transportation Plan map through an area of new development.

TAKE ADVANTAGE OF ALL OPPORTUNITIES.

While it is ideal to develop pedestrian facilities in order of priority, it is wise to also create facilities when opportunity arises. Some of the most cost-effective opportunities to provide pedestrian facilities are during routine roadway construction, reconstruction, and repaving projects. A new commercial development or a roadway widening project, for instance, would provide the means to build sidewalks or trails as a component of an existing effort, saving costs.

SEEK MULTIPLE FUNDING SOURCES AND FACILITY DEVELOPMENT OPTIONS.

Multiple approaches should be taken to support pedestrian facility development and programming (See comment form results in Appendix A, page A-5). It is important to secure the funding necessary to undertake the short-term, top priority projects but also to develop a long term funding strategy to allow continued development of the overall system. Capital and local funds for sidewalk, crosswalk, and greenway construction should be set aside every year, even if only for a small amount (small amounts of local funding can be matched to outside funding sources). A variety of local, state, and federal options and sources exist and should be pursued. These funding options are described in Appendix C. Other methods of pedestrian facility development and greenway acquisition that are efficient and cost-effective are described later in this chapter.

DEVELOP PEDESTRIAN PROGRAMMING.

As discussed in Chapter 4, the EBCI should work with its partners to initiate one program within the first year of adopting this Plan. Programming such as Safe Routes to School and others described in Chapter 4 can help educate and encourage users. Safe Routes to School is a high priority program for the EBCI that offers a number of school workshop opportunities and construction funding for improvements around schools. Enforcement is also critical and should be addressed relating to motorists and pedestrians in the US 19 CBD. Public events and media involvement should also be considered when announcing new walkways and upcoming projects.

APPLY FOR A NCDOT BICYCLE PLANNING GRANT.

Consider applying for a bicycle planning grant through NC-



**Division of
Bicycle &
Pedestrian
Transportation**

DOT. Similar to the pedestrian planning grant that the EBCI received, this grant would provide funding for bicycle planning activities. Bicycling within Cherokee is popular, especially among the seasonal National Park employees that live in and around Cherokee, so planning for this mode of transportation is important. This bicycle planning effort should complement the Cherokee Pedestrian Plan and both should be used to develop and encourage additional pedestrian and bicycle facilities.

CREATE A SIDEWALK REQUEST FORM.

Several communities across the state have created an on-line sidewalk request form that citizens can use to ask for sidewalks to be built on streets that they use regularly. Utilizing local citizens to help find gaps in the current sidewalk network is highly important because they are familiar with their specific neighborhoods and needs. After these forms are completed, the requested sidewalk can be evaluated by an EBCI staff person, and if deemed important for connectivity purposes, they should be added to the sidewalk priority project list.

ENSURE PLANNING EFFORTS ARE INTEGRATED REGIONALLY.

Regional efforts such as those described in Chapter 3 are opportunities for the EBCI. Combining resources and efforts with surrounding municipalities, regional entities, and stakeholders is mutually beneficial. Regional, long-distance trails often spark the most excitement, use, and tourism. The EBCI should remain coordinated with Swain and Jackson Counties and neighboring municipalities on regional trail initiatives. It is important to stay aware and communicative with other municipal, county, state, and NCDOT efforts to ensure the EBCI takes advantage of funding opportunities and support. A Pedestrian and Bicycle Advisory Board member, for example, could have the responsibility of staying in tune and updating the EBCI on regional trail initiatives.

After adoption by the EBCI, the EBCI should ensure that this document is recognized in regional transportation plans, as well as into the official work schedule and planning of the local NCDOT Division 14.

RECORD AND MAP ALL PEDESTRIAN/BICYCLE RELATED CRASHES.

The State of North Carolina does not maintain a database of bicycle or pedestrian crashes for the Cherokee area. The EBCI police department, with cooperation from the planning department and the Cherokee DOT, should develop and maintain a mapped database of all bicycle and pedestrian crashes throughout the area. The database should include very de-



tailed information on the crash, including severity, precise location, reason for accident, etc. This information will be valuable in the future to determine if multiple crashes are occurring in the same area. This data will also serve as an indicator to determine if new pedestrian facilities provide a benefit to safety and a reduction in crashes.

ENSURE THAT GREENWAYS ARE DEVELOPED WITH SEWER LINE/EASEMENT DEVELOPMENT.

Upcoming sewer construction along the Oconaluftee River, Shoal Creek, and/or Soco Creek and their tributaries will create sewer easements along creeks in Cherokee. This presents a tremendous opportunity for developing trails along these easements. Off-road walking options are very attractive and provide both transportation and recreational options.

DEVELOP MAINTENANCE PROGRAM.

The EBCI should allot staff time and funding towards the maintenance of pedestrian facilities. Also, facilities should be developed with long-term durability in mind. A key element of this program will be the enforcement of homeowner and business owners to maintain their fronts and sidewalks to improve appearance and safety.

DEVELOP CHEROKEE WALKING/BICYCLING MAP.

The EBCI should develop a walking/bicycling map to enhance tourism, provide access guidance, and educate about proper pedestrian and motorist interaction. This map will highlight key destinations and trails and will also serve as a tool to stimulate future pedestrian improvements.

IMPROVE SCHOOL BUS STOP LOCATIONS.

The EBCI should conduct a study to determine the most appropriate locations for school bus stop (pick-up and drop-off sites). These sites should be properly located with safety and convenience in mind for children. The stops should also feature clear designation, seating, and shelters where possible.

5.2 TOP PRIORITY PROJECTS

The top pedestrian projects in Cherokee are ones that make the most efficient use of limited resources and that serve multiple functions, such as connectivity and safety. These are projects that should occur in the short-term to improve safety for pedestrians and to have an immediate, visible and positive impact. These projects should be incorporated into the EBCI's Capital Improvement Program (CIP) and/or State Transportation Improvement Program (TIP). In order to make the State TIP list, the EBCI will have to work directly to submit needs after adoption of the plan.



As described in Chapter 3, there are three core types of pedestrian facilities recommended: corridors, hubs, and intersection improvements (A full system map is presented on page 5-17 of this chapter). It was determined that the four hub projects were high priority based on public input, analysis, and the large number of pedestrians in these areas. Therefore, corridor and intersection projects within these hub areas also become high priority. Thus, the following are the priority projects for each category:

Hub projects:

- US 19 CBD
- Saunooke Village-New Schools
- Casino Trail/US 441 Shopping Center
- Harrah's Casino area

Corridor projects:

- US 19 (in CBD)
- US 19 (Casino area)
- US 441 (Casino Trail/US 441 Shopping Center area)
- Big Cove Rd. (Saunooke Village to New schools)

Intersection projects:

- US 19/US 441 (at bridge)
- US 19/Whitewater Drive
- US 19/Casino Trail
- US 19/Casino main entrance
- US 441/Casino Trail

Medium-priority projects

Phase 2 and 3 projects will be determined upon re-evaluation of the implementation program in 2011-2012 (see Action Steps table at end of this chapter). Based on public input, analysis, and need, the following are an initial listing of medium-priority (Phase 2) projects.

Medium-priority sidewalk corridors:

Whitewater Drive: One side from US 19 to US 441 (3,400 ft).

Acquoni Road: One side from Big Cove Rd. to EBCI offices (5,000 ft)

Drama Road: One side from US 441 to Unto These Hills (2,500 ft)

US 19: One side from US 441 to west of Owle Branch Rd (1,700 ft)

Greenway project:

River Greenway Trail extension (Project Corridor #6, page 3-4)

Cost estimate: \$700,000 (approximately one mile)

PRIORITY PEDESTRIAN FACILITIES AND ESTIMATED COSTS

The following tables lists the top project packages, as described in Chapter 3, and estimated costs. Cost per linear foot for sidewalks and crosswalks were provided by the North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation. These figures are for planning purposes only.



HUB CORRIDOR PROJECTS (SIDEWALK + MID-BLOCK CROSSINGS + LIGHTING COSTS)

Priority Rank	Hub Project	Project definition	Facility Type	New Sidewalk or Trail, Total LF	Sidewalk Cost: \$50-\$75/ LF	Pedestrian-scale lighting (every 100 ft)	Light cost (\$2,200 ea)	Raised Midblock Crossings	Raised midblock crossing costs (\$10,000 ea)	# of Curb Extensions/Bulb-outs	Curb Extensions/Bulb-outs costs (\$5,000 ea)	Totals
1	US 19 CBD*	Oconuluftee River bridge to Whitewater Drive (comprehensive pedestrian improvements along US 19)	New sidewalk (both sides)	3,250	\$227,500	33	\$71,500	7	\$70,000	14	\$70,000	\$439,000.00
2	US 19 Casino area	Casino Trail to Hardin Valley Lane (comprehensive pedestrian improvements along US 19)	New sidewalk (both sides)	4,700	\$329,000	47	\$103,400	0	\$0	0	\$0	\$432,400.00
3	US 441 & Casino Trail shopping area	US 441 (Whitewater Drive to Golden Lane) and Casino Trail (US 441 to Mary Lambert Farm Rd) - comprehensive pedestrian improvements	New Sidewalk (both sides)	7,400	\$518,000	74	\$162,800	0	\$0	0	\$0	\$680,800.00
4	Saunooke Village	Big Cove Road (from Nettle Crow Rd to Acquoni Rd) - comprehensive pedestrian improvements to area along Big Cove and Acquoni to schools	New sidewalk (both sides)	2,800	\$196,000	28	\$61,600	0	\$0	0	\$0	\$257,600.00
4a	Big Cove Rd/New Schools	Big Cove Road (from Nettle Crow Rd to new schools)	New sidewalk or shoulder (one side)	8,100	\$405,000	81	\$178,200	0	\$0	0	\$0	\$583,200.00
											Sub-total	\$2,393,000.00
											Contingency	0.15
												\$358,950
											Total	\$2,751,950

Costs do not include driveway access management (reconstructing driveways/parking), marked crosswalks across parking lot entrances and minor roads, and additional pedestrian amenities such as benches, and wayfinding. Additional costs may occur depending upon surface materials and textures for sidewalks.

The EBCI should seek competitive bids from local contractors.

*Three scenario recommendations were provided in Chapter 3. The ideal scenario is a "road diet" which would increase project costs dramatically. The cost estimates provided here simply portray basic improvements.

Sidewalk linear foot costs: \$75 is used when curb and gutter are included; \$50 is used when curb and gutter are not included. Crosswalk linear foot costs: \$5.00 assumes high-visibility thermoplastic striping.

HUB INTERSECTION CROSSING FACILITY PROJECTS

Hub Priority Rank	Hub Project	Project definition	Intersection	# of new Marked Crosswalk	Marked Crosswalk - Total LF	Marked Crosswalk Costs (\$5.00/LF)	Countdown signals	Signal costs (\$800 per signal)	Curb ramps	Curb ramp costs (\$1500 ea, does not cover demo costs)	Signage (in-roadway signs and pedestrian warning signs)	Signage cost (\$150 ea)	Other	Other Cost	Totals	
1	US 19 CBD	Oconuluftee River bridge to Whitewater Drive (comprehensive pedestrian improvements along US 19)	US 19 and Whitewater Drive	2	90	\$180	4	\$3,200	4	\$6,000	0	\$0	Median refuge island	\$50,000	\$59,380.00	
1	US 19 CBD	Oconuluftee River bridge to Whitewater Drive (comprehensive pedestrian improvements along US 19)	US 19 and US 441 (near bridge)	4	240	\$960	8	\$6,400	8	\$12,000	0	\$0			\$19,360.00	
2	US 19 Casino area	Casino Trail to Hardin Valley Lane (comprehensive pedestrian improvements along US 19)	US 19 and Casino Trail	4	245	\$980	8	\$6,400	8	\$12,000	0	\$0	2 Raised pork chop islands with raised crosswalks; Median refuges	\$200,000	\$219,380.00	
2	US 19 Casino area	Casino Trail to Hardin Valley Lane (comprehensive pedestrian improvements along US 19)	US 19 and Casino entrance	2	70	\$140	0	\$0	4	\$6,000	0	\$0	Curb extensions	\$20,000	\$26,140.00	
3	Saunooke Village	US 441 (Whitewater Drive to Golden Lane) and Casino Trail (US 441 to Mary Lambert Farm Rd) - comprehensive pedestrian improvements	Acquoni Road and Big Cove Road	2	90	\$180	0	\$0	0	\$0	2	\$300			\$480.00	
4	US 441/Casino Trail Shopping Center	Big Cove Road (from Nettle Crow Rd to Acquoni Rd) - comprehensive pedestrian improvements to area along Big Cove and Acquoni	US 441 and Casino Trail	2	170	\$340	4	\$3,200	4	\$6,000	2	\$300	1 Median Refuge; 2 curb extensions	\$90,000	\$99,840.00	
															Sub-total	\$424,580.00
															Contingency	0.15
																\$63,687.00
															Total	\$488,267.00

See intersection recommendations (Chapter 3) for detail on recommendations and Design Guidelines (Chapter 6) for standards.



5.3 STAFFING AND COORDINATION

The EBCI's Planning and Development Department and Cherokee Department of Transportation is responsible for the coordination of pedestrian planning and facility development.

The EBCI's Governing Board, Planning Board, Planning and Development, and Public Works Departments are all committed to increasing both the quantity and quality of pedestrian infrastructure. The Planning and Development Department will continue to spearhead initiatives to manifest tangible, on the ground results, from this general sentiment of community support. Building upon the momentum generated from this plan, the department will continue to keep pedestrian infrastructure a high priority in all of its daily planning activities, including site review, maintenance of pedestrian related GIS files, and short to long range planning.

The EBCI Public Works and Transportation Directors should continue to participate in the construction and maintenance of all trail and pedestrian facilities. The Directors should also be aware of—and be prepared to—implement the recommendations for pedestrian facilities discussed earlier in this plan. The Public Works and Transportation Departments could also assist the Planning Department in updating cost estimates for future facilities, and providing practical input on this Plan's design guidelines.

SWAIN COUNTY PARKS AND RECREATION DEPARTMENT

The County Parks and Recreation Department should be a key partner in carrying out greenway recommendations for this Plan. The EBCI should work with Swain and Jackson County to apply for funding and coordinate park and greenway facility development. This includes partnering on regional trail efforts, updating and publishing new maps, creating and updating GIS layers of all greenway facilities, proposing future alternative routes, and working with adjacent communities/counties to coordinate linkages to other greenways. Education and encouragement program opportunities should be incorporated within existing parks, future parks, and recreation centers.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NCDOT Division 14 has shown interest and early support for this Pedestrian Plan. Division 14 maintains the state-owned roads in Cherokee, affecting the pedestrian facilities (or lack thereof) on much of Cherokee's roadway environment. Recommendations for pedestrian facilities on NCDOT roads will have to be carried out through a coordinated effort between the EBCI and NCDOT Division 14. Some assistance could also be provided through NCDOT's Division of Bicycle and Pedestrian Transportation.



For federal and state roadways, working closely with NCDOT and the Southwestern RPO (SWRPO) is required. An example is the recommended “road diet” for the US 19 CBD (Ideal Scenario #1 for pedestrians & Hub Corridor Project #1). If a road diet treatment was proposed by the Cherokee DOT, it would need to include analysis specific to this section of US 19 - US 441 Bus. NCDOT Division 14 would want to see that current and projected traffic volumes would be satisfactorily handled with the reduction in number of lanes and that existing crash patterns would be improved. A conceptual design showing how the lanes would transition to existing lanes, both at the project termini and at interior intersections, would be needed. This could be pursued as an encroachment project if Cherokee DOT proposed to fund and complete the work, or pursued as a TIP project through the Project Development process. The plan would need to be shown and evaluated in a Comprehensive Transportation Plan. Cherokee is part of the SWRPO, which would work with Cherokee to add a project within a CTP. The EBCI would need to contact the SWRPO coordinator.

The EBCI and NCDOT should also pursue a pedestrian facility development model used by other North Carolina municipalities (The City of Cary, for example) for the development of priority projects that are on NCDOT roads. Rather than waiting for certain projects to make it on the TIP list (a process that can take many years), the EBCI should pursue an agreement with NCDOT that allows the EBCI to complete pedestrian projects today, on NCDOT roads, with the understanding that those improvements would eventually be on the TIP. When the project year finally arrives on the TIP, NCDOT would then reimburse the EBCI for their original pedestrian improvements. For more information on this facility development model, contact the City of Cary and/or NCDOT Division 5. For more on the TIP process, see section 5.5 of this chapter.

POLICE DEPARTMENT

The Cherokee Police Department plays a vital role in pedestrian safety. All local police officers should be educated about North Carolina’s pedestrian laws to promote positive interactions between pedestrians and motorists. The Guide to North Carolina Bicycle and Pedestrian Laws, written by the NCDOT Division of Bicycle and Pedestrian Transportation, should be distributed to local law enforcement (see Chapter 4, page 4-12 for access information to guide). Programs such as the Safe Routes to School grants, offer the opportunity for the Police Department to partner with other EBCI Departments to improve pedestrian safety.



VOLUNTEERS

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for many of the program ideas outlined in Chapter 4 of this plan. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to Cherokee's greenway and pedestrian networks.

5.4 PERFORMANCE MEASURES

The EBCI should establish performance measures to benchmark progress towards achieving the goals of this Plan. These performance measures should be stated in an official report within two years after the Plan is adopted. Baseline data should be collected as soon as the performance measures are established. The performance measures should address the following aspects of pedestrian transportation and recreation in Cherokee:

- Safety. Measures of pedestrian crashes and injuries. The EBCI should develop and maintain a mapped database of all pedestrian and bicycle-related crashes and injuries. The State of North Carolina does not maintain this information for the EBCI.
- Usage. Measures of how many people walking on on-road and off-road facilities.
- Facilities. Measures of how many pedestrian facilities are available and the quality of these facilities.
- Education/Enforcement. Measures of the number of people educated and/or number of people ticketed as a part of a pedestrian safety campaign.
- Institutionalization. Measures of the total budget spent on pedestrian and greenway projects and programs or the number of municipal employees receiving pedestrian facility design training.

When establishing performance measures, the EBCI should consider utilizing data that can be collected cost-effectively



and be reported at regular intervals, such as in a performance measures report that is published every two years. As the process of collecting and reporting pedestrian and greenway data is repeated over time, it will become more efficient. The data will be useful for identifying trends in non-motorized transportation usage and conditions.

Land use, transportation, development, and the overall landscape will continue to change as Cherokee grows resulting in a dynamic area. Also new opportunities or input from an ongoing monitoring and evaluation process may emerge, leading to the need to adapt and update the recommendations of this Plan.

5.5 PEDESTRIAN FACILITY DEVELOPMENT

This section describes different construction methods for the proposed pedestrian facilities outlined in Chapter 3 of this Plan.

Note that many types of transportation facility construction and maintenance projects can be used to create new pedestrian facilities. It is much more cost-effective to provide pedestrian facilities during roadway and transit construction and reconstruction projects than to initiate the improvements later as “retrofit” projects.

To take advantage of upcoming opportunities and to incorporate pedestrian facilities into routine transportation and utility projects, the assigned “Pedestrian Coordinator” should keep track of the EBCI’s projects and any other local and NCDOT transportation improvements. While doing this, he/she should be aware of the different procedures for state and local roads and interstates. More detail on facility design and treatment can be found in Chapter 6.

NCDOT TRANSPORTATION IMPROVEMENT PROGRAM (TIP) PROCESS

The Transportation Improvement Program (TIP) is an ongoing program at NCDOT which includes a process asking localities to present their transportation needs on State roadways to state government. Pedestrian facility and safety needs are an important part of this process. Every other year, a series of TIP meetings are scheduled around the state. Following the conclusion of these meetings, all requests are evaluated. Pedestrian improvement requests, which meet project selection criteria, are then scheduled into a four-year program as part of the state’s long-term transportation program.



There are two types of projects in the TIP: incidental and independent. Incidental projects are those that can be incorporated into a scheduled roadway improvement project. Independent are those that can stand alone such as a greenway, not related to a particular roadway.

The EBCI should strongly consider important pedestrian projects along State roads to present to the Local NCDOT Division 14 office. Further information, including the criteria evaluated can be found at: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html

LOCAL ROADWAY CONSTRUCTION AND RECONSTRUCTION
Pedestrians should be accommodated any time a new road is constructed or an existing road is reconstructed. All new roads with moderate to heavy motor vehicle traffic should have sidewalks and safe intersections. The EBCI should take advantage of any upcoming construction projects, including roadway projects outlined in local comprehensive and transportation plans. Also, case law surrounding the ADA has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not exist.

RESIDENTIAL AND COMMERCIAL DEVELOPMENT
As detailed in Chapter 4, the construction of sidewalks and safe crosswalks should be required during development. Construction of pedestrian facilities that corresponds with site construction is more cost-effective than retro-fitting. In commercial development, emphasis should also be focused on safe pedestrian access into, within, and through large parking lots. This ensures the future growth of the pedestrian network and the development of safe communities.

RETROFIT ROADWAYS WITH NEW PEDESTRIAN FACILITIES
For top priority pedestrian projects, it may be necessary to add new facilities before a roadway is scheduled to be reconstructed. In some places, it may be relatively easy to add sidewalk segments to fill gaps, but other segments may require removing trees, relocating landscaping or fences, re-grading ditches or cut and fill sections.

BRIDGE CONSTRUCTION OR REPLACEMENT
Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge replacements do not occur regularly, it is important to



consider these in longer-term pedestrian planning. NCDOT bridge policy states that sidewalks shall be included on new NCDOT road bridges with curb and gutter approach roadways. A determination of providing sidewalks on one or both sides is made during the planning process. Sidewalks across a new bridge shall be a minimum of five to six feet wide with a minimum handrail height of 42”.

SIGNAGE AND WAYFINDING PROJECTS

The EBCI should consider developing and adopting a signage style policy and procedure, to be applied throughout the entire community, to make it easier for people to find destinations. Pedestrian route and greenway signs are one example of these wayfinding signs, and they can be installed along routes as a part of a comprehensive wayfinding improvement project. For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website:

http://www.pps.org/info/amenities_bb/signage_guide

EXISTING EBCI EASEMENTS

The EBCI has several existing easements throughout Cherokee, offering an opportunity for greenway facilities. Sewer easements are very commonly used for this purpose; offering cleared and graded corridors that easily accommodate trails. This approach avoids the difficulties associated with acquiring land, and it utilizes the EBCI’s existing resources.

5.6 GREENWAY ACQUISITION

Since not all greenways can be built on existing EBCI easements, land acquisition is an important component of greenway development, especially for the River Greenway Trail. It will be necessary to work with landowners and future development projects. Land acquisition and resource protection methods should be strategic, efficient, and respectful. Non-profit land protection agencies, land trusts, and/or environmental organizations can assist when attempting to acquire or manage property. These entities often have a great deal of experience selling the greenway benefits of conservation. Because these types of organizations do not have the power to condemn land or the power to tax, they often have excellent personal and professional relations with local landowners. Many options are available to obtain different degrees of control and different ownership relationships to regulate resource use. Providing educational material to local landowners and developers about the benefits of greenways and land/easement donations is an excellent means to stimulate greenway acquisition. The following is a list of potential conservation



tools, developing partnerships, development regulations, land management techniques, and acquisition/donation. A more detailed look at each of these tools is provided in Appendix D- Greenway Acquisition

LAND ACQUISITION / CONSERVATION TOOLS

Partnerships

Partnerships with land trusts, developers, and private land managers can assist the EBCI in developing greenways.

- Land Trusts
- Private Land Managers

Regulatory Methods

This type of resource protection is used to shape the use and development of the land without transferring or selling the land. The rules for this type of tool are established and enforced by a governing body.

- Exactions (Development/Impact Fee, Mandatory Dedications, Fee in Lieu)
- Growth Management Measures (Adequate Public Facilities Ordinances/Concurrency)
- Performance Zoning
- Incentive Zoning (Dedication or Density Transfers)
- Conservation Zoning Buffer or Transition Zones)
- Overlay Zoning
- Negotiated Dedications
- Reservation of Land
- Planned Unit Development
- Cluster Development

Land Management

This type of resource protection refers to developing agreements and/or management plans for public use and greenway easements through private property. This method helps conserve the resources of an open space or greenway parcel or easement.

- Management Plans
- Conservation Easement
- Preservation Easement
- Public Use Easement

Acquisition

Land acquisition is a method used to acquire property rights to protect resources or to allow access and free movement of users on a property. This type of method is permanent. Acquisi-

tion methods can be divided into two categories: 1) landowners retain ownership of the land and preserve a resource through an easement or other mutual agreement, or 2) land ownership and management is transferred or donated from a landowner to a conservation agency (local government, land trust, or other preservation organization.)

- Donation (Tax Incentives)
- Fee Simple Purchase
- Easement Purchase
- Lease Back Purchase
- Bargain Sale
- Installment Sale
- Right of First Refusal
- Purchase of Development Rights
- Land Banking
- Condemnation
- Eminent Domain

5.7 ACTION STEPS TABLE

The following table (below and following page) presents detailed action steps to accomplish for successful implementation of this plan:

Task	Lead Agency	Support	Details	Phase
Approve and Adopt this Plan - EBCI	EBCI	EBCI/Project Consultant	Official letter of approval expected by Early 2010. Through adoption, the Plan becomes a legitimate planning document. Adoption shows that the plan has been a successful, supported planning process.	Short Term (2009-2010)
Complete Top Priority, Phase 1 Projects	EBCI	BPAC, EBCI Planning, DOT, and Public Works	The prioritization of pedestrian facility development provides a list of the most important projects to improve connectivity and safety. Immediate attention to the high priorities will instantly have a large impact on bicycling and walking conditions in Cherokee. First phase work that can be done at a low cost includes the intersection improvements projects and all projects shown in Chapter 5, pages 5-5 and 5-6.	Short Term (2010)
Work with NCDOT to develop a conceptual design for a "road diet" of the US 19 CBD along with further analysis in order to focus on the highest priority pedestrian hub project.	EBCI/Local NCDOT	NCDOT Bicycle and Pedestrian Division; NCDOT Division 14; Southwestern RPO	Working with NCDOT, a more detailed analysis of this corridor will be necessary. A "road diet," reducing the 4 lane configuration to 3 lane with a center turn lane would slow traffic and lead to significant opportunities for pedestrian improvements to the area. With ADTs between 11,000-14,000, high pedestrian activity, and significant left-turn movements, a road diet is ideal for this roadway (see Chapter 6: Design Guidelines). This plan needs to become part of the Comprehensive Transportation Plan and will require coordination with the Southwestern RPO.	Short Term (2010)
Improve and Enforce EBCI Regulations	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Revisions and additions to the Code of Ordinances: The changes suggested in Chapter 4 serve as recommendations for the ordinance, reflecting the findings and recommendations of this Pedestrian Plan, and clarify some basic policy positions regarding future development and the provision of pedestrian facilities. Some edits are also suggested for consistency in terminology. Currently, the code has no requirements for bicycle and pedestrian facilities with development.	Short Term (2010)
Create official Cherokee Bicycle and Pedestrian Advisory Commission (BPAC)	EBCI	EBCI Planning, DOT, and Public Works	BPAC will be instrumental in promoting bicycling/walking and championing implementation of this plan. The group would play a strong role in assisting Cherokee with fundraising, and establishing programs and activities.	Short Term (2009-2010)
Begin Biannual Project Development Meeting With Project Partners	EBCI	BPAC, EBCI Planning, DOT, and Public Works, NC DOT, Swain County, Jackson County	These meetings will help establish a process of incorporating bicycle and pedestrian improvements into upcoming roadway projects. Many pedestrian projects recommended in this Plan could be developed as part of a roadway reconstruction, widening, or resurfacing project. Coordination between all appropriate government agencies will ensure that recommendations in this Plan are implemented.	Short Term (2009-2010)



CHAPTER 5 IMPLEMENTATION

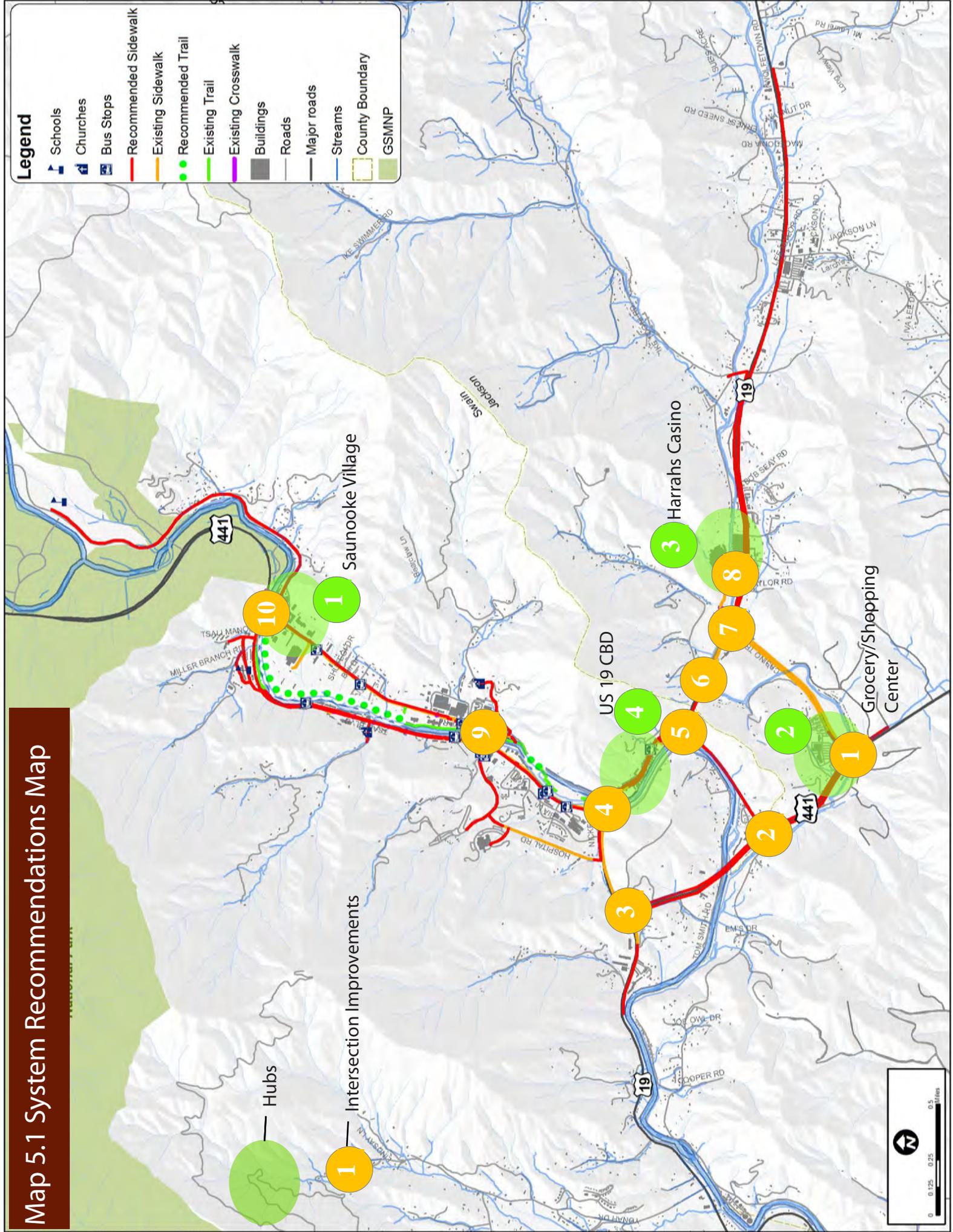
Action Steps Table Continued...

Task	Lead Agency	Support	Details	Phase
Identify and Secure Specific Funding Sources for Phase 1 Implementation	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Appendix C contains funding opportunities.	Short Term (2010)
Develop a Long Term Funding Strategy	EBCI	BPAC, EBCI Planning, DOT, and Public Works	To allow continued development of the overall system, capital funds for bicycle and pedestrian facility construction should be set aside every year, even if only for a small amount (small amounts of local funding can be matched to outside funding sources). Funding for an ongoing maintenance program should also be included in the town operating budgets.	Short Term (2010)
Develop Cherokee Bicycle/Walking Map	EBCI	BPAC, EBCI Planning, DOT, and Public Works	A hardcopy and online map will display bicycle and pedestrian facilities, destinations, and educational materials. A map or series of maps would be developed for Cherokee residents and visitors. These maps should be updated every 3-5 years.	Short Term (2010)
Continue effort to improve and enhance the US 19 CBD with better access to the river, enhanced and improved pedestrian facilities, and better parking.	EBCI	EBCI Planning	This popular tourist destination features numerous shops and restaurants. Enhancing this Downtown area by bringing people closer to the river and creating safer pedestrian conditions (by means of wider, more accessible sidewalks, safer roadway crossings, and speed limit enforcement) will improve the economic vitality of the area.	Continuous/Ongoing
Enforce both illegal pedestrian and motorist behaviors in project hub areas.	EBCI Police Dept.		The hub areas of the US 19 CBD, casino area, and Saunooke Village contain numerous pedestrians and motorists on a daily basis. Enforcement should be increased on motorist speed limits and proper use of crosswalk by pedestrians through education, warnings, and if necessary tickets.	Short Term (2010)
Apply for NCDOT Bicycle Master Plan Grant Opportunity.	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Consider applying for a bicycle planning grant through NCDOT. Similar to the pedestrian planning grant that the EBCI received, this grant would provide funding for bicycle planning activities.	Short Term (2009-2010)
Continually Support and Evaluate Implementation of this Plan	EBCI	BPAC, EBCI Planning, DOT, and Public Works	The different EBCI departments and boards and BPAC representatives should meet quarterly to assess implementation and evaluate progress.	Continuous/Ongoing
Use Updated AASHTO Bicycle and Pedestrian Design Guides	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Adopting and implementing the Design Guidelines (Chapter 6) is integral for the development of high-standard pedestrian facilities. It will also be important to obtain new published AASHTO bicycle and pedestrian guidelines when published in 2010-2012. The updated bicycle guidelines are expected in 2010, while pedestrian guidelines will come 1-2 years later. Consider utilization of these new guidelines for facilities recommended in this Plan.	Short- to Mid-Term (2009-2011)
Improve school bus stop (dropoff) locations	EBCI	EBCI Planning, Public Works	A number of unofficial pickup/dropoff locations can be found throughout Cherokee. These locations should feature an adequately sized shelter with benches and clearly designated spaces for pedestrians.	Short- to Mid-Term (2009-2011)
Record All Bicycle and Pedestrian Accidents and Incidents	EBCI Police Dept	BPAC, EBCI Planning, DOT, and Public Works	The Cherokee Police Department should begin recording all bicycle and pedestrian accidents and incidents within the city. They should be recorded with a date, time, location, and details.	Short- to Mid-Term (2009-2011)
Ensure Greenways are Developed as Part of Sewer Line/Easement Construction	EBCI	EBCI Planning, Public Works	As sewer is installed along local creeks, greenways should be developed along the easements. These greenways can serve both a transportation and recreation function while also providing easy access for sewer maintenance crews.	Short- to Mid-Term (2009-2011)
Staffing/Training	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Staff from the Cherokee Planning, DOT, and Public Works departments should maintain their knowledge with the latest bicycle/pedestrian design guidelines and facility improvements through classes and training sessions.	Short- to Mid-Term (2009-2011)
Online Form for Bicycle/Pedestrian Facility Request	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Provide a service that allows residents to request bicycle/pedestrian facilities.	Short- to Mid-Term (2009-2011)
Develop a strong maintenance plan. Require that businesses maintain and upkeep their storefronts and sidewalks	EBCI	EBCI Planning, Public Works	A sidewalk and greenway maintenance plan ensures that all existing features be improved and updated when safety is a concern. Part of this maintenance plan should detail the responsibilities of homeowners and business owners to maintain their storefront and sidewalk areas to improve appearance and safety.	Short- to Mid-Term (2009-2011)
Ensure Planning Efforts are Integrated Regionally	EBCI	BPAC, EBCI Planning, DOT, and Public Works, NC DOT, Swain County, Jackson County	Combining resources and efforts with surrounding municipalities, regional entities, and stakeholders is mutually beneficial. Communicate and coordinate with neighboring municipalities/counties on regional greenway corridors; partner for joint-funding opportunities. After adoption by the EBCI, this document should also be recognized in regional transportation plans. Examples of regional projects are connections to Maggie Valley, Bryson City, and Dillsboro.	Short Term (2009-2010)
Apply for Safe Routes to School Funding	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Apply for Safe Routes to School funding for planning and implementation. Establish 'walk-to-school' groups and regular walking activities for children through the Safe Routes to School Programs through 2012.	Short Term (2009-2010)
Pedestrian/Bicycle Encouragement	EBCI	BPAC, EBCI Planning, DOT, and Public Works	Develop programs and incentives for employers to bicycle or walk to work. Work with local employers to accomplish this goal. Promote and expand Bike to Work Month and Bike to Work Day.	Mid Term (2011-2013)
Define and complete Phase 2 Projects	EBCI	BPAC, EBCI Planning, DOT, and Public Works	In 2011, reevaluate priorities based on what has been completed thus far by creating a new agenda of "Phase 2" projects. Consider including phase one projects that were not completed and consider updating certain aspects of the plan's design standards, programs, and policies based on innovations and new ideas since 2009.	Mid Term (2011-2013)
Define and complete Phase 3 Projects	EBCI, NCDOT	NCDOT Bike/Ped Division	In 2014, reassess projects and reevaluate priorities and phases. Consider updating the entire plan.	Long Term (2014-2019)

Map 5.1 System Recommendations Map

Legend

- Schools
- Churches
- Bus Stops
- Recommended Sidewalk
- Existing Sidewalk
- Recommended Trail
- Existing Trail
- Existing Crosswalk
- Buildings
- Roads
- Major roads
- Streams
- County Boundary
- GSMNP



Hubs

1 Intersection Improvements

1 Saunooke Village

3 Harrahs Casino

1 Grocery/Shopping Center

US 19 CBD

0 0.125 0.25 0.5 Miles





Chapter 6: Design Guidelines

This chapter provides pedestrian design guidelines for pedestrian features. All pedestrian facility construction should aim to meet these guidelines when possible.



6.0 OVERVIEW

These recommended guidelines originate from and adhere to national design standards as defined by the American Association of State Highway Transportation Officials (AASHTO), the Americans with Disabilities Act (ADA), the Federal Highway Administration (FHWA) Pedestrian Facilities Users Guide, the Manual on Uniform Traffic Control Devices (MUTCD), and the NCDOT. Another major source of information in this chapter is the Pedestrian and Bicycle Information Center, found online at <http://www.walkinginfo.org>. Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates (planning-level cost estimates can be found in Chapter 5).

The sections below serve as an inventory of pedestrian design elements/treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent minimum standards for creating a pedestrian-friendly, safe, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. Some improvements may also require cooperation with the NCDOT for specific design solutions.

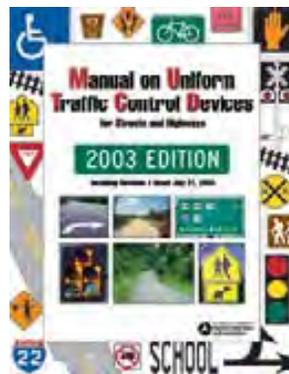
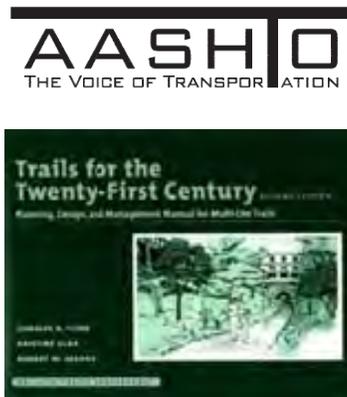
CHAPTER OUTLINE:

OVERVIEW

SIDEWALKS AND WALKWAYS

GREENWAY TRAIL

- PEDESTRIAN FACILITY ELEMENTS:
- MARKED CROSSWALKS
 - CURB RAMP
 - RAISED OR LOWERED MEDIANS
 - ADVANCE STOP BARS
 - BULB-OUTS
 - PEDESTRIAN OVERPASS/ UNDERPASS
 - ROUNDBOUTS
 - TRAFFIC SIGNALS
 - PEDESTRIAN SIGNALS
 - LANDSCAPING
 - ROADWAY LIGHTING IMPROVEMENTS
 - STREET FURNITURE AND WALKING ENVIRONMENT
 - TRANSIT STOP TREATMENTS
 - PEDESTRIAN SIGNS AND WAYFINDING
 - BRIDGES
 - ROAD DIETS
 - LAND USE AND PEDESTRIAN TRAVEL



The Pedestrian and Bicycle Information Center, AASHTO, the MUTCD, nationally recognized trail standards, and other sources have all informed the content of this chapter.



6.1 SIDEWALKS AND WALKWAYS

Sidewalks and walkways 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.

There are a number of options for different settings, for both downtown and more rural and/or suburban areas. From a wide promenade to, in the case of a more rural environment, a simple asphalt or crushed stone path next to a secondary road, walkway form and topography can vary greatly. In general, sidewalks are constructed of concrete although there are some successful examples where other materials such as asphalt, crushed stone, or other slip resistant material have been used. The width of the walkways should correspond to the conditions present in any given location (i.e. level of pedestrian traffic, building setbacks, or other important natural or cultural features). FHWA (Federal Highway Administration) and the Institute of Transportation Engineers both suggest five feet as the minimum width for a sidewalk. This 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.

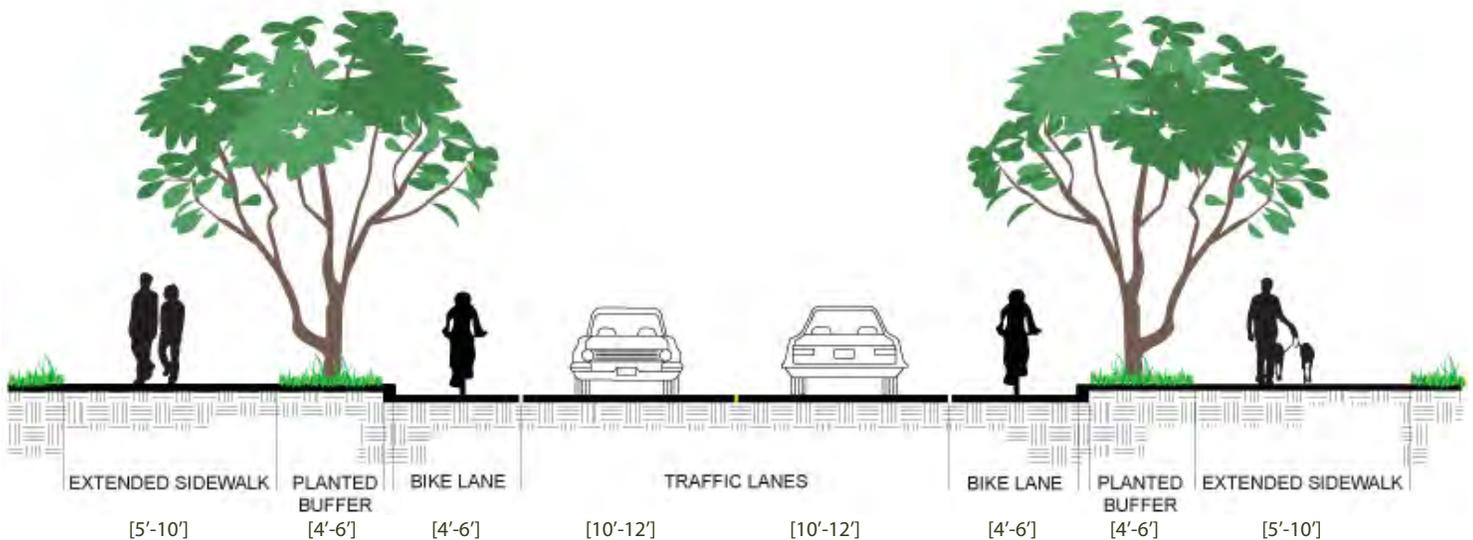


A well designed residential sidewalk will have a width of at least five feet. (Image from <http://www.walkinginfo.org>)



Sidewalk with a vegetated buffer zone. Notice the sense of enclosure created by the large canopy street trees. (Image from <http://www.walkinginfo.org>)

Below: Typical street with bike lanes and adjacent sidewalk.





SIDEWALKS AND WALKWAY GUIDELINES:

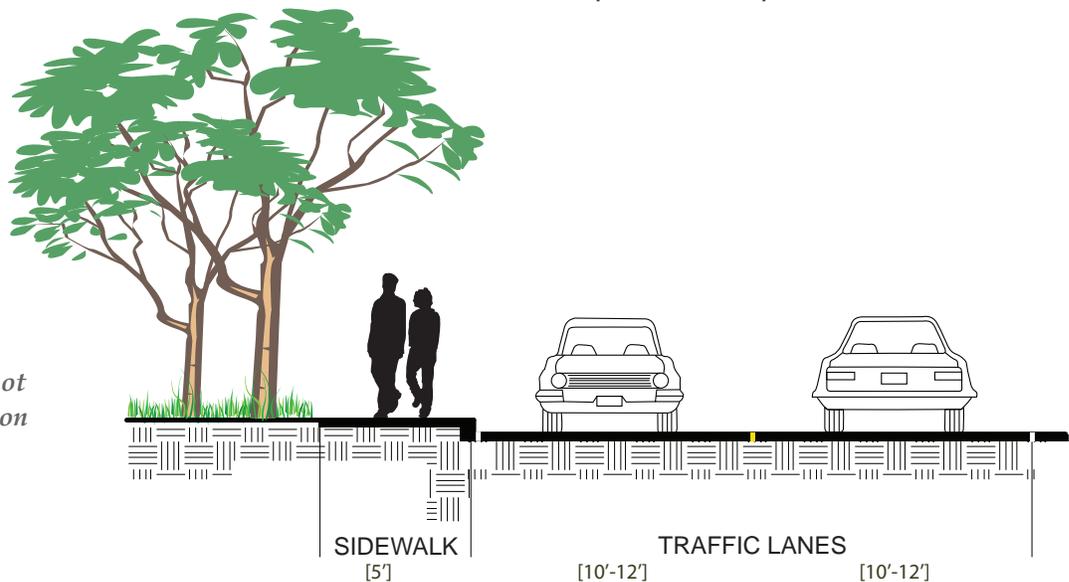
Sidewalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. <http://www.oregonmetro.gov>

- Concrete is preferred surface, providing the longest service life and requiring the least maintenance. Permeable pavement such as porous concrete may be considered to improve water quality.
- Sidewalks should be built as flat as possible to accommodate all pedestrians; they should have a running grade of five percent or less; with a two percent maximum cross-slope.
- Concrete sidewalks should be built to minimum depth of four inches; six inches at driveways.
- Driveways should have maximum cross slope of 2%. Also, the sidewalk should be behind the driveway apron.
- Sidewalks should be a minimum of five feet wide; sidewalks serving mixed use and commercial areas shall be a minimum of 8 ft in width (12–15 feet is required in front of retail storefronts).
- Buffer zone of two to four feet in local or collector streets; five to six feet in arterial or major streets and up to eight feet in busy streets and downtown to provide space for light poles and other street furniture. See the Landscaping section later in this chapter for shade and buffer opportunities of trees and shrubs.
- Motor vehicle access points should be kept to minimum (driveway access management).
- If a sidewalk with buffer on both sides is not feasible due to topography and right-of-way constraints, then a sidewalk or paved shoulder on one side is better than no facility. Each site should be examined in detail to determine placement options.

Right: Where space and topography are limiting and a planted buffer is not possible, this cross section may be applied.





6.2 GREENWAY TRAIL

A greenway is defined as a linear corridor of land that can be either natural, such as rivers and streams, or manmade, such as abandoned railroad beds and utility corridors. Most greenways contain trails. Greenway trails can be paved or unpaved, and can be designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, and those confined to wheelchairs.

Single-tread, multi-use trails are the most common trail type in the nation. These trails vary in width and can accommodate a wide variety of users. The minimum width for two-directional trails is 10', however 12'-14' widths are preferred where heavy traffic is expected. There should also be 8' to 10' of vertical clearance under bridges and other structures. Centerline stripes should be considered for paths that generate substantial amounts of pedestrian traffic, or along curved portions of the trail, where sight-lines are limited. Possible conflicts between user groups must be considered during the design phase, as cyclists often travel at a faster speed than other users. Radii minimums should also be considered depending on the different user groups.

While the vegetative clearing needed for these trails varies with the width of the trail, the minimum width for clearing and grubbing a 14' wide trail is 16'. Selective thinning increases sight lines and distances and enhances the safety of the trail 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.

Below: Vegetation clearing guidelines



Typical pavement design for a paved, off-road, multi-use trail should be based upon the specific loading and soil conditions for each project. Asphalt or concrete trails should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles.



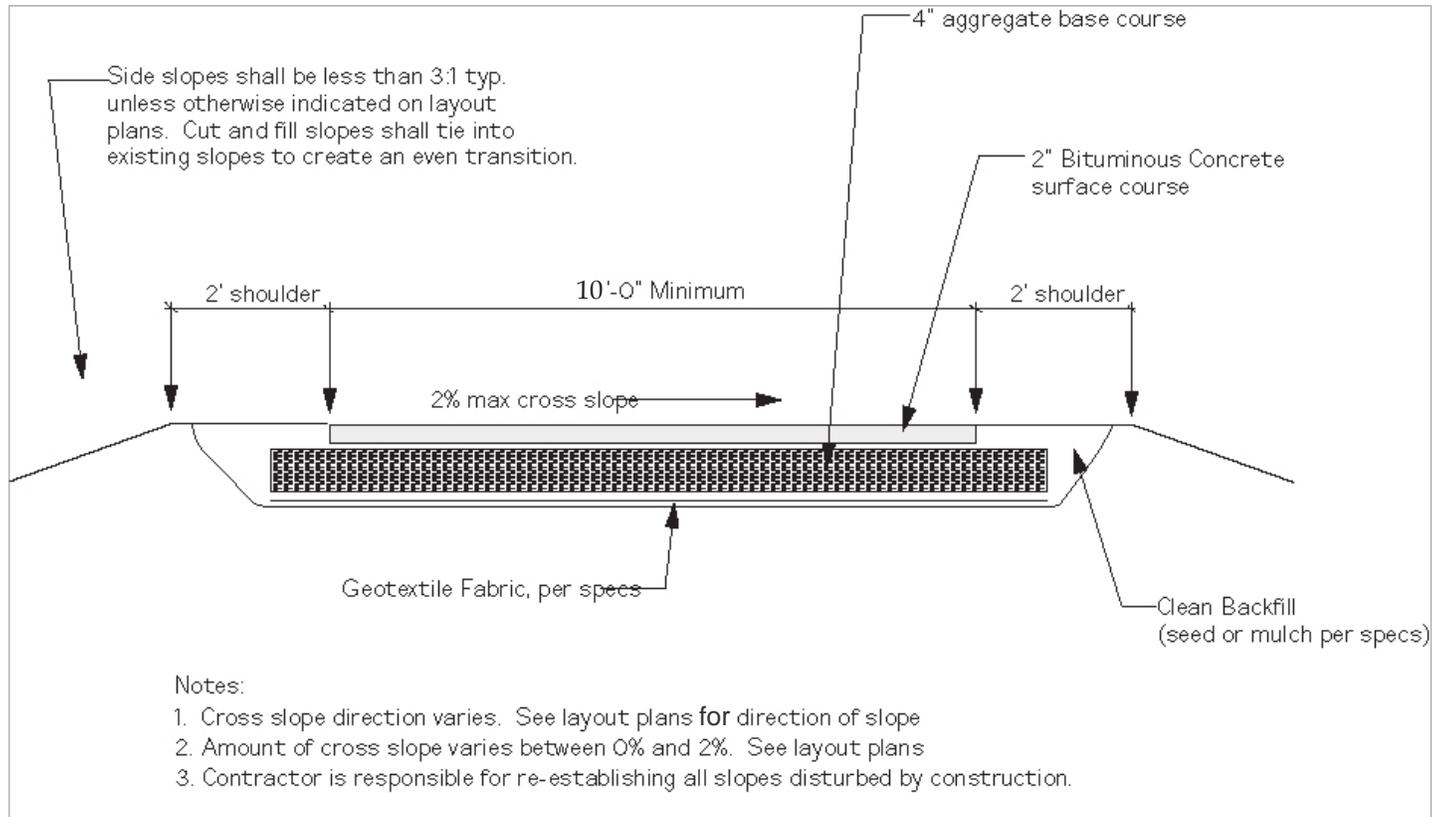
Right: Typical asphalt path section



Right: Typical natural surface trail section



Below: Asphalt pavement construction detail

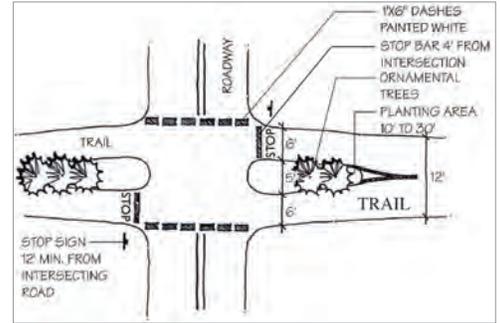




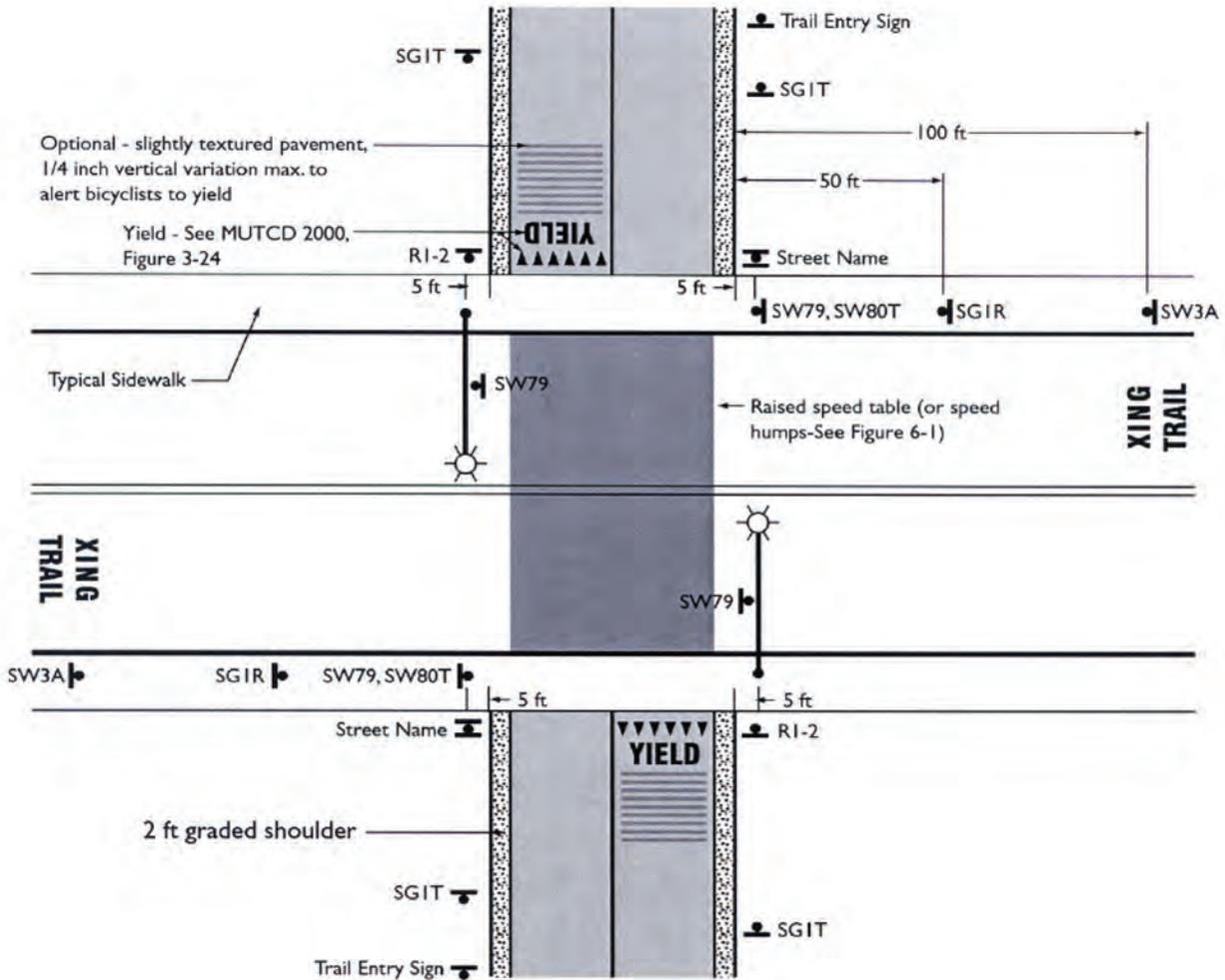
Concrete: In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of withstanding the most powerful environmental forces. They hold up well against the erosive action of water, root intrusion and subgrade deficiencies such as soft soils. Most often, concrete is used for intensive urban applications. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed.

Asphalt: Asphalt is a flexible pavement and can be installed on virtually any slope. One important concern for asphalt trails is the deterioration of trail edges. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a trail. It is important to provide a 2' wide graded shoulder to prevent trail edges from crumbling.

Trail and Roadway Intersections: The images below present detailed specifications for the layout of intersections between trail corridors and roadways. Signage rules for such intersections are available in the Manual for Urban Traffic Control Devices (MUTCD).



Above and below: Typical greenway trail approaches to a roadway





GREENWAY GUIDELINES:

- The minimum greenway width for two-way traffic is 10'; 12' to 14' is preferred.
- The minimum greenway vertical clearance under bridges and other structures should be 8'.
- Greenway crossings should be a safe enough distance from neighboring intersections to not interfere (or be interfered) with traffic flow.
- A roadway with flat topography is desirable to increase motorist visibility of the path crossing.
- Motorists and trail users should be warned, such as with signage (including trail stop signs), changes in pavement texture, flashing beacons, raised crossings, striping, etc.
- A refuge is needed where crossing distance is excessive and in conditions exhibiting high volumes/speeds and where the primary user group crossing the roadway requires additional time, such as school children and the elderly.
- The crossing should occur as close to perpendicular (90 degrees) to the roadway as possible.
- If possible, it may be desirable to bring the path crossing up to a nearby signalized crossing in situations with high speeds/ADT and design and/or physical constraints.
- Signalized crossings may be necessary on trails with significant usage when intersecting with demanding roadways, but MUTCD warrants must be met for the installation of a signalized crossing.
- Sidepaths should be constructed along corridors with relatively few intersections and driveways, reducing conflict points.



Above: A greenway crossing that provides clear designation and warning for both motorists and trail users.



6.3 PEDESTRIAN FACILITY ELEMENTS

MARKED CROSSWALKS

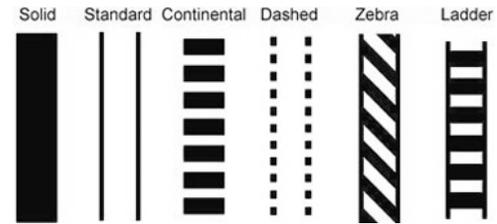
A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings). Every attempt should be made to install crossings at the specific point at which pedestrians are most likely to cross: a well-designed traffic calming location is not effective if pedestrians are instead using more seemingly convenient and potentially dangerous location 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 difficult to maneuver by any person including those with physical mobility or vision impairments. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Potential materials can be vetted by requesting case studies from suppliers regarding where the materials have been successfully applied. Also, as some materials degrade from use or if they are improperly installed, they may become a hazard for the mobility or vision impaired.

Crosswalks may also be raised as a traffic calming measure. A raised pedestrian crossing is also a speed table, with a flat portion the width of a crosswalk, usually 10' to 15'. Raised intersections and crosswalks encourage motorists to slow and yield to the vehicular ramp and elevated pedestrians.

CROSSWALK GUIDELINES:

- Should not be installed in an uncontrolled environment [at intersections without traffic signals] where speeds exceed 40 mph. (AASHTO, 2004)
- Crosswalks alone may not be enough and should be used in conjunction with other measures to improve pedestrian crossing safety, particularly on roads with average daily traffic (ADT) above 10,000
- Width of marked crosswalk should be at least six feet; ideally ten feet or wider in downtown areas.



A variety of patterns are possible in designating a crosswalk; an example of a 'continental' design is shown above.



Crosswalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. <http://www.oregonmetro.gov>

- Curb ramps and other sloped areas should be fully contained within the markings.
- Crosswalk markings should extend the full length of the crossings.
- Crosswalk markings should be white per MUTCD.
- Either the 'continental' or 'ladder' patterns are recommended for intersection improvements for aesthetic and visibility purposes. Lines should be one to two feet wide and spaced one to five feet apart.
- Mid-block crosswalks should not be installed within 300 ft. of another signalized crossing point.
- Utilize advance warning signs when mid-block crossings are present.
- Raised crosswalks should be used on two-lane streets with less than 35mph speed limit and should be 10' to 15' wide.
- NCDOT typically requires pedestrian facilities (sidewalks) on both sides of the roadway when placing crosswalks.



These two pictures portray the same marked crosswalk from different angles. Above is a photo from the motorist perspective. To the right is a photo from the pedestrian perspective. Maintaining the marked crosswalk and/or upgrading to a higher visibility are essential for making the roadway safer for pedestrians.



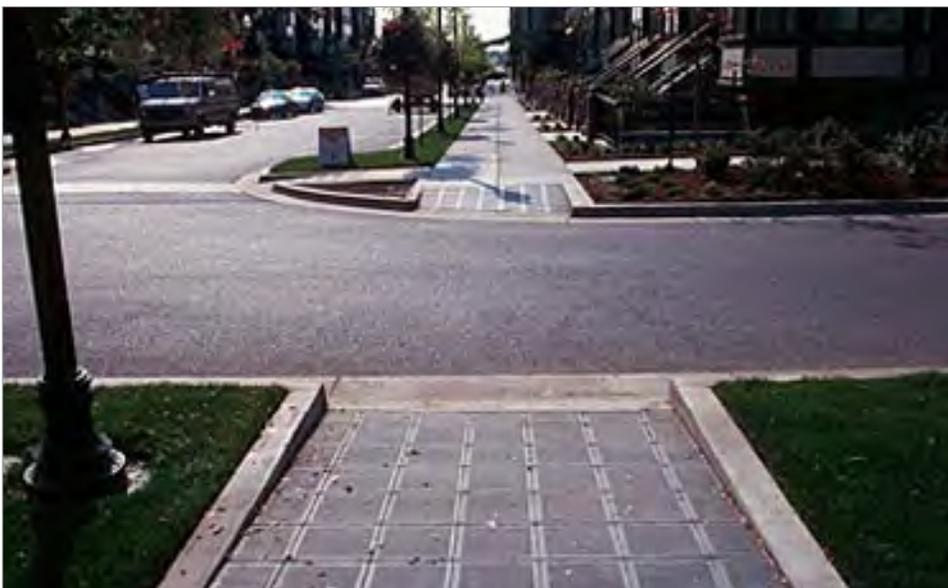
CURB RAMPS

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcars, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. 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 (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/roadway-ramps.cfm>). In addition, these federal regulations require that all new constructed or altered roadways include curb ramps.

Two separate curb ramps should be provided at each intersection (see image below). 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.

CURB RAMP GUIDELINES:

- Two separate curb ramps, one for each crosswalk, should be provided at corner of an intersection.
- Curb ramp should have a slope no greater than 1:12 (8.33%). Side flares should not exceed 1:10 (10%); it is recommended that much less steep slopes be used whenever possible.



Curb Ramp Guideline Sources:

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. <http://www.oregonmetro.gov>

Left: The curb ramps shown have two separate ramps at the intersection (visible across the street) (Image from <http://www.walkinginfo.org>).

*For additional information on curb ramps see *Accessible Rights-of-Way: A Design Guide*, by the U.S. Access Board and the Federal Highway Administration, and *Designing Sidewalks and Trails for Access, Parts I and II*, by the Federal Highway Administration. Visit: www.access-board.gov for the Access board's right-of-way report.*

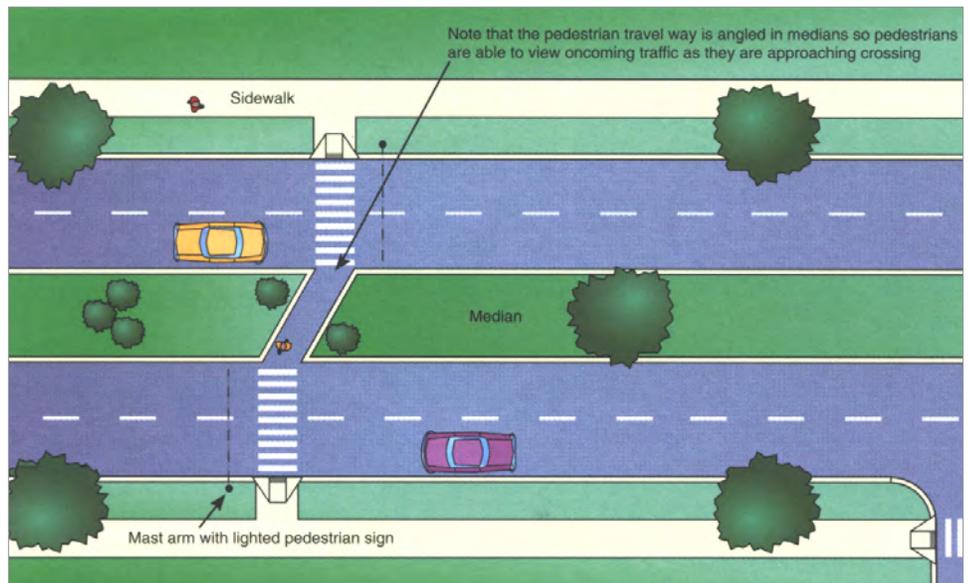
RAISED OR LOWERED MEDIANS

Medians are barriers in the center portion of a street or roadway. When used in conjunction with mid-block or intersection crossings, they can be used as a crossing island to provide a place of refuge for pedestrians. They also provide opportunities for landscaping that in turn can help to slow traffic. A center turn lane can be converted into a raised or lowered median thus increasing motorist safety.

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

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.

Right: A median used in conjunction with mid-block crossing, serving as a refuge for pedestrians. (Image from AASHTO).



Right: an example of a raised median in Durham, NC.





MEDIAN GUIDELINES:

- 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. They should be utilized on high speed and high volume roadways.
- Medians should incorporate trees and plantings to change the character of the street and reduce motor vehicle speed.
- Landscaping should not obstruct the visibility between motorists and pedestrians.
- Median crossings should provide ramps or cut-throughs for ease of accessibility for all pedestrians.
- Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 10 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians.
- Median crossings should possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users.
- Pedestrian push-buttons should be located in the median of all signalized mid-block crossings, where the roadway width is in excess of 60 feet.

Median Guideline Sources:

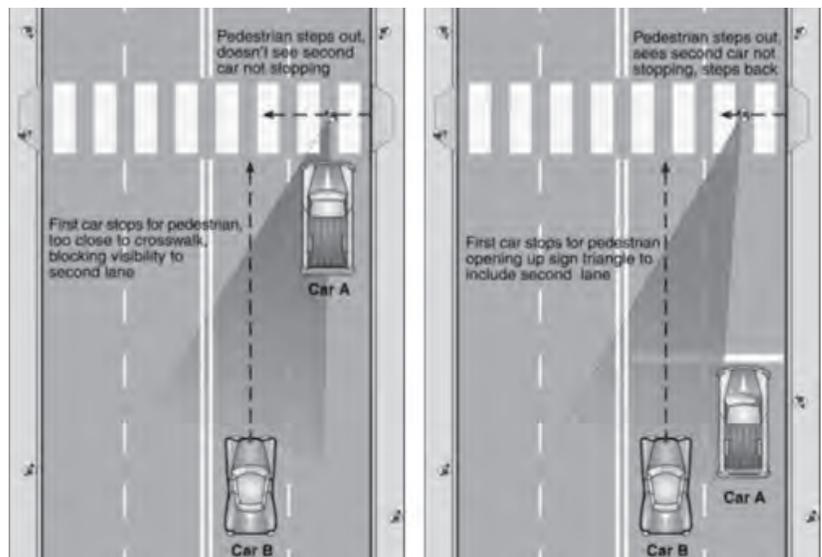
American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. <http://www.oregonmetro.gov>

ADVANCE STOP BARS

Moving the vehicle stop bar 15–30 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings increases vehicle and pedestrian visibility. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other’s intentions. Studies have shown that this distance translates directly into increased safety for both motorist and pedestrian. One study in particular claims that by simply adding a “Stop Here for Pedestrians” sign reduced pedestrian motorist conflict by 67%. When this was used in conjunction with advance stop lines, it increased to 90% (Pedestrian and Bicycle Information Center:<http://www.walkinginfo.org/engineering/crossings-enhancements.cfm>).

Below: Advance stop bars enhance visibility for pedestrians (Image from www.walkinginfo.org).





BULB-OUTS AND CURB RADIUS REDUCTION

A bulb-out, or curb extension, is a place where the sidewalk extends 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. They can be placed either at mid-block crossings or at intersections.

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, bulb-outs preclude vehicle parking too close to a crosswalk. Also, bulb-outs at intersections can greatly reduce turning speed, especially if curb radii are set as tight as possible (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/crossings-curb.cfm>). Finally, bulb-outs also reduce travel speeds when used in mid-block crossings because of the reduced street width.

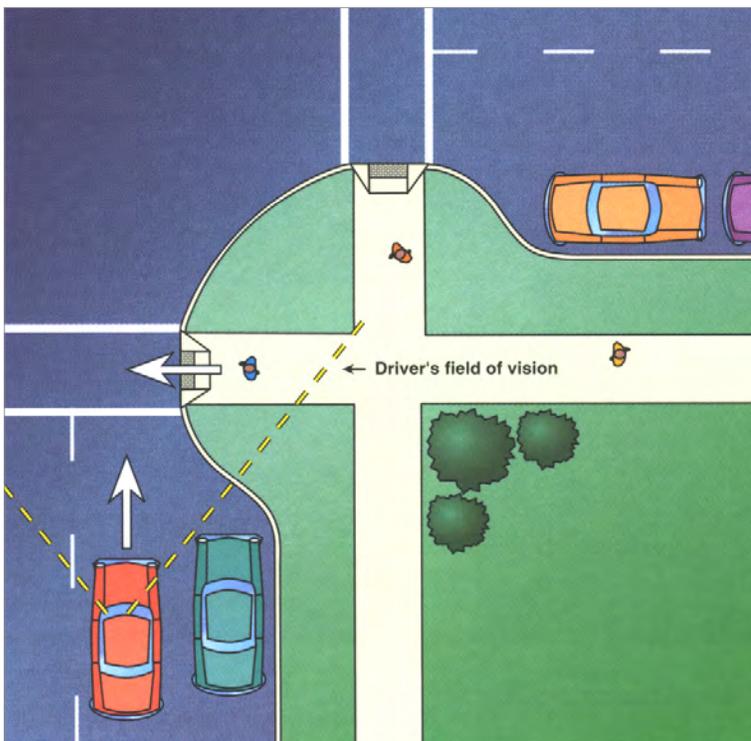
Bulb-outs should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders (Pedestrian and Bicycle Information Center).

By reducing a pedestrian's crossing distance, less time is spent in the roadway, and pedestrian vehicle conflicts are reduced (Image from AASHTO).

Simple curb radius reduction may also be achieved by simply re-installing a standard curb with smaller/tighter radii. This can also slow motorist turning speeds and reduce the crossing distance for pedestrians.

BULB-OUT GUIDELINES:

- Bulb-outs should be used on crosswalks in heavy pedestrian areas where parking may limit the driver's view of the pedestrian.
- Where used, sidewalk bulb-outs should extend into the street for the width of a parking lane (a minimum five feet) in order to provide for a shorter crossing width, increased pedestrian visibility, more space for pedestrian queuing, and a place for sidewalk amenities and planting.
- Curb extensions should be used on mid-block crossing where feasible.
- Curb extensions may be inappropriate for use on corners where frequent right turns are made by trucks or buses.





PEDESTRIAN OVERPASS/UNDERPASS

Pedestrian overpasses and underpasses efficiently allow for pedestrian movement across busy thoroughfares. These types of facilities are problematic in many regards and should only be considered under suitable circumstances or where no other solution is possible. Perhaps the best argument for using them sparingly is that research proves pedestrians will avoid using such a facility if they perceive the ability to cross at grade as taking about the same amount of time (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/crossings-overpasses.cfm>).

The other areas of contention arise with the high cost of construction. There are also ADA requirements for stairs, ramps, and elevators that in many cases once complied with result in an enormous structure that is visually disruptive and difficult to access.

Overpasses work best when existing topography allows for smooth transitions. Underpasses as well work best with favorable topography when they are open and accessible, and exhibit a sense of safety. Each should only be considered with rail lines, high volume traffic areas such as freeways, and other high volume arteries.

OVERPASS/UNDERPASS GUIDELINES:

- Over and underpasses 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 over and underpasses should follow the guidelines for sidewalk width.
- Underpasses should have a daytime illuminance minimum of 10 fc achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle.
- Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.



Example trail overpass (above) and underpass (below).



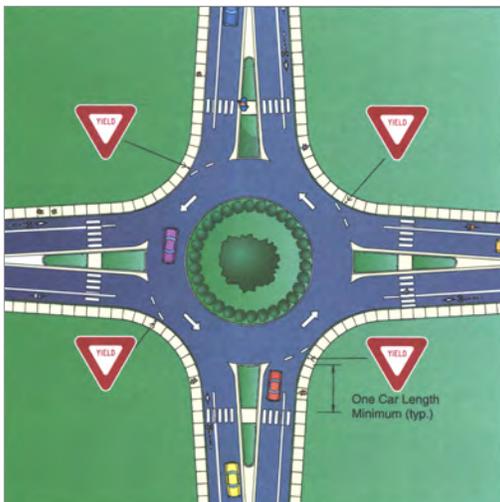


ROUNDAOBOUTS

A roundabout is a circular intersection that maneuvers traffic around in a counterclockwise direction so that cars make a right-hand turn onto a desired street. Vehicles from approaching streets are generally not required to stop although approaching vehicles are required to yield to motorists in the roundabout. It is believed that this system eliminates certain types of crashes at traditional intersections.

Every effort must be made to prompt motorists to yield to pedestrians crossing the roundabout. A low design speed is required to improve pedestrian safety. Splitter islands and single lane approaches both lend to pedestrian safety as well as other urban design elements discussed in this chapter.

*Typical roundabout
(Image from AASHTO)*



Problems also arise with the vision-impaired because there are not proper audible cues associated with when to cross. Studies are underway to develop and test solutions. Auditory accessible pedestrian signals placed on sidewalks and splitter islands are one solution, but again there is no research to prove their efficacy.

ROUNDAOBOUT GUIDELINES:

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



Above: A pedestrian walks through a pedestrian refuge island, as part of a roundabout.



TRAFFIC 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, this does not address 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.

Fixed timed sequencing is often used in high traffic volume commercial or downtown areas to allow for a greater efficiency of traffic flow. In such instances, the pedestrian speed must be carefully checked to ensure safety.

RIGHT TURN ON RED RESTRICTIONS

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

There is legitimate concern that eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. As discussed in the prior section, LPI or exclusive pedestrian intervals may help to alleviate this problem. Eliminating RTOR should be considered on a case-by-case basis and only where there are high pedestrian volumes. This can be done by simple sign postings as illustrated at right.



A low cost sign that restricts right-hand turns at a red light (Image from <http://www.walkinginfo.org>).



PEDESTRIAN SIGNALS

There are a host of traffic signal features and enhancements that can greatly improve the safety and flow of pedestrian traffic. These include countdown signals, the size of traffic signals, positioning of traffic signals, audible cues, and timing intervals which are discussed below (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/crossings-signals.cfm>).

As of 2008, new federal policy requires all new pedestrian signals to be of the countdown variety. In addition, all existing signals must be updated to countdown within 10 years (updated in MUTCD). Countdown signals have proven to be an effective measure of crash reduction (25% crash reduction in 2007 FHWA study).



International symbols used in a crosswalk to designate WALK and DON'T WALK (Image from <http://www.walkinginfo.org>).

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 cues can also be used to pulse along with a countdown signal.

Signals should be of adequate size, clearly visible, and, in some circumstances, accompanied by an audible pulse or other messages to make crossing safe for all pedestrians. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.



Audible cues can also be used to pulse along with a countdown signal.

The timing of these or other pedestrian signals needs to be adapted to a given situation. In general, shorter cycle lengths and longer walk intervals provide better service to pedestrians and encourage better signal compliance. For optimal pedestrian service, fixed-time signal operation usually works best. Pedestrian pushbuttons may be installed at locations where pedestrians are expected intermittently. Quick response to the pushbutton or feedback to the pedestrian (e.g.- indicator light comes on) should be programmed into the system. When used, pushbuttons should be well-signed and within reach and operable from a flat surface for pedestrians in wheelchairs and with visual disabilities. They should be conveniently placed in the area where pedestrians wait to cross. Section 4E.09 within the MUTCD provides detailed guidance for the placement of pushbuttons to ensure accessibility (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/crossings-signals.cfm>).

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.



When high-volume turning situations conflict with pedestrian movements, the exclusive pedestrian interval is the preferred solution. The exclusive pedestrian intervals stop traffic in all directions. In order to keep traffic flowing regularly, there is often a greater pedestrian wait time associated with this system. Although it has been shown that pedestrian crashes have been reduced by 50% in some areas by using these intervals, the long wait times can encourage some to cross when there is a lull in traffic (Pedestrian and Bicycle Information Center: <http://www.walkinginfo.org/engineering/crossings-signals.cfm>).

An LPI gives pedestrians an advance walk signal before the motorists get a green light, giving the pedestrian several seconds to start in the crosswalk where there is a concurrent signal. This makes pedestrians more visible to motorists and motorists more likely to yield to them. This advance crossing phase approach has been used successfully in several places, such as New York City, for two decades and studies have demonstrated reduced conflicts for pedestrians. The advance pedestrian phase is particularly effective where there is a two-lane turning movement. There are some situations where an exclusive pedestrian phase may be preferable to an LPI, such as where there are high-volume turning movements that conflict with the pedestrians crossing.

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. These devices replace the traditional push-button system. They appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts. The best use of these devices is when they are employed to extend crossing time for slower moving pedestrians.

PEDESTRIAN SIGNAL GUIDELINES:

- Pedestrian signals should be placed in locations that are clearly visible to all pedestrians.
- Larger pedestrian signals should be utilized on wider roadways, to ensure readability.
- Pedestrian signal pushbuttons should be well-signed, visible, and clearly indicate which crossing direction they control.
- Pedestrian signal pushbuttons should be reachable from a flat surface, at a maximum height of 3.5 feet and be located on a level landing to ensure ease of operation by pedestrians in wheelchairs.
- Walk intervals should be provided during every cycle, especially in high pedestrian traffic areas.
- NCDOT does not have established guidelines for the placement of pedestrian signals, but generally uses MUTCD and AASHTO warrants for the installation of traffic signals.



LANDSCAPING

The introduction of vegetation in an urban environment can provide a welcomed intervention of nature into a place that is otherwise hardened from buildings, concrete, and asphalt. It can be used to provide a separation buffer between pedestrians and motorists, reduce the width of a roadway, calm traffic by creating a visual narrowing of the roadway, enhance the street environment, and help to generate a desired aesthetic.

Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians. Landscaping and the aforementioned street furniture make people feel welcome.

There are also some instances where islands of vegetation are created to collect and filter stormwater from nearby streets and buildings. These islands are referred to as constructed wetlands, rain gardens, and/or bioswales. When these devices are employed, the benefits listed above are coupled with economic and ecologic benefits of treating stormwater at its source. There are many examples of this in Oregon and Washington, particularly Seattle's Green Streets Program. Using thoughtful design to treat stormwater as an amenity rather than waste to be disposed of in an environmentally harmful manner is gaining popularity nationwide.

Landscaping used on Sea Street in Seattle, Washington shows how stormwater treatment can be tied to aesthetically pleasing plantings. (Image from Seattle, WA, Public Utilities: Seattle.gov)



An issue with this or any landscaping treatment is that of ongoing maintenance. The responsibility often falls on local municipalities although there are instances where local community groups have provided funding and volunteers for maintenance. The best way to address the maintenance issue is to design using 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 other pedestrian obstructions.

Street trees buffer and soften urban environments in a number of psychological, physical, and ecological ways; their shade is particularly helpful to pedestrians in North Carolina during summer months.





ROADWAY LIGHTING IMPROVEMENTS

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 (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities). Attention should be paid to crossings so that there is sufficient ambience for motorists to see pedestrians. To be most effective, lighting should be consistent, adequately spaced, and distinguished, providing adequate light.

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 ambience. A variety of lighting choices include mercury vapor, incandescent, or less expensive high-pressure sodium lighting for pedestrian level lighting. Roadway streetlights can range from 20-40 feet in height while pedestrian-scale lighting is typically 10-15 feet.

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.

GUIDELINES:

- Ensure pedestrian walkways and crossways are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at key intersections.
- Install lighting on both sides of streets in commercial districts.
- Use uniform lighting levels.
- Use full cut-off light fixtures to avoid excess light pollution.
- Space lights every 100 feet (based on a consideration of other communities throughout the country).



The pedestrian-scale lighting shown here in Hickory, NC should be used in areas where pedestrian lighting is desired such as the US 19 CBD and US 19 near Harrah's Casino.



STREET FURNITURE AND WALKING ENVIRONMENT

As part of a comprehensive sidewalk and walkway design, all street furniture should be placed in a manner that allows for a safe, pleasurable, and accessible walking environment. Good-quality street furniture will show that the community values its public spaces and is more cost-effective in the long run. Street furniture includes benches, trash bins, signposts, newspaper racks, water fountains, bike racks, restaurant seating, light posts, and other ornaments that are found within an urban street environment. Street furniture should mostly be considered in the downtown area and other important pedestrian-active areas such as US 19 CBD.

In addition to keeping areas free of obstruction from furniture, a walking environment should be clean and well maintained. Attention to removing debris, trimming vegetation, allowing for proper stormwater drainage, providing proper lighting and sight angles, and repairing or replacing broken or damaged paving material can make an enormous difference in pedestrian perception of safety and aesthetics. Special attention should be paid to the needs of the visually impaired so that tripping hazards and low hanging obstructions are removed.

GUIDELINES:

- Ensure proper placement of furniture; do not block pedestrian walkway or curb ramps or create sightline problems.
- Wall mounted Objects = not to protrude more than 4" from a wall between 27" and 7' from the ground
- Single post mounted Objects = not to protrude more than 4" from each side of the post between 27" and 7' from the ground
- Multiple Post Mounted Objects = lowest edge should be no higher than 27" and no lower than 7'
- Place street furniture at the end of on-street parking spaces rather than in middle to avoid vehicle-exiting conflict.

The street furniture shown here (Downtown Belmont, NC) is placed in such a manner so as to create a safe, pleasurable, and accessible walking environment.





TRANSIT STOP TREATMENTS

Where transit opportunities are available, it is appropriate to consider some of the basic elements of a well designed, accessible, and functional transit stop.

Bus or other transit stops should be located in places that are most suitable for the 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. Some of the most important elements to consider are the most basic: sidewalk connectivity to the stops, proper lighting, legible and adequate transit stop signage, shelter, seating, trash bins, bicycle and even car parking. Transit stops create an area of activity and may generate additional business and pedestrian traffic. Therefore, an opportunity is created to provide adequate sidewalks and other pedestrian oriented design elements. At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be considered.

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.

Local walking and biking maps should also be provided at bus stops, so that people are aware of the nearby destinations and how best to get there without an automobile.



This typical transit stop has all of the key features of shelter, ample seating, bicycle parking, landscaping, and trash bins (Image from <http://www.walkinginfo.org>).

PEDESTRIAN SIGNS AND WAYFINDING

For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website: http://www.pps.org/infol/amenities_bb/signage_guide

Signage provides important safety and wayfinding information to motorist and pedestrian residents and tourists. From a safety standpoint, motorists should be given advance warning of upcoming pedestrian crossings or of traffic calming areas. Signage of any type should be used and regulated judiciously. An inordinate amount of signs creates visual clutter. Under such a condition, important safety or wayfinding information may be ignored resulting in confusion and possible pedestrian vehicle conflict. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

Regulatory signage is used to inform motorists or pedestrians of a legal requirement and should only be used when a legal requirement is not otherwise apparent (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities).

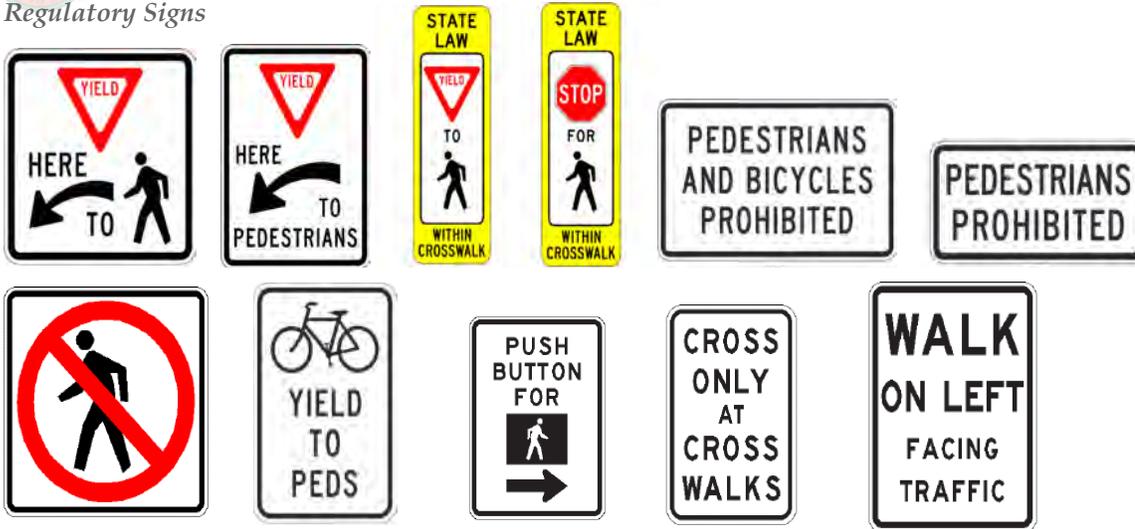
Below: Typical traffic signs found around pedestrian friendly places.

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)	
<ol style="list-style-type: none"> 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. 				



CHAPTER 6 DESIGN GUIDELINES

Regulatory Signs



School, Warning, and Informational Signs

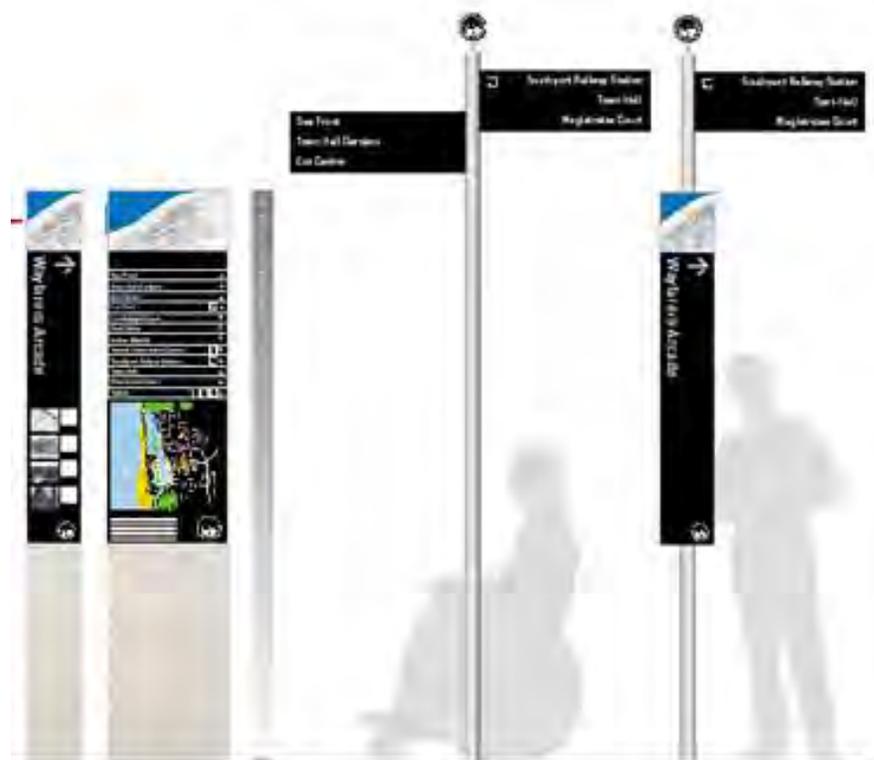


Warning signage is used to inform motorists and pedestrians of unexpected or unusual conditions. When used, they should be placed to provide adequate response times. These include school warning signs and pedestrian crossing signs³.

Below: Wayfinding signs promote aesthetics as well as provide important information (image from Stefton, UK: <http://www.sefton.gov.uk>)

Informational and wayfinding signage can provide information providing guidance to a location along a trail or other pedestrian facility. 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.

Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.





BRIDGES

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the Pedestrian Network. All new or replacement bridges, other than those for controlled access roadways, should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge replacements do not occur regularly, it is important to consider these in longer-term pedestrian planning.

It is DOT bridge policy that within Urban Area boundaries (which are ambiguously defined as the “outer limits of potential urban growth”), sidewalks shall be included on new bridges with curb and gutter approach roadways with no controlled access. Sidewalks should not be included on controlled access facilities. A determination on whether to provide sidewalks on one or both sides of new bridges will be made during the planning process according to the DOT Pedestrian Policy Guidelines. When a sidewalk is justified, it should be a minimum of five to six feet wide with a minimum handrail height of 42”.

It is also DOT bridge policy that bridges within the Federal-aid urban boundaries with rural-type roadway sections (shoulder approaches) may warrant special consideration. To allow for future placement of ADA acceptable sidewalks, sufficient bridge deck width (7.5’ on one side) should be considered on new bridges in order to accommodate the placement of sidewalks. The full Bridge Policy for NCDOT can be download as a Microsoft Word document at this address:

www.ncdot.org/doh/preconstruct/altern/value/manuals/bpe2000.doc

BRIDGE GUIDELINES

- Sidewalks should be included on roadway bridges with no controlled access with curb and gutter approach in Urban Areas.
- Sufficient bridge deck width should be considered on new bridges with rural-type shoulder approaches for future placement of sidewalks.
- Sidewalk should be 5' to 6' wide.
- Minimum handrail height should be 42"



ROAD DIETS

Road diets are often conversions of four-lane undivided roads into three lanes (two through lanes and a center turn lane). The fourth lane may be converted to bicycle lanes, sidewalks, and/or on-street parking. Essentially, space is simply reallocated.

Under most conditions, road diets have minimal effects on vehicle capacity because left-turning vehicles are moved into a common two-way left-turn lane. A road diet also provides benefits to pedestrians as they may reduce vehicle speeds (calm traffic), create opportunities for median refuge islands, and create a situation where there are fewer lanes to cross. The FHWA report *Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations* found that pedestrian crash risk was reduced when pedestrians crossed two and three-lane roads compared to roads with four lanes or more.

This type of road diet is recommended in Chapter 3 as the ideal scenario for improvements to US 19 in the CBD shopping area between the Oconaluftee River bridge and Whitewater Drive (traffic counts range from 11,000-14,000 currently).

ROAD DIET GUIDELINES

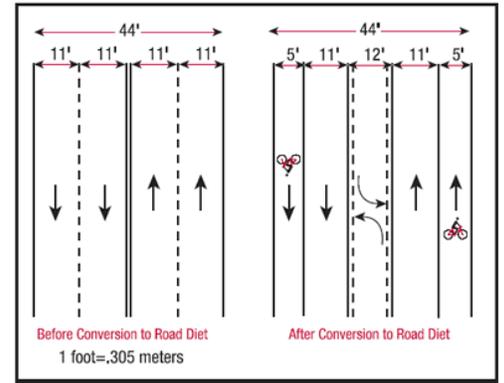
Burden and Lagerway summarize the street and location criteria that can be used to identify potential candidates for road diets:

- Moderate volumes (8,000–15,000 ADT).
- Roads with safety issues.
- Transit corridors
- Popular or essential bicycle routes/links.
- Commercial reinvestment areas.
- Economic enterprise zones.
- Historic streets.
- Scenic roads.
- Entertainment districts.
- Main streets.

Resources:

Summary Report: Evaluation of Lane Reduction “Road Diet” Measures and Their Effects on Crashes and Injuries. (<http://www.tfhr.gov/safety/hsis/pubs/04082/index.htm>).

Burden, D., and P. Lagerway, *Road Diets: Fixing the Big Roads, Walkable Communities, Inc.*, March 1999, available online at <http://www.contextsensitivesolutions.org/content/reading/road-diets-3/resources/road-diets-fixing/>.



Above: Diagram showing conversion of a four-lane road to a three-lane road with bicycle lanes. From: <http://www.tfhr.gov/safety/hsis/pubs/04082/>

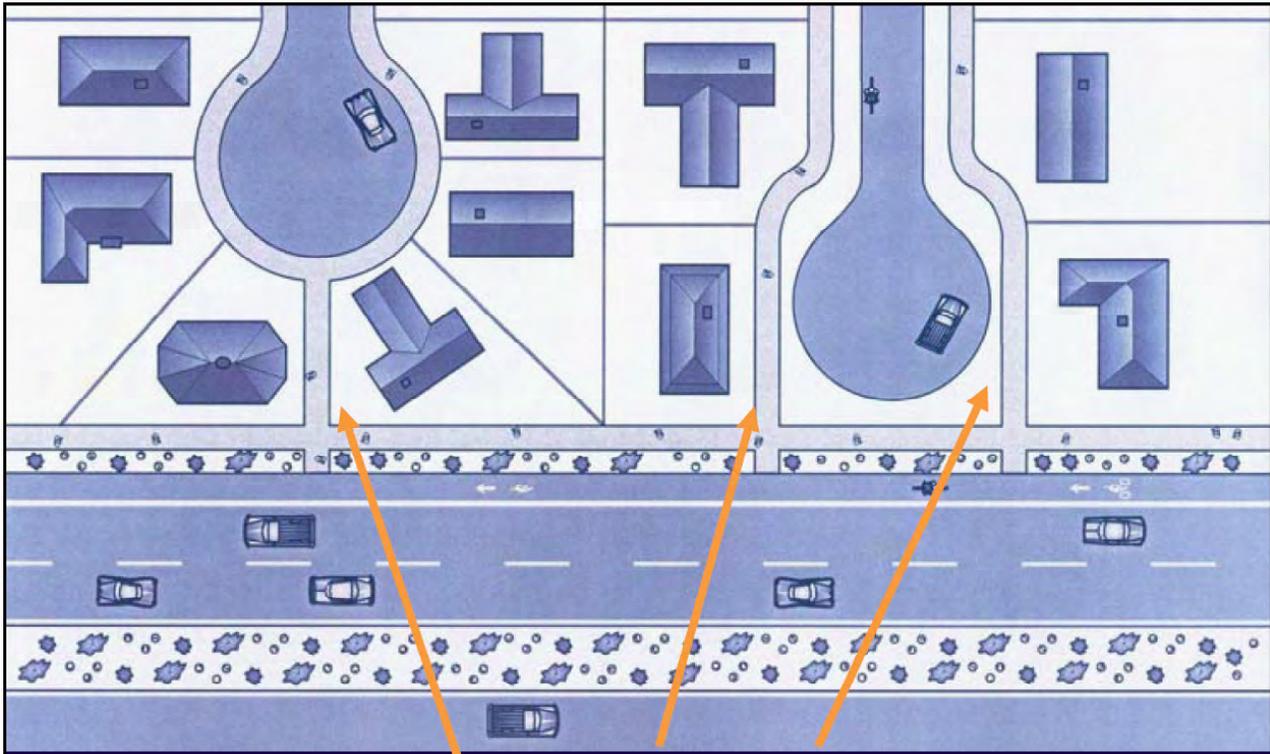


Above: Actual “before and after” pictures of roadway in Charlotte, NC after a road diet.

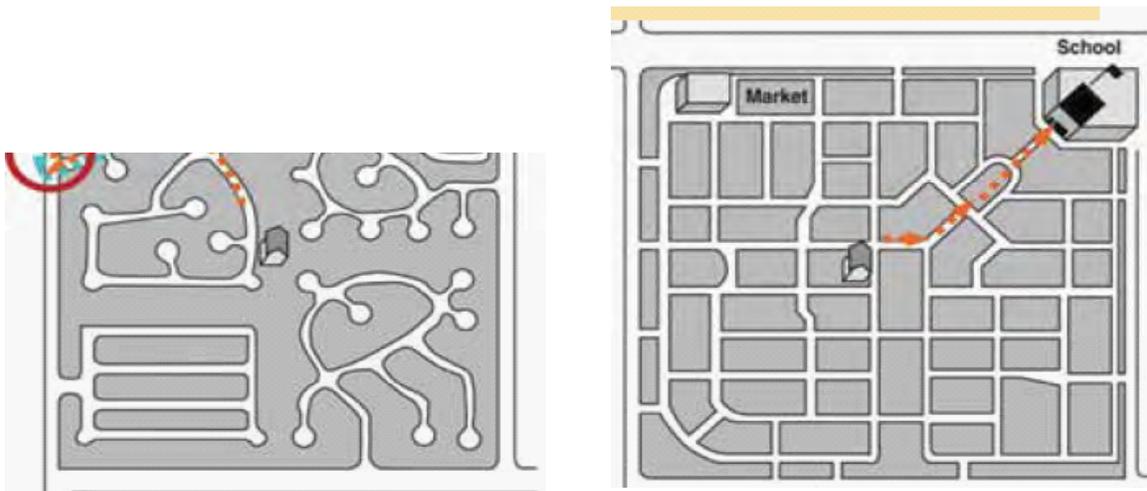


LAND USE AND PEDESTRIAN TRAVEL

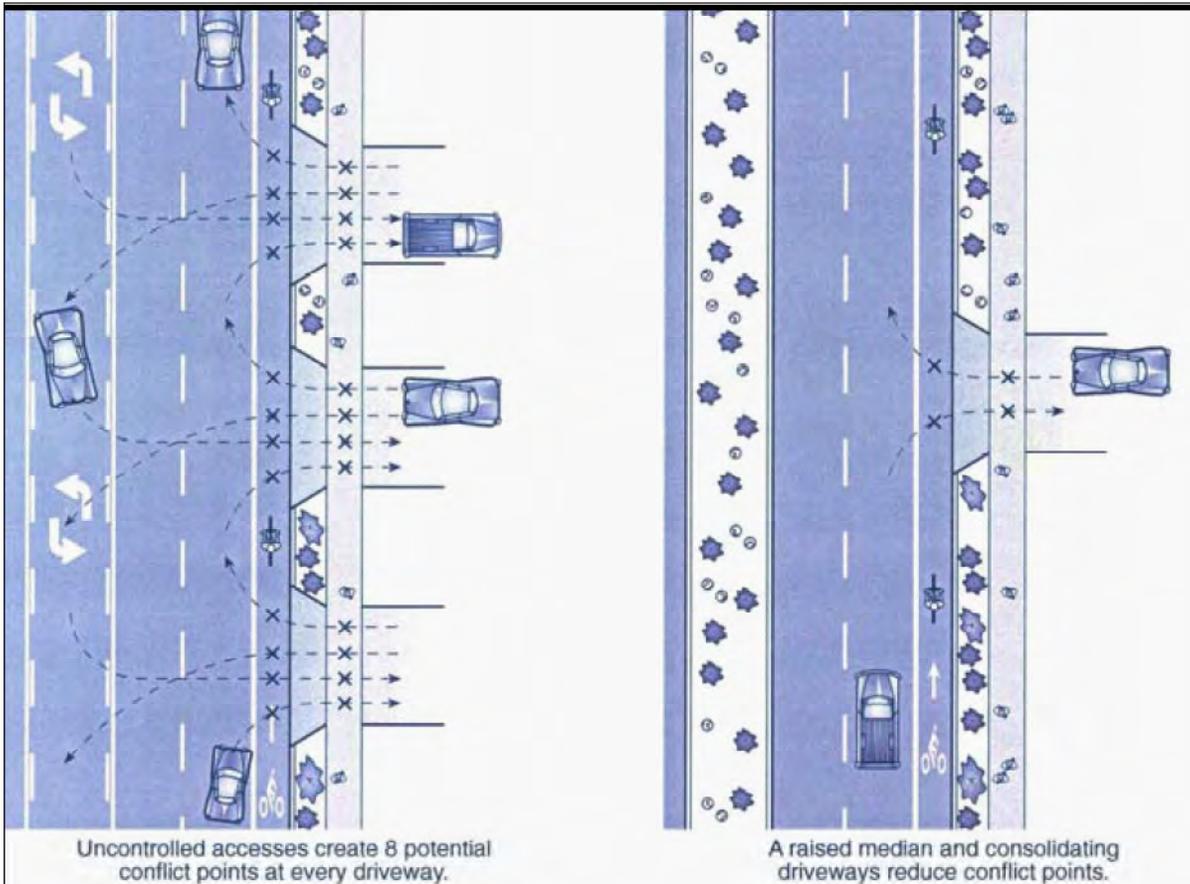
The land use and development environment plays a major role in the walkability of an area. The following are brief examples of the importance of connectivity, not only along corridors and across roadways, but also between neighborhoods and into commercial sites. Driveway access management is also described.



The above example shows the effectiveness of connecting a traditional cul-de-sac neighborhood to a collector or arterial road.



The above example communicates the difference between a connected street and pedestrian network (on right) versus separated cul-de-sac neighborhoods. A person living in the scenario to the right will have a longer trip to school and will likely be forced to travel by automobile. A person living in the scenario could walk to school safely and easily. This scenario, used consistently, would significantly reduce traffic.



Driveway access management is a key issue throughout the United States. A high number of driveway accesses and/or wide driveway accesses create more conflict points between motorists, bicyclists, and pedestrians. Cherokee should attempt to retrofit and build new development with the goal of achieving the scenario above.



Pedestrian connectivity is critical not only between destinations but within destinations, especially parking lots. The example shown above shows an excellent commercial area with clear pedestrian pathways of travel to the front of buildings.

Appendix A: Public Input

This appendix provides a summary of public input received during this planning process. The public input process guided the development of this Plan.



A.0 OVERVIEW

In order to gain local knowledge and input, a public outreach component was included as an integral part of planning efforts for the Cherokee Pedestrian Transportation Plan. Public input was gathered through several different means including the following: Steering Committee meetings, a booth at the Ramp It Up Festival, a public meeting at the monthly Chamber of Commerce meeting, and public comment forms. This offered the representatives and citizens of Cherokee opportunity to contribute to the Plan's development.

Steering Committee meetings were held throughout the planning process with representatives from Cherokee and community. These took place to establish visions and goals for this effort. Committee members also identified key opportunities and strategies for the pedestrian system.

A.1 PUBLIC WORKSHOPS

Two public input workshops were conducted during the planning process. The first opportunity was a booth at the Cherokee Indian Fairgrounds. This was held in conjunction with the annual Ramp It Up Festival. This initial public input session sought to gather preliminary input from citizens to assist in the development of draft recommendations for the plan. The second public workshop presented draft recommendations and solicited public comment during a monthly Chamber of Commerce meeting. Preliminary recommendations were presented in map form at this meeting. Leaders and citizens responded to these draft recommendations by providing feedback and discussion of proposed pedestrian facilities.

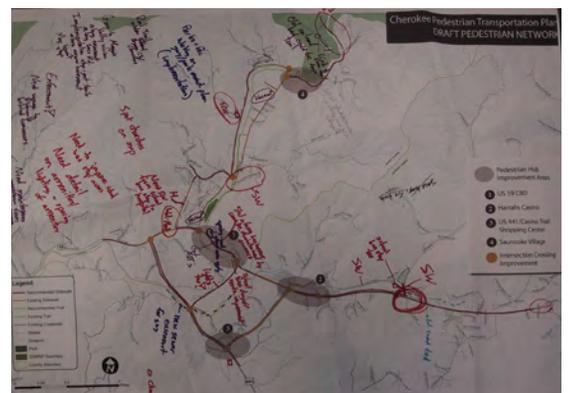
At both workshop sessions, public input was taken in the form of map markups, written comments, question and answer sessions, and through discussions between citizens, consultant staff from Greenways Incorporated and the EBCI staff. In ad-

CHAPTER OUTLINE:

A.0 OVERVIEW

A.1 PUBLIC WORKSHOPS

A.2 COMMENT FORM



A marked up public workshop map.



APPENDIX A: PUBLIC INPUT



Residents provide input at the Ramp It Up Festival.

Cherokee Pedestrian Transportation Plan

Thank you for your interest in the Cherokee Pedestrian Transportation Plan. Please take a few moments to fill out this short questionnaire. Your response will help to build a better understanding of area needs and priorities. Even if you don't walk regularly, your feedback will be helpful. Questions include items on:

- your current walking
- barriers to walking in your community
- desired future walking opportunities
- priorities for future improvements
- general comments

Your response will be anonymous. Click "Next" to get started with the questionnaire.

1. How important to you is improving walking conditions in the Cherokee area? (select one)

Very important
 Somewhat important
 Not important

2. How do you rate present pedestrian conditions in the Cherokee area? (select one)

Excellent
 Fair
 Poor

3. Do you feel that the Cherokee area should consider non-automobile transportation (i.e. pedestrian and bicycle) as a priority? (select one)

Yes
 No
 Doesn't matter

4. How often do you walk now? (select one)

never
 few times per month
 few times per week
 5+ times per week

Page 1

*Above: Hard copy comment form;
Right: Online comment form.*

dition, a hardcopy public comment form was developed and distributed for hand written responses during each meeting.

Goals and ideas that were voiced most consistently were:

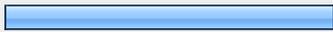
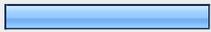
- Improve pedestrian conditions along US 19 CBD.
- Improve pedestrian safety through combination of sidewalks, crosswalks, and lighting improvements.
- Provide pedestrian connectivity to new schools on Big Cove Road.
- Improve pedestrian conditions around Casino including better lighting.
- Establish better enforcement of speed limits throughout Town.
- Improve pedestrian crossings at intersections.

A.2 COMMENT FORM

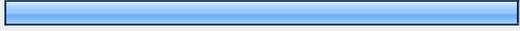
A comment form was developed for Cherokee during this process and made available in both hardcopy and online form. The comment form was available online for four months. To maximize the responses to the online form, the web address was distributed at the public meeting, to local interest groups, in newsletters, and on flyers throughout the Town. Approximately 68 persons completed the comment form.

The comment form results shown on the following pages have been tabulated by Greenways Incorporated to provide insight into local residents' opinions and values.

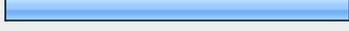
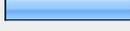
1. How do you rate present pedestrian conditions in the Cherokee area? (select one)

		Response Percent	Response Count
Excellent		6.0%	4
Fair		58.2%	39
Poor		35.8%	24
<i>answered question</i>			67
<i>skipped question</i>			1

2. How important to you is improving walking conditions in the Cherokee area? (select one)

		Response Percent	Response Count
Very important		91.2%	62
Somewhat important		8.8%	6
Not important		0.0%	0
<i>answered question</i>			68
<i>skipped question</i>			0

3. Do you feel that the Cherokee area should consider non-automobile transportation (i.e. pedestrian and bicycle) as a priority? (select one)

		Response Percent	Response Count
Yes		61.2%	41
No		22.4%	15
Doesn't matter		16.4%	11
<i>answered question</i>			67
<i>skipped question</i>			1



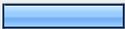
APPENDIX A: PUBLIC INPUT

4. How often do you walk now? (select one)			Response Percent	Response Count
never			16.2%	11
few times per month			27.9%	19
few times per week			36.8%	25
5+ times per week			19.1%	13
			<i>answered question</i>	68
			<i>skipped question</i>	0

5. Would you walk more often if more sidewalks, trails, and safe roadway crossings were provided for pedestrians?			Response Percent	Response Count
Yes			91.2%	62
No			8.8%	6
			<i>answered question</i>	68
			<i>skipped question</i>	0

6. Should public funds be used to improve pedestrian options and facilities?			Response Percent	Response Count
Yes			95.5%	64
No			4.5%	3
			<i>answered question</i>	67
			<i>skipped question</i>	1

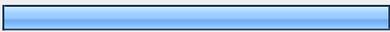
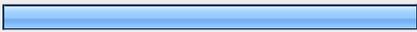
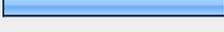
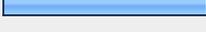
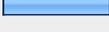
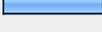
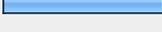
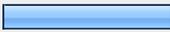
7. What types of funds should be used? (Choose all that apply)			
		Response Percent	Response Count
Capital improvements bond or other financing strategy		39.1%	25
Existing local taxes		37.5%	24
New local taxes		14.1%	9
State and federal grants		73.4%	47
Other (please specify)		3.1%	2
		<i>answered question</i>	64
		<i>skipped question</i>	4

8. For what purposes do you walk most now and/or would you want to walk for in the future? Select all that apply.			
		Response Percent	Response Count
Fitness or recreation		90.9%	60
Transportation to some destination		21.2%	14
Social visits		27.3%	18
Walking the dog		24.2%	16
Walking the baby / pushing a stroller		7.6%	5
		<i>answered question</i>	66
		<i>skipped question</i>	2



APPENDIX A: PUBLIC INPUT

9. What walking destinations would you most like to get to? Select all that apply.			
		Response Percent	Response Count
Place of work		20.3%	13
School		12.5%	8
Restaurants		35.9%	23
Public Transportation		17.2%	11
Shopping		51.6%	33
Parks		57.8%	37
Entertainment		45.3%	29
Trails and greenways		71.9%	46
Libraries or recreation centers		29.7%	19
		<i>answered question</i>	64
		<i>skipped question</i>	4

10. What factors discourage walking? Select all that apply.			
		Response Percent	Response Count
Lack of sidewalks and trails		68.8%	44
Lack of crosswalks at traffic signals		46.9%	30
Lack of pedestrian signals at intersections		39.1%	25
Automobile traffic and speed		73.4%	47
Pedestrian unfriendly streets and land uses		39.1%	25
Lack of interest		10.9%	7
Lack of time		15.6%	10
Aggressive motorist behavior		39.1%	25
Sidewalks in need of repair		35.9%	23
Lack of nearby destinations		18.8%	12
Criminal activity		17.2%	11
Level of street lighting		28.1%	18
Lack of landscaping and/or buffer between sidewalks and road		29.7%	19
		<i>answered question</i>	64
		<i>skipped question</i>	4



APPENDIX A: PUBLIC INPUT

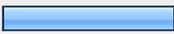
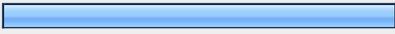
11. What do you think are the top roadway corridors most needing sidewalk or pedestrian crossing improvements?

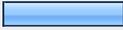
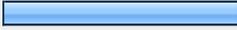
US 19/Downtown - 13
 Big Cove Road/New School - 9
 Acquoni Road/Tribal Offices - 6
 Cultural District/Museum/Outdoor Drama - 5
 US 19/Casino Area - 3
 Other - 19

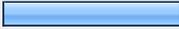
12. What is your zip code?

28719 - 49
 28789 - 6
 28734 - 2
 Other - 7

13. What is your gender?

		Response Percent	Response Count
M		30.2%	19
F		69.8%	44
		<i>answered question</i>	63
		<i>skipped question</i>	5

14. What is your age?			Response Percent	Response Count
0-18			6.0%	4
19-25			1.5%	1
26-35			7.5%	5
36-45			10.4%	7
46-55			11.9%	8
56-65			20.9%	14
65 and older			41.8%	28
			<i>answered question</i>	67
			<i>skipped question</i>	1

15. Where do you live?			Response Percent	Response Count
Cherokee			53.7%	36
Swain County			14.9%	10
Other			31.3%	21
			<i>answered question</i>	67
			<i>skipped question</i>	1



APPENDIX A: PUBLIC INPUT



Appendix B: Glossary

This appendix provides definitions for key terms found throughout this plan.



B.0 OVERVIEW

The material in this glossary is largely taken from the International Pedestrian Lexicon available online at: <http://user.itl.net/~wordcraf/lexicon.html#a>. Other definitions came from a variety of other sources.

B.1 DEFINITIONS

AASHTO – American Association of State Highway and Transportation Officials: a nonprofit, nonpartisan association representing highway and transportation departments of all transportation modes in the 50 states, the District of Columbia and Puerto Rico.

ADA – American Disabilities Act of 1991: The Act gives civil rights protections to individuals with disabilities including equal opportunities in public accommodations, employment, transportation, state and local government services, and telecommunications.

Advance Stop lines - applies to a stop line placed prior to a crosswalk, to either prevent motor vehicle encroachment, or to improve visibility. It plays an important safety role especially in multi-lane roads.

Aesthetics - The study or philosophy of beauty. In pedestrian planning, it refers to pedestrian facilities that are pleasing to view such as landscaping, street furniture, and art.

Alternative Transportation – modes of travel other than private cars, such as walking, bicycling, rollerblading, carpooling and transit

Arterial Connections – interconnected corridors designed to accommodate a large volume of through traffic

Bargain Sale – the sale of a property at less than the fair market value. The difference between a bargain sale price and fair market value often qualifies as a tax-deductible charitable

CHAPTER OUTLINE:

B.0 OVERVIEW

B.1 DEFINITIONS



contribution. Commonly used to acquire land or easements for greenways or multi-use paths.

Bicycle Facilities – a general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling. Examples include, but are not limited to bicycle parking/storage facilities, shared roadways not specifically designated for bicycle use, bicycle lanes, paved shoulders, and sidepaths.

Bridge Culvert – a sewer or drain crossing used for the transference of surface water from a bridge

Buffer Zone - an area of land specifically designed to separate one zoning use from another

Bulb-out - extended pavement to narrow roadway, or pinch through fare, or provide space for bus stop, bench, etc. Commonly used as a traffic calming measure.

Collector Streets – a public road designed to flow traffic from small neighborhood streets and connect to larger thoroughfares

Concurrent Signal Timing - motorists running parallel to a crosswalk are allowed to turn into and through the crosswalk (left or right) after yielding to pedestrians

Condemnation - the taking of private property for public use, with adequate compensation to the owner, under the right of eminent domain

Connectivity - the logical and physical interconnection of functionally related points so that people can move among them

Conservation Easement - a legally binding agreement not to develop part of a property, but to leave it “natural” permanently or for some designated very long period of time regardless of ownership transfer

Corridor - a spatial link between two or more destinations

Crosswalk - a designated point on a road at which some means are employed to assist pedestrians who wish to cross a roadway or intersection. They are designed to keep pedestrians together where they can be seen by motorists, and where they can cross most safely with the flow of vehicular traffic.

Curb Cut – interruption in the curb, as for a driveway

Curb Extension - a section of sidewalk at an intersection or mid-block crossing that reduces the crossing width for bicyclists and pedestrians and is intended to slow the speed of traffic and increase driver awareness



Curb Ramp - a ramp leading smoothly down from a sidewalk, greenway or multiuse path to an intersecting street, rather than abruptly ending with a curb

DBPT - Division of Bicycle and Pedestrian Transportation (NC-DOT)

Demographics - the characteristics of human populations for purposes of social studies

Design Guidelines - a set of discretionary statements and graphics to guide land development and pedestrian facility development to achieve a desired level of quality and safety for pedestrians and the physical environment

Driveway Apron – the section of a driveway between a sidewalk or greenway and the curb

Driveway Access Management - the management and reduction of the size and number of necessary driveway entrances. Driveway access management creates a safer walking environment for pedestrians by reducing crossings and continuing a safe walking zone.

EBCI - Eastern Band of Cherokee Indians

Eminent Domain – the acquisition of property by the government which is deemed to be necessary for the completion of a public project from an owner that is unwilling to negotiate a price for its sale.

EPA – Environmental Protection Agency

Fee Simple Purchase – an outright purchase of the land by municipality

FHWA – Federal Highway Administration

First Right of Refusal - the right specified in an agreement to have the first opportunity to purchase or lease a given property before it is offered to others

Fitness Trail - a pathway upon which users jog or walk from station to station to perform various exercise tasks

GIS – (Geographic Information System) a system for collecting, analyzing and displaying spatial information

Greenway - a linear open space; a corridor composed of natural vegetation. Greenways can be used to create connected networks of open space that include traditional parks and natural areas.



High Volume Artery – an important transportation corridor that is used by large traffic levels

Hub - a center of activity or interest or commerce or transportation; a focal point around which events revolve

Hydrologic Resources – stream and sewer corridors and buffer zones that can be used to facilitate the building of greenways

Illumination - the degree of visibility of your environment. In pedestrian planning, it refers to the degree in which lighting improves visibility for both pedestrians and motorists at dark

Incentive Zoning - a system by which zoning incentives are provided to developers on the condition that specific physical, social, or cultural benefits are provided to the community

Implementation - the realization of an application, or execution of a plan, idea, model, design, specification, standard, algorithm, or policy

Intersection - an area where two or more pathways or roadways join together.

Islands of Vegetation - a landscaping feature that is planted with flora chosen for its ability to remove pollution and toxins. These spaces manage stormwater runoff from impervious surfaces; the water is slowed down, preventing erosion and allowing water to be absorbed into the ground.

Land Use - describes how land is used for example as residential, commercial, or agricultural

Leaseback - the process of selling a property and also entering into a lease to continue using that property

Linear Stream Corridor - generally consists of the stream channel, floodplain, and transitional upland fringe aligned linearly

LPI – Leading pedestrian interval. Pedestrians are given the signal to begin crossing before parallel traffic.

LRTP – Long Range Transportation Plan

Median - a barrier, constructed of concrete, asphalt, or landscaping and separates two directions of traffic.

Median Refuge Island - island in the median, that offers a stopping or halfway point for a pedestrian

Mixed Use Area – a term used to describe a specific area that possesses a combination of different land use types, such as residential, commercial, and recreation



Mode Share - a term used to describe percentage splits in transportation options

MPO – Metropolitan Planning Organization

MUTCD – Manual of Uniform Traffic Control Devices: National standards guidebook on signage and pavement marking for roadways

Municipal Boundary – the limit of municipal jurisdiction

Nature Trail - a marked trail designed to lead people through a natural environment, which highlights and protects resources

NCDOT – North Carolina Department of Transportation

Negotiated Dedications - a local government may ask a landowner to enter into negotiations for certain parcels of land that are deemed beneficial to the protection and preservation of specific parcel of land

On-Road Pedestrian Facility – any sidewalk, curb, median refuge or crosswalk designed for pedestrian use.

Off-Road Trail – paths or trails in areas not served by the street system, such as parks and greenbelt corridors. Off-street paths are intended to serve both recreational uses and other trips, and may accommodate other non-motorized travel modes, such as bicycles in addition to walking.

Open Space - empty or vacant land which is set aside for public or private use and will not be developed. The space may be used for passive or active recreation, or may be reserved to protect or buffer natural areas.

Ordinance - a statute enacted by a city government

Overlay Zone - a zone or district created by the local legislature for the purpose of conserving natural resources or promoting certain types of development. Overlay zones are imposed over existing zoning districts and contain provisions that are applicable in addition to those contained in the zoning law.

Pedestrian - a person on foot or a person on roller skates, roller blades, child's tricycle, non-motorized wheelchair, skateboard, or other non-powered vehicles (excluding bicycles)

Pedestrian Advocacy Group - a group of individuals that promotes community walkability and pedestrian safety through programs, grant-writing, campaigns, and implementation.



Pedestrian Corridor – long distance corridor comprised of on-road sidewalks, crosswalks and related pedestrian facilities.

Pedestrian Network - a continuous, connected pedestrian system composed of sidewalks, trails, and roadway crossing facilities

Planned Unit Development (PUD) - a project or subdivision that includes common property that is owned and maintained by a homeowners' association for the benefit and use of the individual PUD unit owners

Pocket Park - a small area accessible to the general public that is often of primarily environmental, rather than recreational, importance; they can be urban, suburban or rural and often feature as part of urban regeneration plans in inner-city areas to provide areas where wild life can establish a foothold.

Preservation Easement – a voluntary legal agreement that protects historic, archaeological, or cultural resources on a property. The easement provides assurance to the property owner that intrinsic values will be preserved through subsequent ownership. In addition, the owner may obtain substantial tax benefits.

Public Access Easement – a voluntary legal agreement which grants a municipality a perpetual right-of-way and easement for public access and public benefit

Quality of Life - a measure of the standard of living which considers non-financial factors such as health, functional status and social opportunities that are influenced by disease, injury, treatment or social and political policy

Retrofit - the redesign and reconstruction of an existing facility or subsystem to incorporate new technology, to meet new requirements, or to otherwise provide performance not foreseen in the original design.

Right Turn Slip Lane "Pork Chop Island" - the channel created in larger intersection by a very long turning radius to which the pedestrian must cross before being in the formal intersection that is controlled by lights. The right-turn cut-off allows continuous right turns at fairly high speeds without stopping but the drivers do not always yield to pedestrians.

Roundabout - traffic calming device at which traffic streams circularly around a central island after first yielding to the circulating traffic

ROW (right of way) - an easement held by the local jurisdiction over land owned by the adjacent property owners that allows the jurisdiction to exercise control over the surface and above



and below the ground of the right-of-way; usually designated for passage

RPO - Rural Transportation Planning Organization

RTOR – Right turn on red

Safe Routes to School (SRTS) – a federal program that provides funding to encourage and facilitate the planning and implementation of bicycle and pedestrian projects near schools.

SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

Shoulder - The portion of the roadway contiguous with the traveled way for the accommodation of stopped vehicles, for emergency use, and for lateral support of sub-base, base, and surface courses. Paved shoulders can be used for pedestrian and bicycle travel as well.

Shared Use Path (Multi Use Path/Sidepath) - A bikeway and walkway physically separated from motorized vehicular traffic by an open space or barrier and located either within the highway right-of-way (often termed “parallel shared use path”) or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. In some cases shared use paths also accommodate equestrians.

Sidewalk - an improved facility intended to provide for pedestrian movement; usually, but not always, located in the public right-of-way adjacent to a roadway. Typically constructed of concrete, but can be made with asphalt, bricks, stone, wood, and other materials.

Speed Table - Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than Speed Humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction. Speed tables are good for locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles.

Thoroughfare - a public road from one place to another, designed for high traffic volumes and essential connections

TND (traditional neighborhood development) - an area of land developed in a planned fashion for a compatible mixture of residential units for various income levels and nonresidential commercial and workplace uses, with a high priority placed



on access to open spaces

Traffic Calming - a range of measures that reduce the impact of vehicular traffic on residents, pedestrians and cyclists - most commonly on residential streets, but also now on commercial streets

Trip Attractor/Generator - a location which, because of what it contains, generates itself as a destination for people

Village Center - an area in a community where people naturally congregate.



Appendix C: Funding

This appendix provides a funding strategy along with a listing and description of state, federal, local, and private funding sources.



C.0 OVERVIEW

The primary purpose of this appendix is to define and describe possible funding sources that could be used to support the planning, design and development of pedestrian and greenway improvements.

Implementing the recommendations of this plan will require a strong level of local support and commitment through a variety of local funding mechanisms. Perhaps most important is the addition of sidewalk and greenway recommendations from this Plan into the EBCI's Capital Improvement Program (CIP). Pedestrian improvements should become a high priority and be supported through the CIP and local bonds.

The EBCI should also seek a combination of funding sources that include local, state, federal, and private money. Currently, the American Recovery and Reinvestment Act (ARRA) is putting \$27.5 billion towards transportation-related improvements that include pedestrian and bicycle facilities. It will be critical for the EBCI to stay abreast of ARRA opportunities, including TIGER funding and work with the local RPO and NC-DOT to determine if projects are applicable for these monies. The ARRA website is: <http://www.dot.gov/recovery/>

Fortunately, the benefits of protected greenways are many and varied. This allows programs in Cherokee to access money earmarked for a variety of purposes including water quality, hazard mitigation, recreation, air quality, alternate transportation, wildlife protection, community health, and economic development. Competition is almost always stiff for state and federal funds, so it becomes imperative that local governments work together to create multi-jurisdictional partnerships and to develop their own local sources of funding. These sources can then be used to leverage outside assistance. The long term success of this plan will almost certainly depend on the dedi-

CHAPTER OUTLINE:

C.0 OVERVIEW

C.1 HIGH PRIORITY FUNDING OPTIONS

C.2 STATE FUNDING SOURCES

C.3 FEDERAL FUNDING SOURCES

C.4 LOCAL FUNDING SOURCES



cation of a local revenue stream for greenways and sidewalks. An important key to obtaining funding is for Cherokee to have adopted plans for greenway, bicycle, pedestrian or trail systems in place prior to making an application for funding.

For the past two decades, a variety of funding has been used throughout North Carolina to support the planning, design and construction of urban and rural pedestrian and greenway projects. The largest single source of funding for these projects has come from the Surface Transportation Act, first the Intermodal Surface Transportation Efficiency Act (ISTEA) in the early to mid 1990's; then its successor, Transportation Equity Act for the Twenty-First Century (TEA-21) through the early part of 2002; and now the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAF-E TEA-LU). The North Carolina Department of Transportation manages and distributes the majority of federal funds that are derived from the Act to support the development of bicycle/pedestrian/trail development.

The majority of federal funding is distributed to states in the form of block grants and is then distributed throughout a given state for specific projects. State funding programs in North Carolina also support the creation of greenways. North Carolina has developed a broad array of funding sources that address land acquisition, green infrastructure development, and trail facility development.

Additionally, there are many things that the EBCI can do to establish their own funding for sidewalk and greenway initiatives. For the most part, it takes money to get money. For Cherokee, it will be necessary to create a local funding program through one of the methods that is defined within this report. Financing will be needed to administer the continued planning and implementation process, acquire parcels or easements, and manage and maintain facilities.

This appendix is organized by first addressing the overall high priority options and state sources of funding, then addresses separate federal and local government funding sources. It is by no means an exhaustive list as there are hundreds of additional funding sources available that should be researched and pursued as well.

Greenways Incorporated advises the EBCI to pursue a variety of funding options and establish pedestrian recommendations from this Plan as a priority in its Capital Improvement Program (CIP). This appendix identifies a list of some of the pedestrian and greenway funding opportunities that have



typically been pursued by other communities. Creative planning and consistent monitoring of funding options will likely turn up new opportunities not listed here.

C.1 HIGH PRIORITY FUNDING OPTIONS

While there are a number of funding sources provided in the following pages, these sources should be the highest priority in order to achieve successful implementation. It is critical for local government to step up given the competitiveness and changing, finite availabilities of most funding sources. Details about the following sources are found later in this appendix.

- Local Capital Improvements Program (CIP)
- Local Bond
- Local Fees
- State Transportation Improvement Program (TIP)
- State Powell Bill Funds
- State Safe Routes to School Program
- State Parks and Recreation Trust Fund (PARTF)
- State Health and Wellness Trust Fund (HWTF)
- Private Sources

C.2 STATE FUNDING SOURCES

The most direct source of public-sector funding for the EBCI will come from state agencies in North Carolina. Generally, these funds are made available to local governments based on grant-in-aid formulas. The single most important key to obtaining state grant funding is for local governments to have adopted plans for greenway, open space, bicycle, pedestrian or trail systems in place prior to making an application for funding. Unfortunately, there is no direct correlation between any of the programs listed and a constant stream of funding for greenway or trail projects and all projects are funded on the basis of grant applications. There is no specific set aside amount that is allocated for greenway and trail development within a given program. Funding is based solely on need and the need has to be expressed and submitted in the form of a grant application. Finally, all of these programs are geared to address needs across the entire state, so all of the programs are competitive and must allocate funding with the needs of the entire state in mind.

The Powell Bill Program is an annual state allocation to municipalities for use in street system maintenance and construction activities. There is considerable local control over Powell Bill Funds (It is not a grant application process). In the past, the State allocated a considerable portion of these revenues for construction purposes. However, budgetary constraints



since 2001 have led to a shift of new Powell Bill funds to cover maintenance and operations activities.

Both the Powell Bill reserves and the 2000 Transportation Bond funds are limited funding sources that will eventually be depleted. Further, federal highway funds can be expected to provide only a portion of the future resource needs of the sidewalk construction program. For this reason, the development of future state transportation bond initiatives will be critical for continuing implementation of the sidewalk construction program in the future.

In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) has been the single largest source of funding for bicycle, pedestrian and greenway projects, including non-construction projects such as brochures, maps, and public safety information for more than a decade. DBPT offers several programs in support of bicycle and pedestrian facility development. The following information is from NCDOT's interactive web site (www.ncdot.org). Contact the NCDOT, Division of Bicycle and Pedestrian Transportation at (919) 807-0777 for more information.

North Carolina programs are listed below. A good starting website with links to many of the following programs is http://www.enr.state.nc.us/html/tax_credits.html. Other good websites about state funding and stimulus funding are below:

- http://ncarts.org/freeform_scrn_template.cfm?ffscrn_id=509
- http://www.hsnc.edu/news_room/2009-08-05_residents_guide_awards.cfm

North Carolina Department of Transportation

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.



A total of \$6 million is annually set aside for the construction of bicycle improvements that are independent of scheduled highway projects in communities throughout the state. Eighty percent of these funds are from STP-Enhancement funds, while the State Highway Trust provides the remaining 20 percent of the funding.

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.

The division has an annual budget of \$6 million. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html.

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.

Sidewalk Program – Each year, a total of \$1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state receives \$100,000 annually for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding.

Governor's Highway Safety Program (GHSP) –

The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual pro-



gram, 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.org/programs/ghsp/.

Funding Available Through North Carolina Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs)

MPOs in North Carolina which are located in air quality non-attainment 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 Call for Projects, EU, NCDOT

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

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

10. Archaeological Planning and Research
11. Environmental Mitigation
12. Transportation Museums

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

The Call process takes place on even numbered years or as specified by the Secretary of Transportation. For more information, visit: www.ncdot.org/financial/fiscal/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, 48 municipal plans have been selected and funded from 123 applicants. A total of \$2.3 million has been allocated. Funding is secured for 2010 at \$400,000. Additional annual allocations will be sought for subsequent years. The EBCI should apply for bicycle planning grant funding. For more information, visit www.itre.ncsu.edu/ptg/bikeped/ncdot/index.html

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 Bi-



cycle 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. In 2009, more than \$3.6 million went to 22 municipalities and local agencies for infrastructure and non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of side-walks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit www.ncdot.org/programs/safeRoutes/ or contact Leza Mundt at DBPT/NCDOT, (919) 807-0774.

Recreational Trails Program (RTP)

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

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

Powell Bill Program

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or side-walks 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 www.ncdot.org/financial/fiscal/ExtAuditBranch/Powell_Bill/powellbill.html.

North Carolina's Clean Water Management Trust Fund (CWMTF)

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/.

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.partf.net/learn.html



Land and Water Conservation Fund – North Carolina (LWCF)

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

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: <http://ils.unc.edu/parkproject/lwcf/home1.html>

North Carolina Farmland Preservation Trust Fund

Established in 1986, the Farmland Preservation Trust Fund was funded by appropriations from the General Assembly. Managed by the N.C. Department of Agriculture and Consumer Services and contracted to the Conservation Trust for N.C. (CTNC). The General Assembly has appropriated \$2.65 M since 1998. The 2002 General Assembly appropriated \$200K; 2003 General Assembly, \$0. NCDACS has awarded grants to help local land trusts and counties with farmland protection programs work with farm families to arrange permanent conservation easements on over 4270 acres and large parts of 30 farms. These grants have leveraged over \$20 M from other private and public funding sources and donations of development rights from farm owners. Contact CTNC at 919-828-4199. E-mail: info@ctnc.org or Web site: <http://www.ctnc.org>



Any county that has established by ordinance a farmland preservation program or a qualified, private, non-profit land conservation organization, is eligible to apply for a grant. Grants may be submitted for reimbursement of up to 70% of real costs for transactional expenses in acquiring agricultural conservation easements through donation or purchase, including--but not limited to--documented costs for environmental audits, legal fees, appraisals, surveys, purchase options, personnel expenses for project preparation, and long-term easement monitoring and enforcement costs. Grant requests cannot exceed a maximum of \$25,000 per project.

Contact: Conservation Trust for North Carolina, 1028 Washington St, Raleigh, NC 27605. 919-828-4199. Web site: www.ctnc.org. E-mail: info@ctncc.org.

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/agcostshare-program.html or call 919-733-2302.

North Carolina 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 Adopt-a-Trail Grants

Operated by the Trails Section of the NC Division of State Parks, annual grants are available to local governments for trail and



facility construction. Grants are generally capped at about \$5,000 per project and do not require a match. The Adopt-A-Trail grant program awards \$135,000 annually to local governments, nonprofit organizations and private trail groups for trails projects. The funds can be used for trail building, trail signage and facilities, trail maintenance, trail brochures and maps, and other related uses. Applications for funding may be obtained by contacting a regional trails specialist or the State Trails Program at (919) 715-8699. Applications are due for the each year's funding cycle at the end of February.

Contact: Darrell McBane, State Trails Coordinator, 12700 Bayleaf Church Road, Raleigh, NC 27614 (919) 846-9991. Web site: <http://ils.unc.edu/parkproject/trails/grant.html>. E-mail: darrell.mcbane@ncmail.net.

North Carolina Division of Water Quality - 319 Program Grants

By amendment to the Clean Water Act Section in 1987, the Section 319 Grant program was established to provide funding for efforts to curb non-point source (NPS) pollution, including that which occurs through stormwater runoff. The U.S. Environmental Protection Agency provides funds to state and tribal agencies, which are then allocated via a competitive grant process to organizations to address current or potential NPS concerns. Funds may be used to demonstrate best management practices (BMPs), establish Total Maximum Daily Load (TMDL) for a watershed, or to restore impaired streams or other water resources. In North Carolina, the 319 Grant Program is administered by the Division of Water Quality of the Department of Environment and Natural Resources. Each fiscal year North Carolina is awarded nearly \$5 million dollars to address non-point source pollution through its 319 Grant program. Thirty percent of the funding supports ongoing state non-point source programs. The remaining seventy percent is made available through a competitive grants process. At the beginning of each year (normally by mid-February), the NC 319 Program issues a request for proposals with an open response period of three months. Approximately \$880,000 will be available statewide for distribution to grant recipients.

Grants are divided into two categories: Base and Incremental. Base Projects concern research-oriented, demonstrative, or educational purposes for identifying and preventing potential NPS areas in the state, where waters may be at risk of becoming impaired. Incremental projects seek to restore streams or other portions of watersheds that are already impaired and not presently satisfying their intended uses. State and local



governments, interstate and intrastate agencies, public and private nonprofit organizations, and educational institutions are eligible to apply for Section 319 monies. An interagency workgroup reviews the proposals and selects those of merit to be funded.

Contact: North Carolina DWQ, 512 N. Salisbury St. Raleigh, NC 27604. (919) 733-7015 Web site: www.h2o.enr.state.nc.us/nps/Section_319_Grant_Program.htm. E-mail: kimberly.nimmer@ncmail.net.

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 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.

North Carolina Wetlands Restoration Program (NCWRP)

This is a non-regulatory program established by the NC General Assembly in 1996. The goals of the NCWRP are to:

- Protect and improve water quality by restoring wetland, stream and riparian area functions and values lost through historic, current and future impacts.
- Achieve a net increase in wetland acreage, functions and values in all of North Carolina's major river basins.
- Promote a comprehensive approach for the protection of natural resources.
- Provide a consistent approach to address compensatory mitigation requirements associated with wetland, stream, and buffer regulations, and to increase the ecological effective-



ness of compensatory mitigation projects.

Additional information about the program and potential funding assistance with the restoration or creation of wetlands can be found at www.h2o.enr.state.nc.us/wrp

Contact: Tad Boggs, Ecosystem Enhancement Program Coordinator, NC Wetlands Restoration Program, 1619 Mail Service Center, Raleigh, NC 27699-1619. (919) 715-2227. E-mail: tad.boggs@ncmail.net.

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

Urban and Community Forestry Assistance Program

The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. It 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. 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.

Greenways are a specific category within the program "Natu-



ralization Projects or Greenway Development.” These types of projects can be combined with tree planting, where native species are used and environmental benefits to the community are emphasized. Planning and development, assessments and studies, maps and drawings, promotional and educational materials may be eligible for funding when matched with a solid volunteer and in-kind staffing match. Forest buffers, connecting corridors between fragmented wooded areas, riparian buffers/protection, or reduction of mowing maintenance in municipal parks through edge naturalization, are some naturalization projects that will be considered for grants. Approximately \$200,000 is available each year for grant recipients.

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.

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.

North Carolina Health and Wellness Trust Fund (HWTF)

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.

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.enr.state.nc.us/conservationtaxcredit/.



C.3 FEDERAL FUNDING SOURCES

Most federal programs provide block grants directly to states through funding formulas. For example, if a North Carolina community wants funding to support a transportation initiative, they would contact the North Carolina Department of Transportation and not the US Department of Transportation to obtain a grant. Despite the fact that it is rare for a local community to obtain a funding grant directly from a federal agency, it is relevant to list some additional federal programs below.

Community Block Development Grant Program (HUD-CBDG)

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/.

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 on all SAFETEA-LU programs, visit <http://www.fhwa.dot.gov/safetealu/>.

The National Endowment of the Arts

Many organizations seek ways to incorporate more of their community into their pedestrian, and greenway planning. One way to do this is to celebrate the cultural and historic uniqueness of communities. There are some funding opportunities for these types of projects. The National Endowment of the Arts funds arts-related programs through the Design Arts Program Assistance, and provides many links to other federal departments and agencies that offer funding opportunities for arts and cultural 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/>

C.4 LOCAL FUNDING SOURCES

The EBCI will need to create independent, local funding sources to be used to match federal and state grants for pedestrian facility and greenway development. Local support and funding is the most integral component of successful pedestrian facility implementation. This section provides a list of funding options that each of the local governments should consider for future greenway development, sidewalk development, and open space protection.

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.



Bonds/Loans

Bonds have been a very popular way for communities across the country to finance their open space and greenway projects. A number of bond options are listed below. If local government decides to pursue a bond issue, consideration should be given to combining the needs of Cherokee into a single bond proposal. 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.

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

Local governments 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 open space acquisition and make funds available for immediate purchases. 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 con-

tinued 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).

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 local government activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance open space system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund open space could limit the county's or a 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 and Service Charges

Several fee options that have been used by other local governments are listed here:

Impact Fees

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”). Park and greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional open space 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.

Pursuing park and greenway impact fees will require enabling legislation to authorize the collection of the fees.

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate on-site open space that would serve their development, some communities provide a choice of paying a front-end charge for off-site open space protection. Payment is generally a condition of development approval and recovers the cost of the off-site greenway or open space land acquisition or



the development's proportionate share of the cost of a regional parcel 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.

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.

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.

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, regu-



lations, and rules.

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.

Tax Increment Financing

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

Partnerships

Another, often overlooked, 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 which make

those critical connections to place of business would be targeted for private partners' monetary support, but only after a successful master planning effort. People rarely fund issues before they understand them and their immediate and direct impact. 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.

Other Local Options

Local Capital Improvements Program

As discussed in Chapter 5 and the beginning of this appendix, a strong local Capital Improvements Program (CIP) commitment, dedicated to sidewalk and greenway development, is critical for long-term implementation. Project priorities and costs are discussed in Chapters 3 and 5. Currently, \$15,000 is allocated for greenway development each year in Black Mountain, NC. In Raleigh, 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 Parks and Recreation Department. In Graham, NC, \$100,000 is allocated towards sidewalk development each year.

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 a 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, EBCI



staff will discuss the proposed apportionment and allocation methodology and will explore implementation strategies. The municipality can manage maintenance responsibilities either through its own staff or through private contractors.

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 or a new park or canoe access point. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

Private Foundations and Corporations

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

Foundation for the Carolinas

Established in 1958, the Foundation for the Carolinas is the one of the largest community foundations in the South. Building A Better Future, the foundation's major grantmaking program, awards grants only to organizations located in or serving the greater Charlotte area. The foundation's specialized grants programs include the African American Community Endowment Fund (Charlotte-Mecklenburg and surrounding communities), HIV/AIDS Consortium Grants (13 Charlotte-area counties), and the Medical Research Grants program (North and South Carolina). The foundation's Web site features information for potential donors; program information, guidelines, and deadlines; listings of senior management and board members; an electronic form for requesting copies of the foundation's pub-

lications; and contact information. Web site: <http://www.ffc.org/>

Cherokee Preservation Foundation

The Cherokee Preservation Foundation's purpose is to improve the quality of life of the Eastern Band of Cherokee Indians (EBCI) and strengthen the western North Carolina region. The Foundation's focus is on project, planning and capacity initiatives that will enhance the Cherokee culture, facilitate economic development and job opportunities, and improve the environment. We are helping the EBCI and its neighbors address challenges that include the loss of jobs from manufacturing plant closures, potential environmental degradation due to increased traffic and localized growth in specific areas, the deteriorating growth of small and medium businesses in the region, and a decline in visits from tourists to Cherokee cultural events and institutions. Web site: <http://www.cherokeepreservationfdn.org/>

Community Foundation of Western North Carolina

The Community Foundation of Western North Carolina promotes and expands regional philanthropy and develops local funds that address changing needs and opportunities in the 18 counties of Western North Carolina. The Community Foundation of Western North Carolina (www.cfwnc.org) works with donors to create and manage charitable funds and then make grants to non-profit efforts in the 18 counties of the mountain region. The Foundation's current grant programs include New Horizons (supporting the arts, environment, education, health care and people in need), Summertime Kids, Learning Links, Organizational Development and Medication Assistance. Information about the Foundation's affiliate funds, including Cashiers Community Fund, the Fund for Haywood County and Highlands Community Foundation, is also available on the Foundation's Web site.

Land for Tomorrow Campaign

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign is asking the North Carolina General Assembly to support issuance of a bond for \$200 million a year for five years to preserve and protect its special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that



working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. Website: <http://www.landfortomorrow.org/>

The Robert Wood Johnson Foundation

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

- To assure that all Americans have access to basic health care at a reasonable cost
 - To improve care and support for people with chronic health conditions
 - To promote healthy communities and lifestyles
 - To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs
- For more specific information about what types of projects are funded and how to apply, visit <http://www.rwjf.org/applications/>.

North Carolina Community Foundation

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

Z. Smith Reynolds Foundation

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. They have two grant cycles per year and generally do not fund land acquisition. However, they may be able to support Cherokee in other areas of open

space and greenways development. More information is available at www.zsr.org.

Bank of America Charitable Foundation, Inc.

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

Duke Energy Foundation

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

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

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

American Greenways Eastman Kodak Awards

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

National Trails Fund

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward



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

Projects the American Hiking Society will consider include:

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

Web site: www.americanhiking.org/alliance/fund.html.

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. One hundred percent of its member companies' dues go directly to diverse, local community groups across the nation - groups like Southern Utah Wilderness Alliance, Alliance for the Wild Rockies, The Greater Yellowstone Coalition, the South Yuba River Citizens' League, RESTORE: The North Woods and the Sinkyone Wilderness Council (a Native American-owned/operated wilderness park). For these groups, who seek to protect the last great wild lands and waterways from resource extraction and commercial development, the Alliance's grants are substantial in size (about \$35,000 each), and have often made the difference between success and defeat. Since its inception in 1989, The Conservation Alliance has contributed \$4,775,059 to grassroots environmental groups across the nation, and its member companies are proud of the results: To date the groups funded have saved over 34 million acres of wild lands and 14 dams have been ei-



ther prevented or removed-all through grassroots community efforts.

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

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

Web site: www.conservationalliance.com/index.m. E-mail: john@conservationalliance.com.

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation awards matching grants under its Keystone Initiatives to achieve measurable outcomes in the conservation of fish, wildlife, plants and the habitats on which they depend. Awards are made on a competitive basis to eligi-



ble grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants generally range from \$50,000-\$300,000 and typically require a minimum 2:1 non-federal match.

Funding priorities include bird, fish, marine/coastal, and wild-life and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals. Website: <http://www.nfwf.org/AM/Template.cfm?Section=Grants> where additional grant programs are described.

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/>.



APPENDIX C: FUNDING



Appendix D: Greenway Acquisition

This appendix provides a toolbox of greenway trail acquisition opportunities for the EBCI.



D.0 OVERVIEW

There are many different ways for the EBCI to secure trail right-of-way for trail development. The recommended alignment of sidepaths and trails follow publicly owned land (roadway easements, parklands, and conservation lands) wherever possible. However, it will be necessary to work with landowners at times, including along the northern sections of Cherokee, to extend the River Greenway Trail. The following text provides a list of options that should be considered in securing right-of-way.

D.1 PARTNERSHIPS

The EBCI should pursue partnerships with land trusts and land managers to make more effective use of their land acquisition funds and strategies. The following offers recommendations on how these partnerships could be strengthened

Land Trusts

Land trust organizations, such as the Trust for Public Lands and Conservation Trust for North Carolina to name just two, are valuable partners, when it comes to acquiring land and rights-of-way for greenways. These groups can work directly with landowners and conduct their business in private so that sensitive land transactions are handled in an appropriate manner. Once the transaction has occurred, the land trust will usually convey the acquired land or easement to a public agency, such as a town or county for permanent stewardship and ownership.

Private Land Managers

Another possible partnership that could be strengthened would be with the utility companies that manage land throughout the mountain region. Trails and greenways can be built on rights-of-ways that are either owned or leased by electric and natural gas companies. Electric utility companies have

CHAPTER OUTLINE:

D.0 OVERVIEW

D.1 PARTNERSHIPS

D.2 GREENWAY ACQUISITION TOOLS

D.2.1 REGULATION

D.2.2 LAND MANAGEMENT

D.2.3 ACQUISITION



long recognized the value of partnering with local communities, non-profit trail organizations, and private land owners to permit their rights-of-ways to be used for trail development. This has occurred all over the United States and throughout North Carolina.

The EBCI should actively update and maintain relationships with private utility and land managers to ensure that community wide bicycle, pedestrian and greenway system can be accommodated within these rights-of-way. The respective municipalities will need to demonstrate to these companies that maintenance will be addressed, liability will be reduced and minimized and access to utility needs will be provided.

D.2 GREENWAY ACQUISITION TOOLS

The following menu of tools describe various methods of acquisition that can be used by landowners, land conservation organizations, Cherokee, and other surrounding municipalities to acquire greenway lands.

D.2.1. GOVERNMENT REGULATION

Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulatory methods help shape the use of land without transferring or selling the land. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development as well as conserve and protect greenway resources.

Exactions

An exaction is a condition of development approval that requires development to provide or contribute to the financing of public facilities at their own expense. For example, a developer may be required to build a greenway on-site as a condition of developing a certain number of units because the development will create the need for new parks or will harm existing parks due to overuse. This mechanism can be used to protect or preserve greenway lands, which are then donated to the EBCI. Consideration should be given to include greenway development in future exaction programs. Most commonly, exactions are in the form of mandatory dedications of lands for parks and infrastructure, fees in lieu of mandatory dedication, or impact fees.

Mandatory Dedication

This is a type of exaction where subdivision regulations require a developer to dedicate or donate improved land to the public interest. A dedication may involve the fee simple title to



the land, an easement, or some other property interest. Sometimes, the construction of an improvement itself is required such as a park or greenway.

Fee-in-Lieu

An exaction can take the form of a fee-in-lieu of mandatory dedication. It can also complement negotiated dedications (described below). Based on the density of development, this program allows a developer the alternative of paying money for the development/protection of open space and greenways in lieu of dedicating greenway and park lands. Payments are made representing the value of the site or improvement that would have been dedicated or provided. This allows local governments to pool fees from various subdivisions to finance facilities like parks and greenways. This money can be used to implement greenway management programs or acquire additional open space.

Impact Fee

A final type of exaction, an impact fee can fund a broader range of facilities that serve the public interest. They are commonly imposed on a per unit rather than a build out basis, making them more flexible and keeping developers from having to pay large up front costs. These do not have to be directly tied to any requirements for improvements or dedications of land. They can be more easily applied to off-site improvements.

Growth Management Measures (Concurrency)

Concurrency-based development approaches to growth management simply limit development to areas with adequate public infrastructure. This helps regulate urban sprawl, provides for quality of life in new development, and can help protect open space. In the famous case with the Town of Ramapo (1972), the Town initiated a zoning ordinance making the issue of a development permit contingent on the presence of public facilities such as utilities and parks. This was upheld in Court and initiated a wave of slow-growth management programs nationwide. This type of growth management can take the form of an adequate public facilities ordinance.

Performance Zoning

Performance zoning is zoning based on standards that establish minimum requirements or maximum limits on the effects or characteristics of a use. This is often used for the mixing of different uses to minimize incompatibility and improve the quality of development. For example, how a commercial use is designed and functions determines whether it could be allowed next to a residential area or connected to a greenway.



Incentive Zoning (Dedication/Density Transfers)

Also known as incentive zoning, this mechanism allows greenways to be dedicated for density transfers on development of a property. The potential for improving or subdividing part or all of a parcel can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted as transfer deeds.

Conservation Zoning

This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving natural areas, open spaces, waterways, and/or greenways that function as buffers or transition zones. It can also be called buffer or transition zoning. This type of zoning, for example, can protect waterways by creating buffer zones where no development can take place. Care must be taken to ensure that the use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zoning

An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place. These are commonly used to protect natural or cultural features such as historic areas, unique terrain features, scenic vistas, agricultural areas, wetlands, stream corridors, and wildlife areas.

Negotiated Dedications

This type of mechanism allows municipalities to negotiate with landowners for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. This type of mechanism can also be exercised through dedication of greenway lands when a parcel is subdivided. Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication—as defined by the US Supreme Court in *Dolan v Tigard*.

Reservation of Land

This type of mechanism does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement



has not already been reached to transfer certain property rights, the reservation expires.

Planned Unit Development

A planned unit development allows a mixture of uses. It also allows for flexibility in density and dimensional requirements, making clustered housing and common open space along with addressing environmental conditions a possibility. It emphasizes more planning and can allow for open space and greenway development and connectivity.

Cluster Development

Cluster development refers to a type of development with generally smaller lots and homes close to one another. Clustering can allow for more units on smaller acreages of land, allowing for larger percentages of the property to be used for open space and greenways.

D.2.2. LAND MANAGEMENT

Management is a method of conserving the resources of a specific greenway parcel by an established set of policies called management plans for publicly owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

Management Plans

The purpose of a management plan is to establish legally binding contracts which define the specific use, treatment, and protection for publicly owned greenway lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security, and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of greenway lands.

Conservation Easement

This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. When public access to the easement is desired, a clause defining the conditions of public access



can be added to the terms of the easement. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donation may reduce the donor's taxable income.

Preservation Easement

This type of easement is intended to protect the historical integrity of a structure or important elements in the landscape by sound management practices. When public access to the easement is desired, a clause defining the conditions of public access can be added to the terms of the easement. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements

This type of easement grants public access to a specific parcel of property when a conservation or preservation easement is not necessary. The conditions of use are defined in the terms of the public access easement.

D.2.3. ACQUISITION

Acquisition requires land to be donated or purchased by a government body, public agency, greenway manager, or qualified conservation organization.

Donation or Tax Incentives

In this type of acquisition, a government body, public agency, or qualified conservation organization agrees to receive the full title or a conservation easement to a parcel of land at no cost or at a "bargain sale" rate. The donor is then eligible to receive a federal tax deduction of up to 30 to 50 percent of their adjusted gross income. Additionally, North Carolina offers a tax credit of up to 25 percent of the property's fair market value (up to \$5000). Any portion of the fair market value not used for tax credits may be deducted as a charitable contribution. Also, property owners may be able to avoid any inheritance taxes, capital gains taxes, and recurring property taxes.

Fee Simple Purchase

This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire "bundle" of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.



Easement Purchase

This type of acquisition is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than the full title value.

Purchase / Lease Back

A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. This lease may contain restrictions regarding the development and use of the property.

Bargain Sale

A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from the donation of the property as an income tax deduction.

Installment Sale

An installment sale is a sale of property at a gain where at least one payment is to be received after the tax year in which the sale occurs. These are valuable tools to help sellers defer capital gains tax. This provides a potentially attractive option when purchasing land for open space from a possible seller.

Option / First Right of Refusal

A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement to protect the land in the short-term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase of Development Rights

A voluntary purchase of development rights involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.



Land Banking

Land banking involves land acquisition in advance of expanding urbanization. The price of an open space parcel prior to development pressures is more affordable to a jurisdiction seeking to preserve open space. A City or County might use this technique to develop a greenbelt or preserve key open space or agricultural tracts. The jurisdiction should have a definite public purpose for a land banking project.

Condemnation

The practice of condemning private land for use as a greenway is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the greenway program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation has been exercised when there has been an absentee property ownership, when the title of the property is not clear, or when it becomes apparent that obtaining the consent for purchase would be difficult because there are numerous heirs located in other parts of the United States or different countries.

Eminent Domain

The right of exercising eminent domain should be done so with caution by the community and only if the following conditions exist: 1) the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of land, and as such has been defined by the community as irreplaceable property; 2) written scientific justification for the community's claim about the property's value has been prepared and offered to the property owner; 3) all efforts to negotiate with the property owner for the management, regulation, and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers of compensation and has rejected all offers; and 4) due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise eminent domain.



Appendix E: State and Federal Policies

This appendix provides a summary of state and federal policies as they relate to the incorporation of bicycle and pedestrian facility development as part of a comprehensive transportation approach.



E.0 OVERVIEW

A number of federal and state pedestrian policies have been developed in recent years. This appendix covers a number of these policies that are intended to better integrate walking and bicycling into transportation infrastructure.

E.1 UNITED STATES DEPARTMENT OF TRANSPORTATION BICYCLE AND PEDESTRIAN POLICY

A United States Department of Transportation (US DOT) policy statement regarding the integration of bicycling and walking into transportation infrastructure recommends that, “bicycling and walking facilities will be incorporated into all transportation projects” unless exceptional circumstances exist. The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream. The full statement reads as follows, with some minor adjustments for applicability in Roxboro:

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use.

CHAPTER OUTLINE:

E.0 OVERVIEW

E.1 USDOT BICYCLE AND PEDESTRIAN POLICY

E.2 FHWA MEMORANDUM

E.3 NCDOT 2009 COMPLETE STREETS POLICY

E.4 NCDOT BOARD OF TRANSPORTATION

RESOLUTION

E.5 NCDOT ADMINISTRATIVE ACTION

E.6 GUIDELINES FOR NCDOT

E.7 NCDOT PEDESTRIAN POLICY GUIDELINES

E.8 NCDOT ONLINE RESOURCES LIST



- Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
- Designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities. (Many of these guidelines are summarized in Chapter 4: Bicycle Facility Standards)

(Retrieved from <http://www.fhwa.dot.gov/environment/bikeped/design.htm> on 5/6/2008)

E.2 FHWA MEMORANDUM ON MAINSTREAMING BICYCLE AND PEDESTRIAN PROJECTS

(See pages E-4 through E-6)

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Environment

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**U.S. Department of
Transportation
Federal Highway Administration**

Memorandum

Subject: ACTION: Transmittal of Guidance on Bicycle and Pedestrian Provisions of the Federal-aid Program

Date: February 24, 1999

From: Kenneth R. Wykle
Federal Highway Administrator

**In reply, HEPH-30
refer to:**

To:
Division Administrators
Federal Lands Highway Division Engineers

This memorandum transmits the Federal Highway Administration's (FHWA) Guidance on the Bicycle and Pedestrian Provisions of the Federal-aid Program and reaffirms our strong commitment to improving conditions for bicycling and walking. The nonmotorized modes are an integral part of the mission of FHWA and a critical element of the local, regional, and national transportation system. Bicycle and pedestrian projects and programs are eligible for but not guaranteed funding from almost all of the major Federal-aid funding programs. We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities.

The Transportation Equity Act for the 21st Century (TEA-21) continues the call for the mainstreaming of bicycle and pedestrian projects into the planning, design, and operation of our Nation's transportation system. Under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Federal spending on bicycle and pedestrian improvements increased from \$4 million annually to an average of \$160 million annually. Nevertheless, the level of commitment to addressing the needs of bicyclists and pedestrians varies greatly from State to State.

The attached guidance explains how bicycle and pedestrian improvements can be routinely included in federally funded transportation projects and programs. I would ask each division office to pass along this guidance to the State DOT and to meet with them to discuss ways of expediting the implementation of bicycle and pedestrian projects. With the guidance as a basis for action, States can then decide the most appropriate ways of mainstreaming the inclusion of bicycle and pedestrian projects and programs.

Bicycling and walking contribute to many of the goals for our transportation system we have at FHWA and at the State and local levels. Increasing bicycling and walking offers the potential for cleaner air, healthier people, reduced congestion, more liveable communities, and more efficient use of precious road space and resources. That is why funds in programs such as Congestion Mitigation and Air Quality Improvement, Transportation Enhancements, and the National Highway System, are eligible to be used for bicycling and



walking improvements that will encourage use of the two modes.

We also have a responsibility to improve the safety of bicycling and walking as the two modes represent more than 14 percent of the 41,000 traffic fatalities the nation endures each year. Pedestrian and bicycle safety is one of FHWA's top priorities and this is reflected in our 1999 Safety Action Plan. As the attached guidance details, TEA-21 has opened up the Hazard Elimination Program to a broader array of bicycle, pedestrian, and traffic calming projects that will improve dangerous locations. The legislation also continues funding for critical safety education and enforcement activities under the leadership of the National Highway Traffic Safety Administration. If we are successful in improving the real and perceived safety of bicyclists and pedestrians, we will also increase use.

You will see from the attached guidance that the Federal-aid Program, as amended by TEA-21, offers an extraordinary range of opportunities to improve conditions for bicycling and walking. Initiatives such as the Transportation and Community and System Preservation Pilot Program and the Access to Jobs program offer exciting new avenues to explore.

Bicycling and walking ought to be accommodated, as an element of good planning, design, and operation, in all new transportation projects unless there are substantial safety or cost reasons for not doing so. Later this year (1999), FHWA will issue design guidance language on approaches to accommodating bicycling and pedestrian travel that will, with the cooperation of AASHTO, ITE, and other interested parties, spell out ways to build bicycle and pedestrian facilities into the fabric of our transportation infrastructure from the outset. We can no longer afford to treat the two modes as an afterthought or luxury.

The TEA-21 makes a great deal possible. However, in the area of bicycling and walking in particular, we must work hard to ensure good intentions and fine policies translate quickly and directly into better conditions for bicycling and walking. While FHWA has limited ability to mandate specific outcomes, I am committed to ensuring that we provide national leadership in three critical areas.

- The FHWA will encourage the development and implementation of bicycle and pedestrian plans as part of the overall transportation planning process. Every statewide and metropolitan transportation plan should address bicycling and walking as an integral part of the overall system, either through the development of a separate bicycle and pedestrian element or by incorporating bicycling and walking provisions throughout the plan. Further, I am instructing each FHWA division office to closely monitor the progress of projects from the long-range transportation plans to the STIPs and TIPs. In the coming months, FHWA will disseminate exemplary projects, programs, and plans, and we will conduct evaluations in selected States and MPOs to determine the effectiveness of the planning process.
- The FHWA will promote the availability and use of the full range of streamlining mechanisms to increase project delivery. The tools are in place for States and local government agencies to speed up the delivery of bicycle and pedestrian projects - it makes no sense to treat installation of a bicycle rack or curb cut the same way we treat a new Interstate highway project - and our division offices must take a lead in promoting and administering these procedures.
- The FHWA will help coordinate the efforts of Federal, State, metropolitan, and other relevant agencies to improve conditions for bicycling and walking. Once again, our division offices must ensure that those involved in implementing bicycle and pedestrian projects at the State and local level are given maximum opportunity to get their job done, unimpeded by regulations and red tape from the Federal level. I am asking each of our division offices to facilitate a dialogue among each State's bicycle and pedestrian coordinator, Transportation Enhancements program manager, Recreational Trails Program administrator, and their local and FHWA counterparts to identify and remove obstacles to the implementation of bicycle and pedestrian projects and programs.



In less than a decade, bicycling and walking have gone from being described by my predecessor Tom Larson as "the forgotten modes" to becoming a serious part of our national transportation system. The growing acceptance of bicycling and walking as modes to be included as part of the transportation mainstream started with passage of ISTEA in 1991 and was given a considerable boost by the Congressionally-mandated National Bicycling and Walking Study. That study, released in 1994, challenges the U.S. Department of Transportation to double the percentage of trips made by foot and bicycle while simultaneously reducing fatalities and injuries suffered by these modes by 10 percent - and we remain committed to achieving these goals.

The impetus of ISTEA and the National Bicycling and Walking Study is clearly reinforced by the bicycle and pedestrian provisions of the TEA-21. The legislation confirms the vital role bicycling and walking must play in creating a balanced, accessible, and safe transportation system for all Americans.

[FHWA Guidance \(1999\)](#) - Bicycle and Pedestrian Provisions of Federal Transportation Legislation

To provide Feedback, Suggestions, or Comments for this page contact Gabe Rousseau at gabe.rousseau@dot.gov.

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United States Department of Transportation - **Federal Highway Administration**



E.3 NCDOT JULY 2009 BOARD OF TRANSPORTATION: DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION COMPLETE STREETS POLICY

A. Definition

Complete Streets is North Carolina's approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users.

B. Policy Statement

Transportation, quality of life, and economic development are all undeniably connected through well-planned, well-designed, and context sensitive transportation solutions. To NCDOT, the designations "well-planned", "well-designed" and "context-sensitive" imply that transportation is an integral part of a comprehensive network that safely supports the needs of the communities and the traveling public that are served.

The North Carolina Department of Transportation, in its role as stewards over the transportation infrastructure, is committed to:

- providing an efficient multi-modal transportation network in North Carolina such that the access, mobility, and safety needs of motorists, transit users, bicyclists, and pedestrians of all ages and abilities are safely accommodated;
- caring for the built and natural environments by promoting sustainable development practices that minimize impacts on natural resources, historic, businesses, residents, scenic and other community values, while also recognizing that transportation improvements have significant potential to contribute to local, regional, and statewide quality of life and economic development objectives;
- working in partnership with local government agencies, interest groups, and the public to plan, fund, design, construct, and manage complete street networks that sustain mobility while accommodating walking, biking, and transit opportunities safely.

This policy requires that NCDOT's planners and designers will consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a town or city unless exceptional



circumstances exist. Routine maintenance projects maybe excluded from this requirement; if an appropriate source of funding is not available.

C. Purpose

This policy sets forth the protocol for the development of transportation networks that encourage non-vehicular travel without compromising the safety, efficiency, or function of the facility. The purpose of this policy is to guide existing decision-making and design processes to ensure that all users are routinely considered during the planning, design, construction, funding and operation of North Carolina's transportation network.

D. Scope and Applicability

This policy generally applies to facilities that exist in urban or suburban areas, however it does not necessarily exclude rural setting; and is viewed as a network that functions in an interdependent manner.

There are many factors that must be considered when defining the facility and the degree to which this policy applies, e.g., number of lanes, design speeds, intersection spacing, medians, curb parking, etc. Therefore, the applicability of this policy, as stated, should be construed as neither comprehensive nor conclusive. Each facility must be evaluated for proper applicability.

Notwithstanding the exceptions stated herein, all transportation facilities within a growth area of a town or city funded by or through NCDOT, and planned, designed, or constructed on state maintained facilities, must adhere to this policy.

E. Approach

It is the Department's commitment to collaborate with cities, towns, and communities to ensure pedestrian, bicycle, and transit options are included as an integral part of their total transportation vision. As a partner in the development and realization of their visions, the Department desires to assist localities, through the facilitation of long-range planning, to optimize connectivity, network interdependence, context sensitive options, and multimodal alternatives.

F. Related Policies

This policy builds on current practices and encourages creativity for considering and providing multi-modal options within transportation projects, while achieving safety and efficiency.

Specific procedural guidance includes:

- Bicycle Policy (adopted April 4, 1991)
- Highway Landscape Planting Policy (dated 6/10/88)
- Board of Transportation Resolution: Bicycling & Walking in North Carolina, A Critical Part of the Transportation System (adopted September 8, 2000)
- Guidelines for Planting within Highway Right-of-Way
- Bridge Policy (March 2000)
- Pedestrian Policy Guidelines –Sidewalk Location (Memo from Larry Goode, February 15, 1995)
- Pedestrian Policy Guidelines (effective October 1, 2000 w/ Memo from Len Hill, September 28, 2000)
- NCDOT Context Sensitive Solutions Goals and Working Guidelines (created 9-23-02; updated 9-8-03)

G. Exceptions to Policy

It is the Department’s expectation that suitable multimodal alternatives will be incorporated in all appropriate new and improved infrastructure projects. However, exceptions to this policy will be considered where exceptional circumstances that prohibit adherence to this policy exist. Such exceptions include, but are not limited to:

- facilities that prohibit specific users by law from using them,
- areas in which the population and employment densities or level of transit service around the facility does not justify the incorporation of multimodal alternatives,

It is the Department’s expectation that suitable multimodal alternatives will be incorporated as appropriate in all new and improved infrastructure projects within a growth area of a town or city.

As exceptions to policy requests are unique in nature, each will be considered on a case-by-case basis. Each exception must be approved by the Chief Deputy Secretary.

Routine maintenance projects maybe excluded from this requirement; if an appropriate source of funding is not available.



H. Planning and Design Guidelines

The Department recognizes that a well-planned and designed transportation system that is responsive to its context and meets the needs of its users is the result of thoughtful planning. The Department further recognizes the need to provide planners, designers and decision-makers with a framework for evaluating and incorporating various design elements into the planning, design, and construction phases of its transportation projects. To this end, a multi-disciplined team of stakeholders, including transportation professionals, interest groups, and others, as appropriate, will be assembled and charged with developing comprehensive planning and design guidelines to support this policy.

These guidelines will describe the project development process and incorporate transparency and accountability where it does not currently exist; describe how (from a planning and design perspective) pedestrians, bicyclists, transit, and motor vehicles will share roads safely; and provide special design elements and traffic management strategies to address unique circumstances.

An expected delivery date for planning and design guidelines will be set upon adoption of this policy.

I. Policy Distribution

It is the responsibility of all employees to comply with Departmental policies. Therefore, every business unit and appropriate private service provider will be required to maintain a complete set of these policies. The Department shall periodically update departmental guidance to ensure that an accurate and up-to-date information is maintained and housed in a policy management system.



E.4 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BOARD OF TRANSPORTATION RESOLUTION: BICYCLING AND WALKING IN NORTH CAROLINA. A CRITICAL PART OF THE TRANSPORTATION SYSTEM (ADOPTED BY THE BOARD OF TRANSPORTATION ON SEPTEMBER 8, 2000)

The North Carolina Board of Transportation strongly reaffirms its commitment to improving conditions for bicycling and walking, and recognizes nonmotorized modes of transportation as critical elements of the local, regional, and national transportation system.

WHEREAS, increasing bicycling and walking offers the potential for cleaner air, healthier people, reduced congestion, more liveable communities, and more efficient use of road space and resources; and

WHEREAS, crashes involving bicyclists and pedestrians represent more than 14 percent of the nation's traffic fatalities; and

WHEREAS, the Federal Highway Administration (FHWA) in its policy statement "Guidance on the Bicycle and Pedestrian Provisions of the Federal-Aid Program" urges states to include bicycle and pedestrian accommodations in its programmed highway projects; and

WHEREAS, bicycle and pedestrian projects and programs are eligible for funding from almost all of the major Federal-aid funding programs; and

WHEREAS, the Transportation Equity Act for the 21st Century (TEA-21) calls for the mainstreaming of bicycle and pedestrian projects into the planning, design and operation of our Nation's transportation system;

NOW, THEREFORE, BE IT RESOLVED, the North Carolina Board of Transportation concurs that bicycling and walking accommodations shall be a routine part of the North Carolina Department of Transportation's planning, design, construction, and operations activities and supports the Department's study and consideration of methods of improving the inclusion of these modes into the everyday operations of North Carolina's transportation system; and

BE IT FURTHER RESOLVED, North Carolina cities and towns are encouraged to make bicycling and pedestrian improvements



an integral part of their transportation planning and programming.

E.5 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ADMINISTRATIVE ACTION TO INCLUDE LOCAL ADOPTED GREENWAYS PLANS IN THE NCDOT HIGHWAY PLANNING PROCESS (ADOPTED JANUARY 1994)

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

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

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

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

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



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

E.6 GUIDELINES FOR NCDOT TO COMPLY WITH ADMINISTRATIVE DECISION TO INCORPORATE LOCAL GREENWAYS INTO HIGHWAY PLANNING PROCESS

- Thoroughfare plans will address the existence of greenways planning activity, which has been submitted by local areas. Documentation of mutually agreed upon interface points between the thoroughfare plan and a greenway plan will be kept, and this information will become a part of project files.
- Project Planning Reports will address the existence of locally adopted greenways segment plans, which may affect the corridor being planned for a highway improvement. It is, however, the responsibility of the locality to notify the Department of the adopted greenways plans (or changes to its previous plans) through its current local transportation plan, as well as its implementation programs.
- Where local greenways plans have not been formally adopted or certain portions of the greenways plans have not been adopted, the Department may note this greenway planning activity but is not required to incorporate this information into its planning reports.
- Where the locality has included adopted greenways plans as a part of its local transportation plan and a segment (or segments) of these greenways fall within the corridor of new highway construction or a highway improvement project, the feasibility study and/or project planning report for this highway improvement will consider the effects of the proposed highway improvement upon the greenway in the same manner as it considers other planning characteristics of the project corridor, such as archeological features or land use.



- Where the locality has justified the transportation versus the leisure use importance of a greenway segment and there is no greenway alternative of equal importance nearby, the project planning report will suggest inclusion of the greenway crossing, or appropriate greenway element, as an incidental part of the highway expenditure.
- Where the locality has not justified the transportation importance of a greenway segment, the greenway crossing, or appropriate greenway element, may be included as a part of the highway improvement plan if the local government covers the cost.
- A locality may add any appropriate/acceptable greenway crossing or greenway element at their own expense to any highway improvement project as long as it meets the design standards of the NCDOT.
- The NCDOT will consider funding for greenway crossings, and other appropriate greenway elements only if the localities guarantee the construction of and/or connection with other greenway segments. This guarantee should be in the form of inclusion in the local capital improvements program or NCDOT/municipal agreement.
- If the state pays for the construction of a greenway incidental to a highway improvement and the locality either removes the connecting greenway segments from its adopted greenways plans or decides not to construct its agreed upon greenway segment, the locality will reimburse the state for the cost of the greenway incidental feature. These details will be handled through a municipal agreement.
- Locality must accept maintenance responsibilities for state-built greenways, or portions thereof. Details will be handled through a municipal agreement.

E.7 NCDOT PEDESTRIAN POLICY GUIDELINES

(See pages E-15 through E-16)



DEPARTMENT OF TRANSPORTATION PEDESTRIAN POLICY GUIDELINES EFFECTIVE OCTOBER 1, 2000

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

REQUIREMENTS FOR DOT FUNDING:

REPLACEMENT OF EXISTING SIDEWALKS:

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

TIP INCIDENTAL PROJECTS:

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

REQUIREMENTS:

1. The municipality and/or county notifies the Department in writing of its desire for the Department to incorporate pedestrian facilities into project planning and design. Notification states the party's commitment to participate in the cost of the facility as well as being responsible for all maintenance and liability. Responsibilities are defined by agreement. Execution is required prior to contract let.

The municipality is responsible for evaluating the need for the facility (ie: generators, safety, continuity, integration, existing or projected traffic) and public involvement.

2. Written notification must be received by the **Project Final Field Inspection (FFI) date**. Notification should be sent to the Deputy Highway Administrator - Preconstruction with a copy to the Project Engineer and the Agreements Section of the Program Development Branch. Requests received after the project FFI date will be incorporated into the TIP project, if feasible, and only if the requesting party commits by agreement to pay 100% of the cost of the facility.
3. The Department will review the feasibility of including the facility in our project and will try to accommodate all requests where the Department has acquired appropriate right of way on curb and gutter sections and the facility can be installed in the current project berm width. The standard project section is a 10-ft berm (3.0-meter) that accommodates a 5-ft sidewalk. In accordance with



AASHTO standards, the Department will construct 5-ft sidewalks with wheelchair ramps. Betterment cost (ie: decorative pavers) will be a Municipal responsibility.

4. If the facility is not contained within the project berm width, the Municipality is responsible for providing the right of way and/or construction easements as well as utility relocations, at no cost to the Department. This provision is applicable to all pedestrian facilities including multi-use trails and greenways.
5. A cost sharing approach is used to demonstrate the Department’s and the municipality’s/county’s commitment to pedestrian transportation (sidewalks, multi-use trails and greenways). The matching share is a sliding scale based on population as follows:

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

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

6. For bridges on streets with curb and gutter approaches, the Department will fund and construct sidewalks on both sides of the bridge facility if the bridge is less than 200 feet in length. If the bridge is greater than 200 feet in length, the Department will fund and construct a sidewalk on one side of the bridge structure. The bridge will also be studied to determine the costs and benefits of constructing sidewalks on both sides of the structure. If in the judgement of the Department sidewalks are justified, funding will be provided for installation. The above provision is also applicable to dual bridge structures. For dual bridges greater than 200 ft in length, a sidewalk will be constructed on the outside of one bridge structure. The bridges will also be studied to determine if sidewalks on the outside of both structures are justified.
7. FUNDING CAPS are no longer applicable.
8. This policy does not commit the Department to the installation of facilities in the Department’s TIP projects where the pedestrian facility causes an unpractical design modification, is not in accordance with AASHTO standards, creates an unsafe situation, or in the judgement of the Department is not practical to program.

INDEPENDENT PROJECTS

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



E.8 NCDOT ONLINE PEDESTRIAN PLANNING AND DESIGN RESOURCES LIST

Developing a Pedestrian Safety Action Plan Workshop

June 2008

Useful On-Line Pedestrian Planning and Design Resources

NCDOT Division of Bicycle & Pedestrian Transportation	http://www.ncdot.org/transit/bicycle/
Board of Transportation Resolution on Mainstreaming	http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html
NCDOT Pedestrian Policy Guidelines	http://www.ncdot.org/transit/bicycle/laws/ped_guide.pdf
NCDOT Greenways - Administrative Process	http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html
Funding	http://www.ncdot.org/transit/bicycle/funding/funding_intro.html
Project Types	http://www.ncdot.org/transit/bicycle/projects/project_types/bpt_intro.html
Crash Data	http://www.ncdot.org/transit/bicycle/safety/safety_crashdata.html
DBPT Long Range Plan	http://www.ncdot.org/transit/bicycle/projects/intro/projects_long_range.html
Safe Routes to School Program	http://www.ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html

NCDOT Division of Highways <http://www.ncdot.org/doh/>

Alternative Delivery Unit – Publications for Download	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/
Bridge Policy 2000	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/bpe2000.doc
Curb Cuts & Ramps for Disabled Persons	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/handi.pdf
Traditional Neighborhood Development Manual	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf
ADA – Detectable Warnings	http://www.ncdot.org/doh/preconstruct/ps/std_draw/06english/08/default.html
Highway Design Branch – Design Manual	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/designmanual.html
Policy and Procedure Manual (See Section 28)	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/ppm/
Policy on Street & Driveway Access	http://www.ncdot.org/doh/preconstruct/altern/value/manuals/pos.pdf
Traffic Engineering and Safety Systems Branch	http://www.ncdot.org/doh/preconstruct/traffic/
NC Supplement to the Manual on Uniform Traffic Control Devices	http://www.ncdot.org/doh/preconstruct/traffic/MUTCD/
Crosswalks/Mid-Block Signing and Pavement Markings	http://www.ncdot.org/doh/preconstruct/traffic/tepp/Topics/C-36/C-36.html





UNC Highway Safety Research Center <http://www.hsrc.unc.edu>

Pedestrian & Bicycle Information Center <http://www.pedbikeinfo.org/index.htm>

Walking <http://www.walkinginfo.org/>

Engineer Pedestrian Facilities <http://www.walkinginfo.org/engineering>

Pedestrian Safety Guide & Countermeasure Selection System (PEDSAFE) <http://www.walkinginfo.org/pedsafe/>

Develop Plans and Policies <http://www.walkinginfo.org/develop>

National Center for Safe Routes to School <http://www.saferoutesinfo.org>

Federal Highway Administration Bicycle & Pedestrian Program <http://www.fhwa.dot.gov/environment/bikeped/>

Bicycle and Pedestrian Provisions of Federal Transportation Legislation <http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm>

Bicycle & Pedestrian Programs <http://www.fhwa.dot.gov/environment/bikeped/overview.htm>

Program & Design Guidance <http://www.fhwa.dot.gov/environment/bikeped/guidance.htm>

Links to Other Resources <http://www.fhwa.dot.gov/environment/bikeped/bipedlnk.htm>

Publications <http://www.fhwa.dot.gov/environment/bikeped/publications.htm>

Pedestrian Safety http://safety.fhwa.dot.gov/ped_bike/ped/index.htm

Pedestrian & Bicycle Safety Research Page <http://www.ithrc.gov/safety/pedbike/index.htm>

National Highway Traffic Safety Administration – Traffic Safety: Pedestrians <http://www.nhtsa.gov/portal/site/nhtsa/menuitem.dfedd570f698cabbf30811060008a0c/>

National Center for Bicycling & Walking <http://www.bikewalk.org/>

