

NORWOOD PEDESTRIAN PLAN

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NORWOOD PEDESTRIAN PLAN



Funded by

**North Carolina Department of
Transportation
Division of Bicycle and Pedestrian
Transportation**
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Raleigh, North Carolina 27601



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NORWOOD

PEDESTRIAN PLAN

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PART 1: PLAN OVERVIEW

Introduction

The Norwood Pedestrian Plan is organized to provide the user with information ranging from the nature of pedestrian planning, to how to get a sidewalk built. The Plan is divided into four parts, each with various sections, and Appendices. The following will help orient the reader in how to use this document:

PART 1: PLAN OVERVIEW

This Overview includes the **Executive Summary**, a four-page pullout synopsis of the Plan's most important elements. The **Vision, Scope & Process** section outlines the Town's need for the Plan, its pedestrian vision, and how the Plan can help bring about that vision. A brief description of how the Plan was assembled is also provided. The **Benefits of a Pedestrian Lifestyle** section provides some general background information about pedestrian planning and some examples of how it could benefit the Town of Norwood.

PART 2: CURRENT CONDITIONS, NEEDS AND OPPORTUNITIES

A description of the Town's existing layout, pedestrian amenities, and pedestrian barriers and constraints is provided in the **Existing Conditions & Trends** section. It details current conditions that impact pedestrian planning throughout the community, from "big picture" issues, to the condition of individual sidewalks, crosswalks and trails. This portion of the Plan also describes prevailing population trends of the Town that have direct bearing on current and future pedestrian needs. The **Current Policies, Plans, & Programs** section provides detailed analysis of planning documents and Town ordinance, and how they particularly aid or hinder pedestrian-friendly development. The section also describes current pedestrian-oriented programs at work. In the **Key Areas & Issues** section, unique opportunities are described of how the Town can better provide for its citizens' pedestrian needs and shape its future in significantly positive ways. This portion of the Plan sets the stage for the recommendations that follow.

PART 3: PLAN RECOMMENDATIONS

This portion of the Plan describes the recommendations being made to improve Norwood's pedestrian future. It begins with **Recommended Policies & Ordinance Modifications**, which integrates pedestrian planning measures into the Town's overall planning processes. Real change comes through active involvement by citizens who care. A selection of **Recommended Programs** is provided that will assist and guide their efforts. **Project Recommendations & Implementation Strategies** provides a more focused description of actions that should be taken to correct current problems and initiate future projects. Specific projects are described in detail in the **Project Identification and Priority List**. Here individual projects are ranked in priority and explanations are provided as to how each of them can be implemented. The succeeding section provides information about **Recommended Maintenance Programs** appropriate to each type of project.

PART 4: FUNDING

This portion of the Plan discusses how to pay for projects. It begins with **Sample Cost Estimates for Facilities**, and then discusses **Funding Strategies**, offers **Local Budget Recommendations**, and concludes with the local **Plan Adoption and Approval process**.

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Section 1: Executive Summary

See attachment

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Section 2: Vision, Scope, and Process

The Need

The Town of Norwood has an immediate and ever-increasing need to improve pedestrian conditions for its citizens. But in addition to current needs, there is also great opportunity for the Town to work toward longer-term goals that will help make pedestrian travel a truly viable mode of transportation within the Town.

Though the Town's population has declined somewhat in recent years, traffic conditions are becoming increasingly hazardous to pedestrians. This is due largely to NC 52, which bisects the Town and forms Main Street. Within the town limits, this state highway carries over 10,000 vehicles per day. Approximately 15-20% of that is classified as truck traffic.



NC 52 at Anson Street

In summary, the challenges this pedestrian population encounters result generally from the following conditions:

1. Increasing vehicular traffic along NC 52
2. Residential communities that feature very little in the way of street, sidewalk or trail connections both internally or to the surrounding area
3. Too few sidewalks and other pedestrian amenities throughout Town

Specific actions are required to address each of these conditions, but such actions are most effective when they flow from an overall strategy that the community can understand, support and implement. This comprehensive pedestrian transportation plan enables the Town to plan for future growth and guide it, instead of simply reacting to it.

The Vision

Through the pedestrian planning process, the Town and its citizens have expressed a clear vision for their community. Norwood is to be a Town that provides its residents opportunity to visit local businesses, schools, parks and other community destinations in a safe and convenient manner without having to own or entirely depend upon an automobile. This is particularly important for significant segments of Norwood's population that cannot drive, namely the elderly, the poor and children under driving age. Because of existing traffic conditions along Main Street, the vision places a high premium on finding ways to make pedestrian conditions safer along the main spine of the Town.

As "Gateway to Lake Tillery", Norwood desires to serve its own community and the region by providing greater access to the Lake. Through the creation and improvement of public destination points along its share of Lake Tillery's shoreline, Norwood could attract more

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visitors and encourage environmentally friendly development. These destination points would be linked to other parks, as well as business and residential areas in Town through sidewalk connections and trails, which would then continue into the region. Features such as these have been identified in national literature as being of great importance in attracting new investment into a community.

Furthermore, Norwood desires to maintain a small town atmosphere where neighbor can meet neighbor and sidewalk conversations are the norm. The community's vision supports amenities that not only permit but encourage its residents and visitors to walk and visit with each other—amenities such as sidewalks, streetlights, street trees, benches, planters, etc. that add comfort, visual interest, and create safe havens and resting points.

In order to see this vision through, an ongoing coordinated effort must be instituted. The charter for this effort is the Norwood Pedestrian Plan. This Plan will serve the Town as a:

1. Compelling tool to promote the Town's pedestrian vision
2. Effective source for educating decision makers and the general public about the value and methods of making Norwood a pedestrian-friendly community
3. Clear blueprint for the revision of Town ordinances and policies that address development in order that all will support the same unified goals
4. Comprehensive guide to the implementation and improvement of pedestrian routes and amenities
5. Firm basis for seeking assistance in the form of grants and other support from various outside sources in furthering the Plan's implementation.

The Goals

As the Plan is embraced and utilized in the ways described above, both immediate concerns and long-term goals for the Town can be realized:

- Walkability and connectivity become guiding principles for decision-making, so that walking becomes a real option as a transportation choice.
- Pedestrian safety is made a top priority, so that pedestrians can feel safe accessing downtown business areas, and other areas in Town.
- Pedestrian facilities become accessible to all members of the community.
- Attractive sidewalks and trails link significant destinations, making them accessible by foot as well as vehicle. Amenities are provided so that walking is not seen as “the last alternative” but the “preferred alternative” to reach points within walking distance.
- The Norwood pedestrian network is linked, where appropriate, to larger county and regional networks.
- The Norwood Pedestrian Plan provides a clear “road map” of where, when, and how the Town proceeds to make improvements to its pedestrian facilities, to achieve the aforementioned goals.
- Norwood clearly offers to residents and visitors the features that make life in the community rewarding.

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The Scope

In order to meet these goals, this Norwood Pedestrian Plan examines a broad scope of pedestrian-related issues and recommends actions that address them in a comprehensive manner, including:

1. Policy and ordinance revision
2. Educational programs and initiatives
3. Comprehensive system planning
4. Facility standards and guidelines
5. Project identification and prioritization
6. Project specific planning and development process
7. Cost estimation
8. Funding and local budget recommendations
9. Project implementation and construction
10. Maintenance
11. Individual project evaluation process

The Methodology

This Plan was developed using methodology approved by the North Carolina Department of Transportation Bicycle and Pedestrian Transportation Division. The process included the following steps:

- Step 1:** Gather relevant documents relating to pedestrian concerns in the Town.
- Step 2:** Determine the project scope, schedule, points of contact with Town Staff; identify stakeholder groups, potential Steering Committee members, target meeting dates and planning budget
- Step 3:** Conduct an initial physical survey of the Town and gather additional input on pedestrian conditions from the community.
- Step 4:** Create composite maps of existing conditions to include current facilities and traffic conditions.
- Step 5:** The Town Commission appoints the project Steering Committee to review the project maps and other information, provide additional stakeholder input, and guide the development of the Plan.
- Step 6:** Conduct Stakeholder Interviews on pedestrian needs and preferences.
- Step 7:** Conduct an interactive public meeting to review initial Steering Committee input and interview results with the general public, obtain feedback, and

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gather additional input from the public on pedestrian and mobility issues and concerns.

- Step 8:** Review the public meeting results with the Steering Committee in order to gather direction for preparation of a Draft Pedestrian Plan.
- Step 9:** Prepare the Draft Pedestrian Plan based input from the Steering Committee and citizen comments.
- Step 10:** Submit the draft plan to the Steering Committee and NCDOT for preliminary review and comment.
- Step 11:** Facilitate a follow-up public meeting to review preliminary Pedestrian Plan and address how the input received through previous public processes has been incorporated into the draft Plan.
- Step 12:** Revise the Plan based on input received and meet with the Steering Committee to finalize approval of the Plan.
- Step 13:** Submit the Plan to the Town Commission and to the Planning Board for review. Additionally, submit the Plan to the Rocky River RPO for endorsement.
- Step 14:** Upon adoption of Plan, furnish the Town and NCDOT with the Plan with its associated maps.

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Section 3: Benefits of a Pedestrian Lifestyle

Only a few decades ago, streets and sidewalks served as the center of neighborhood life, where people of all ages walked, biked, shopped, ate, played, and met their neighbors. But today, streets with this kind of activity are the exception rather than the rule. Towns and cities are full of barriers that discourage walking and often make a pedestrian feel like an outcast in a world made only for cars. Addressing these barriers means more than just building sidewalks or adding trails. Land use and transportation planning, ordinance revision, and developing economic incentives for businesses all play important roles toward creating an environment that makes walking easy, safe and convenient, and brings vitality back to the streets.

Investments in a community through pedestrian-oriented improvements may, in just a few short years, show visible and economic results. Such improvements can help make the Norwood community healthier, more vibrant and a more attractive place to live, visit, work and own a business. Such revitalized communities offer more incentive to prospective residents and businesses.

Some direct benefits of the pedestrian lifestyle can be summarized in the following statements:

1. Safety

Drivers familiar with a community learn which streets are likely to have pedestrian traffic. The more pedestrians likely to be encountered, the more cautious experienced drivers are apt to be. In this way, pedestrian activity is self-protective. The more pedestrians using a street, the safer that street becomes for pedestrians.

2. Local Economy

Pedestrian-oriented streets encourage shoppers to linger. Retail and commercial developers have learned that walkable context sells. Furthermore, works such as Richard Florida's *Rise of the Creative Class* indicate that the population segments most likely to contribute to thriving economic conditions are attracted by amenities such as walkability, street trees, linkages to outdoor activities, etc. In short, a pedestrian-oriented community is more likely to attract as new residents the type of people most likely to help stimulate the local economy. The current street network of Norwood, and the quantity of underdeveloped land within the Town, particularly nearer the Lake, creates enormous potential for the Town to develop into a very walkable, loose grid system, which would strengthen pockets of smaller-scale commercial development in various parts of Town.

3. Public Health

A key concern in all aspects of community planning and design is the health, safety and welfare of citizens. There is growing recognition of how the built environment influences health-related behavior. Decisions about zoning, transportation, land use and community design influence the distances people travel by foot and by car, and the general safety and attractiveness of neighborhoods for walking. Fitness experts agree that regular daily activity is the key to good health. Walking is the most affordable and

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convenient way for most people to stay active. Whenever walking becomes a reasonable alternative to driving, many people will choose to walk rather than drive. As walking becomes a more significant part of daily life in Norwood, this will yield healthier lifestyles and ultimately impact community health care costs in a positive manner.

4. Elderly and Youth Friendly

When communities are pedestrian-friendly, the elderly retain greater independence and freedom, and young people are free to rely less on parents to drive them to school and other activities. As young people become accustomed to walking and biking, they are also less likely to depend on automobiles for short trips as they grow older. With a more complete system of sidewalks and other pedestrian amenities, walking becomes a safer and more reasonable option, particularly to those who need it most. The senior community in Norwood would particularly benefit from increased pedestrian-friendly measures.

5. Friendly to Disabled Populations

Another group for whom pedestrian friendliness means independence are those with disabilities. For those who cannot drive independently, mobility is severely limited in communities that are designed only for car usage. Walkable communities can be designed to maximize the independence and mobility for disabled persons, in ways that auto-dependent communities cannot.

6. Improved Environment

Street trees and other forms of landscaping are an integral part of pedestrian friendly communities. Street trees not only make pedestrians more comfortable and increase the likelihood that people will choose to walk, they also moderate temperatures, reduce storm water runoff, and contribute to cleaner air. A pedestrian-friendly environment will also contribute positively to air quality by reducing unneeded vehicular trips.

7. Reduced Crime and Better Emergency Access

Streets that draw more pedestrians and encourage social interaction tend to have lower crime rates and other social problems than those that are isolated and unpopulated. Furthermore, streets that are connected for pedestrian-friendliness are also much more accessible to emergency vehicles such as EMS and fire—they have more than one way to get to an emergency location. Encouraging increased connectivity in future developments in Norwood will help the current system of streets function best for both pedestrians and vehicles.

8. Cultural and Community Life

Towns that feature interesting streets and public spaces with active pedestrian life become vibrant cultural and economic centers that draw visitors from the surrounding region. This is particularly true when these towns offer unique natural features, such as lake frontage in Norwood.

9. Transportation

Walkable communities have the most affordable and most efficient transportation system available. And as Norwood continues to develop around walkable commercial

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centers, it also better suited for eventually incorporating public transit systems, such as buses or shuttles.

While it would be true to say that “pedestrian friendliness” is not a cure-all for all the economic, social, or political ills that modern society experiences, it is also true that the creation of more livable public spaces and the de-isolation of people by getting them out of their cars, is an important part of the remedy. A surprising number of people, when asked to recall or identify venues that make them feel comfortable or in which they would like to live, work, and play, will identify tree-lined streets with sidewalks, and pedestrians of all ages using them.



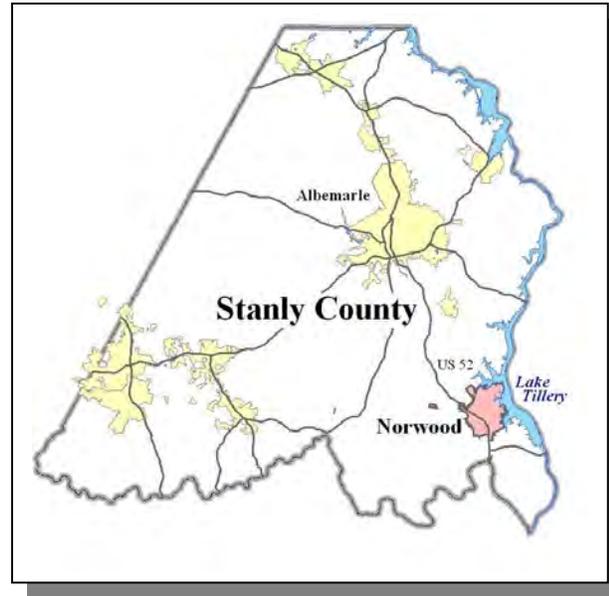
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Part 2: CURRENT CONDITIONS, NEEDS & OPPORTUNITIES

Section 4: Existing Conditions and Trends

1. CONDITIONS AND TRENDS IN GENERAL

The **Town of Norwood** is a small rural community in southeast Stanly County along the Yadkin-Pee Dee River in North Carolina, roughly 10 miles south of the City of Albemarle. It is situated on west side of Lake Tillery, just north of Rocky River. Most of the terrain is somewhat hilly, with its highest point rising dramatically from the lake at the Town's northeast corner. The physical conditions and layout of the Town, including all existing pedestrian facilities described in this section, are shown on the **Existing Conditions Map** at the end of Part 2.



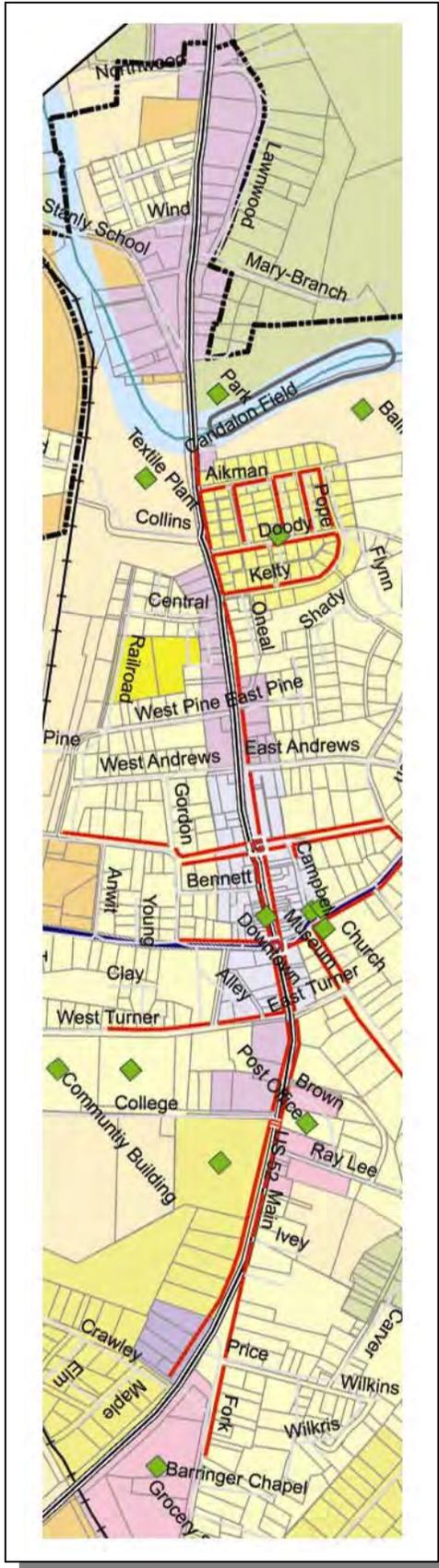
Norwood currently has much to offer anyone wishing to live a pedestrian-oriented lifestyle. Its compact, small-town core features many stores, restaurants, schools, churches, various services and residences within convenient walking distance of each other.

The **population** of Norwood in recent years has been slowly decreasing, dropping almost 3% in the 1990s. Between the years 2000 and 2004 it declined nearly 2%, compared to Stanly County's overall population increase of 1.4% in that time. Currently the population stands at 2810. About 25% of Norwood's residents are under the age of eighteen, and 15% are 65 or older.

The recent decline in the Town's population is primarily due to local economic circumstances. Some of the major **employment centers** within the Town have now closed, including Norwood Yarn Sales which, until recently, employed 262 workers. However, Norwood still has major employment opportunities including the Michelin plant, located just north of the Town, and various manufacturing, retail, accomodation and food services.

Despite the array of employment opportunities within the town, Norwood serves largely as a residential "bedroom" community for **commuters**. Of the total approximately 2800 daily commuters in Norwood and the vicinity, only about half that number work in the Norwood area, while over 840 commute to Albemarle, roughly 150 to Anson County (with most of those to the Premier Fibers Inc. plant south of Ansonville), about 120 to Charlotte, 110 to Locust, 95 to Oakboro, about 80 to the New London area, 70 to Concord, 65 to Troy, and about 45 to Union County.

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Downtown Norwood's **Main Street** is US Highway 52. This street has become essentially the central spine of the Town. The majority of pedestrian traffic is concentrated within a few blocks of this street. The majority of small businesses that attract walking traffic are all within this same area.

Along this central spine one can shop for clothing or furniture, pharmaceuticals or medical supplies, auto parts or jewelry. A person on foot can find electronics, flowers, feed and seed, army surplus goods, stanglass, knickknacks, or adult beverages. One can enjoy a variety of casual dining experiences or fast food, or walk to the park, to church, to school, or to the library. While getting a car repaired (or a refrigerator), one can visit a gym, a museum, buy insurance, get a haircut or a hairstyling, mail a letter, explore rental properties, do some banking, or buy a gift. One can see an accountant, a broker, a police officer, a real-estate agent or a mortician, and meet neighbors along the way.

Overall, **residential development** in Norwood is occurring at a slow rate in comparison to surrounding lake areas, primarily due to a lack of employment opportunities. The majority of recent residential development in Norwood comes by way of lake property resales to residents of neighboring counties, who tear down or add onto existing homes.

Existing residential **street patterns** and properties adjacent to Main Street are arranged in a loosely grided form. Further out from the spine toward the Lake, street patterns generally become less connected and respond more to topography and the Lake frontage. Here blocks tend to be longer and present fewer choices of path to the pedestrian.

There are a number of large tracts in Norwood that are prime for redevelopment. Were these lands to be developed in **Traditional Neighborhood Development** patterns (TND), they would tend to

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fit in well with the Town's existing form and street network. TND would support increased commercial growth within the Town limits, which would help Norwood become an even more walkable community. The tendency for this TND pattern to emerge, however, is offset by the fact that, were new development ventures to come to the Norwood area, there is little pressure *not* to develop outside of the Town's current corporate limits or ETJ. Such sprawling patterns of growth inevitably lead to strip-type development that would, in the long run, prove auto-dependent and not support the pedestrian vision the Town has articulated.

For these larger tracts in Norwood, Lake Tillery has the potential to serve as a powerful draw for additional residential development. Across the Lake in Montgomery County, a very large residential development is currently underway including 1200 new homes in a golf course community.

Sidewalks line the northeast side of Main Street, from Darrell Almond Community Park to Barringer Chapel Road at the Food Lion store. On the southwest side, they run from the the Movie Gallery in the commercial center near Crawley Road to Advance Auto Parts between West Whitley and West Andrews Street. Certain cross streets extend this network into the adjacent neighborhoods. These include Whitley, Pee Dee, West Turner, Anson, and Allenton. An isolated run of sidewalk also lines a portin of North Kendall at Whitley. The area most intensely served by sidewalks is the Mill Village, located adjacent to the Park and across Main Street from the Joan Fabrics mill.

The Town has no record of when its sidewalks were installed, though the majority remain in fairly good condition. Typical sidewalks in Norwood are 4 feet wide with an adjacent grass strip of 4 feet. Along Main Street between Whitley and Anson, paved sidewalks conditions are more generous, widening to about eight feet. Here, in front of businesses, the sidewalk directly abuts the street and offers some occasional pedestrian enhancements such as awnings and large store windows. Sidewalks throughout the Town vary in maintainence and compliance with current ADA standards.

Crosswalks are currently located at three strategic locations in Town, all along Main Street. Two of these are at the primary intersections of Whitley Street and Anson Avenue. The third crosses South Main Street between College and Ray Lee at Norwood Elementary School. The Whitley and Anson intersections also feature the only traffic lights in Town. All crosswalks are prominently striped and feature signs to warn drivers of pedestrian activity.



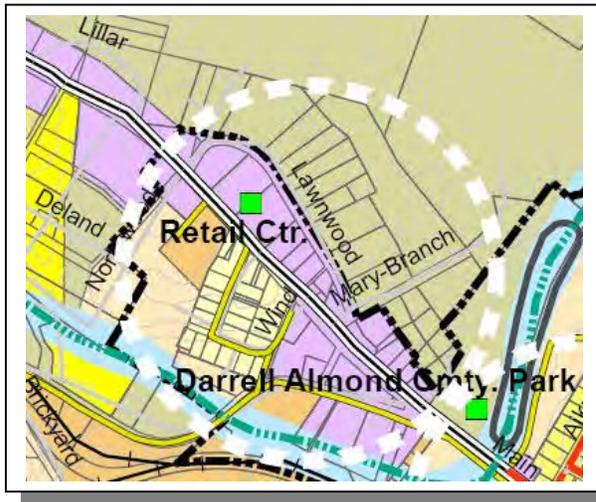
Intersection of Main Street and Anson Avenue

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As for formal **trails**, there is only the closed loop in Darrell Almond Community Park. But creek runs, such as Cedar Creek, Big Cedar Creek, Little Cedar Creek, in addition to other shorter runs (see **Existing Conditions Map** at the end of Part 2) could provide excellent opportunities for trail corridors, particularly along existing sanitary sewer easements.

2. ORIGIN-DESTINATION POINTS

Many of the more popular destination points within Norwood are located along Main Street, and most within convenient walking distance of other popular destination points. This central spine runs a distance of approximately 2.5 miles from one end of Town to the other. Considering that an average pedestrian can comfortably walk a distance of ½ mile in approximately ten minutes, the spine and its various destination points divide fairly neatly into five easily walkable districts, each with a diameter of ½ mile. These five districts are listed below with some of their primary destination points (refer to the **Existing Conditions Map** at the end of Part 2).

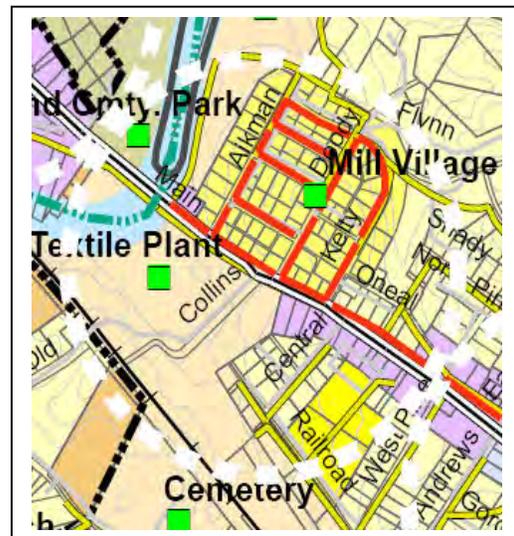


Northwest District

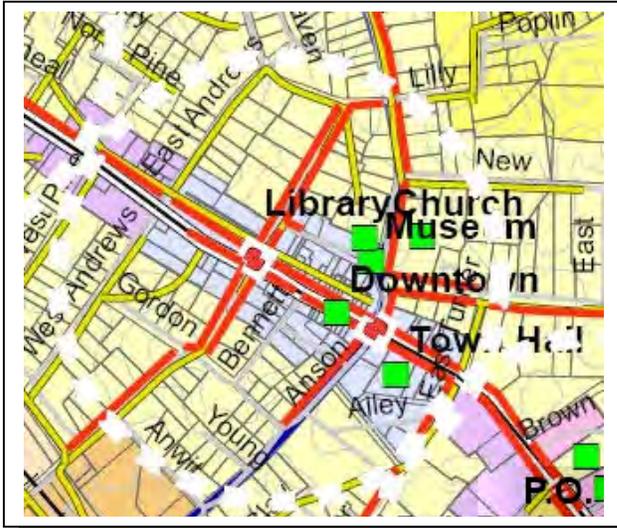
This ten-minute walk along Highway 52 stretches from the Town limits near Northwood Drive to the intersection of Stanly School Road. It is primarily a highway business-oriented district but contains residential and manufacturing zones. In this District, Cedar Creek crosses under Stanly School Road.

Park District

Traveling southeastward, Highway 52 crosses Cedar Creek. The Creek changes course as it heads toward Lake Tillery through **Darrell Almond Community Park**. In the Park, on the northeast side of the Creek, are the pond and its encompassing paved walking trail. A wooden bridge connects this side to the ball field on the southwest side. Just beyond is a dense residential neighborhood known as **Mill Village**. Many of its original residents worked in the textile factory across the street. This plant has recently closed.



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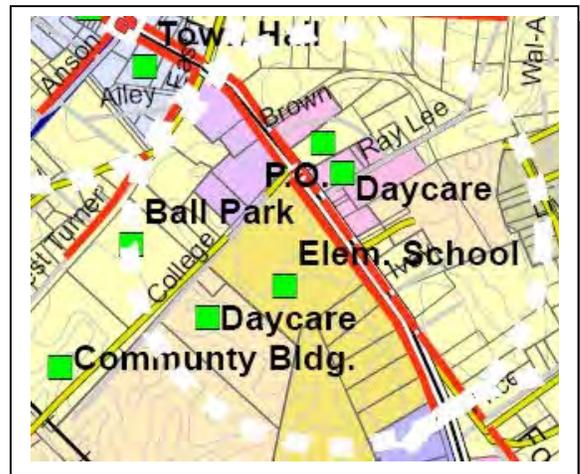


Central Business District

Norwood's "downtown" has its own Central Business zoning designation, allowing businesses to accommodate pedestrians by locating directly along the sidewalk with no setbacks. Concentrated in this area, one can find a plethora of businesses, restaurants and services, along with **Norwood Library, Norwood Museum and Visitors Center, Town Hall**, the County College extension, churches and residential neighborhoods

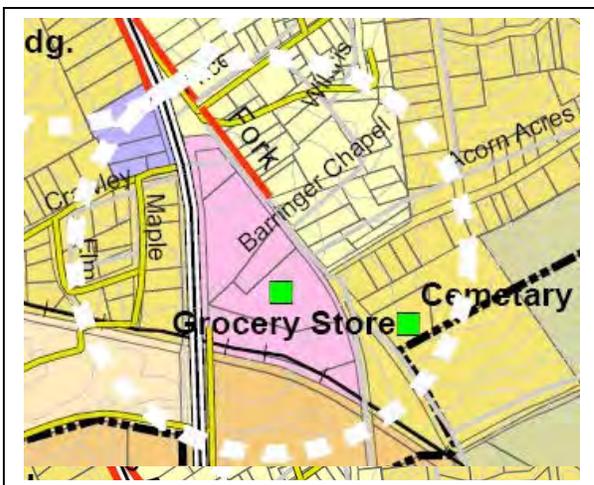
School District

Main Street continues with a concentration of important destinations including the **Post Office**, medical offices, daycare centers and other businesses, a ballpark, residences, and **Norwood Elementary School**. Norwood's **Community Center** lies just outside the ¼ mile radius of this district.



Southeast District

At the south side of Town, Norwood's main road splits into Highway 52 and Fork Road. The Town's primary **grocery store** and shopping center are nestled in between these roads. Other businesses are located across Highway 52, and residential neighborhoods are situated on either side of the fork. There is also a cemetery across Fork Road.



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In addition to those within these five central districts, other popular destinations include:

- Canal Park on Lake Tillery
- Lake access point off Nicks Road and other potential Lake access points
- The Marina
- The VFW
- Various churches and cemeteries
- The Vinyard

3. SPECIFIC PEDESTRIAN BARRIERS AND CONSTRAINTS

Norwood is a small town with generally quiet streets, many lined with sidewalks, in neighborhoods within reasonable walkable distances of the downtown area. However, a number of unsafe or uninviting conditions exist for pedestrians within the Town.

Highway 52 connects the City of Albemarle south to Wadesboro and eventually to the Atlantic Coast. This highway, which effectively bisects the Town, supports a high volume of automobile and heavy trucking traffic. Main Street, being a segment of this highway, sees an average of about 900 trucks per day. According to residents, many vehicles using NC 52 travel at excessive speeds and do not defer to pedestrians. Currently, no bypass is indicated for thru traffic traveling along this highway through Town. Since 1990, NCDOT has received eight reports of vehicular crashes involving pedestrians. Six of those involved bodily injuries, including injuries that were permanently disabling. As traffic continues to increase along NC 52, the potential for such accidents also increases. Though accidents may occur at any point, there are areas on Main Street where pedestrians feel especially unsafe:

1. **Intersection of Highway 52 and Fork Road** – These two roads join at a sharply acute angle, so visibility is hindered for merging traffic. This is also the point where the posted speed limit suddenly drops from 55 mph to 35 mph. This intersection also serves as a turn around point for vehicles traveling southward but want to head back into Town, such as Elementary School commute traffic. Pedestrians frequent this intersection, including school children. Some warning signage is posted, but conditions reportedly still feel very unsafe.

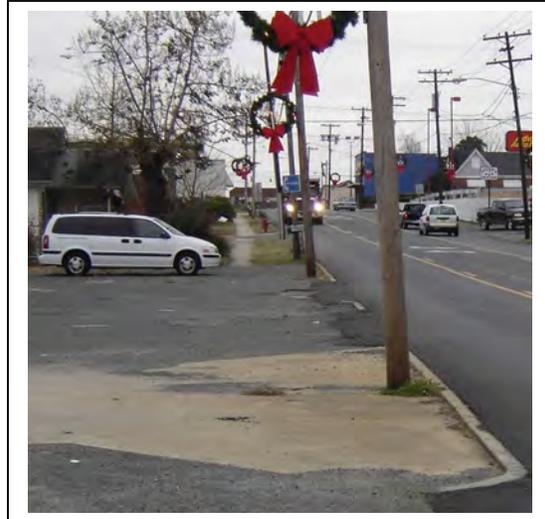


Highway 52 at Fork Road, heading north

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2. **Darrell Almond Community Park** – The pedestrian connection along Main Street effectively ends at Cedar Creek. The sidewalk along the northeast side terminates at the Park, and the shoulder narrows to inches as the road passes over the culvert, leaving no room for pedestrians. This popular location attracts people on foot and in cars. In order to avoid conflicts and accommodate both, adequate pedestrian connections, particularly from Main Street but also from surrounding neighborhoods, need to be established.
3. Only two **traffic lights** currently exist within the Town, these being at the intersections of Main at Anson and Main at Whitley. Additional opportunities to safely cross Highway 52 are needed.

4. **Sidewalk conditions** along North Main Street vary. They are often degraded in areas where frequent curb cuts and driveways serve business properties. Portions of these sidewalks fade to the point of becoming indistinguishable from the crossing driveways and adjacent parking spaces. Though the pedestrian still has a hard surface to walk in these situations, the visual cue to drivers that they are crossing a pedestrian way is totally obscured.



“Sidewalk fade”

Access to Lake Tillery suffers from both a lack of public access points along the shoreline, and a complete lack of sidewalks and trails to the shoreline. Allenton Street provides the most direct connection from the Central Business District and the Elementary School District to the Lake, toward Canal Park. A portion of Allenton features sidewalk on one side but only for a distance of about 4/10 of a mile. This street and the Lake neighborhood it serve sees a great deal of pedestrian use, but many citizens say they are reluctant to walk on it where there is no sidewalk. As the “Gateway to Lake Tillery”, access to the Lake should rank highly among Norwood’s pedestrian concerns.

Lighting conditions are repeatedly cited as inadequate about Town. The existing “antique” lights lining Main Street add illumination and charm to the Central Business District, but throughout the rest of Town, lighting is described as “hit and miss”. Kendell, Pee Dee, Allenton, Turner Street and the Lake shore are reportedly in dire need of better lighting.

West Whitley Street connects Main Street to North Kendall Street. A half mile of sidewalk length runs along North Kendall from Anson Avenue to Lee Road, with an additional section running southwest along Whitley for 1/10 of a mile. This portion of sidewalk is separated from the Town’s main sidewalk network.

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4. GENERAL ANTI-PEDESTRIAN CONDITIONS:

- Heavy traffic along Highway 52 makes Main Street unsafe for pedestrians.
- The extent and number of existing sidewalks, crosswalks are insufficient to meet current needs. Many sidewalks are also in need of repair.
- Aside from the circular trail at Darrell Almond Community Park, there is no trail system in Norwood, despite the presence of creeks that lead to desirable destination points, such as Darrell Almond Park, the Community Building, and various Lake Tillery access points.
- Long straight roads through Town encourage speeding.
- Many existing sidewalks are inadequately lit.
- New developments tend toward segregated land uses, putting residences farther away and out of convenient walking distance from retail and commercial services.
- Primary streets generally lack street trees.
- Insufficient pedestrian warnings are present for drivers.



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Section 5: Current Policies, Plans and Programs

1. Policies, Plans and Ordinances

Zoning Ordinance and Subdivision Regulations

Norwood's Official Zoning Ordinance is the most binding legal document affecting the contemporary form of the Town and continuing development patterns. The degree to which Norwood will become an increasingly pedestrian-friendly town – with all the benefits thereof – will depend upon the continuing development of this document and the Town's Subdivision Regulations. As it is, these documents contain a number of sections that directly pertain to pedestrian issues, particularly in regard to the practicality and quality of the pedestrian experience.

Issue 1: Street Connectivity

Article VI of The Town's Subdivision Regulations – DEVELOPMENT DESIGN STANDARDS - Section 601-603, provide direction regarding the extension of existing streets with new developments and access between adjacent properties.

Sec. 601. Conformity to existing Maps or Plans

The location and width of all proposed streets shall be in conformity with official plans or maps of the Town and with existing or amended plans of the Planning Board.

The plans and maps referred to include the Town Zoning Map and filed subdivision plats approved by the Planning Board.

Sec. 602. Continuation of Adjoining Street System

The proposed street layout shall be coordinated with the street system of the surrounding area and, where possible, existing principal streets shall be extended.

Though direction is given about continuing existing “principal streets”, this term is not defined in the Regulations and is not listed among the eight street classifications under the definition of “STREET”.

Sec. 603. Access to Adjacent Properties

Where in the opinion of the Planning Board, it is desirable to provide for street access to an adjoining property, proposed streets shall be extended by dedication to the boundary of such property and a temporary turn around (cul-de-sac) shall be provided.

Complete discretion is also given to the Planning Board to determine the need for connectivity of properties on a case-by-case basis. It provides no site-specific criteria on which to base such decisions, nor does it refer to any larger guiding plan or policy of the Town regarding streets that are not continuations of existing ones.

Subdivisions (particularly ones in previously undeveloped areas, or "greenfields") are not required to connect to existing streets or to have connections with streets in adjoining lots. Greater street connectivity would increase pedestrian-friendliness by allowing shorter trips and a wider variety of travel paths.

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Issue 2: Cul-de-sac Length

The Town presently has no regulations in place to limit cul-de-sac length. Article VI – DEVELOPMENT DESIGN STANDARDS, Section 611 (h) of the Subdivision Ordinance states:

Sec. 611 Streets and Alleys (h) Cul-de-sacs:

Permanent dead end streets shall be provided with a turn arounds having a roadway diameter of at least eighty (80) feet and a right-of-way diameter of at least one hundred (100) feet. Temporary and dead end streets shall be provided with a turn-around having a radius of at least one-half of the right-of-way of the street.

No other restrictions or guidelines are provided for cul-de-sac design or appropriate use. As cul-de-sacs lengths increase, properties accessible from only one direction become more isolated and difficult to reach, and vehicular traffic on the cul-de-sac increases.

Issue 3: Block Length

Current limits for block length are provided in Article VI – DEVELOPMENT DESIGN STANDARDS, Section 612 of the Subdivision Ordinance:

Sec. 612. Blocks (a) Length:

Block length shall not exceed twelve hundred (1,200) feet or be less than four hundred (400) feet. Where deemed necessary by the Planning Board, a pedestrian crosswalk at least five (5) feet in width may be required.

Thus, blocks are permitted a length equal to four football fields without any cross-streets. This does not lend itself to a pedestrian-friendly environment for the following reasons:

1. People tend to judge this distance as “too far to walk” before they can turn a corner to get to a parallel street.
2. Long streets without interruption encourage drivers to travel at excessive unsafe speeds.
3. Long blocks present pedestrians with fewer route alternatives.

Issue 4: Sidewalks

The Town presently has no regulations requiring sidewalks. Article VII – INSTALLATION OF IMPROVEMENTS, Section 703 of the Subdivision Ordinance states:

Sec. 703 Installation of Improvements With(in) the Town Limits (b): Sidewalks

Sidewalks shall be constructed on such streets as the Town Board considers sidewalks necessary. Sidewalks shall be constructed within the street right-of-way and installed in accordance with Town Policy.

The language above gives complete discretion to the Town Board to determine the need for sidewalks on a case-by-case basis. It provides no site-specific criteria or Town-wide policy or plan on which to base sidewalk placement. It also provides no standards for sidewalk design, such as required width or provision of planting medians.

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To promote pedestrian-friendly developments, sidewalks should be required in new subdivisions according to a Town-wide pedestrian plan. Furthermore, sidewalks should meet all applicable ADA standards.

Issue 5: Greenways, Trails and Open Space

The only public greenway/walking path in the Norwood area is the circular path at Darrell Almond Park. There currently are no provisions in the Town's regulations for greenways, trails or open space. Norwood has no mechanism in place to secure right-of-way for off-road pedestrian corridors or destination points within the Town limits, or to connect to destinations just outside of Town.

Issue 6: Street Trees

The Town of Norwood Tree Ordinance gives the Town Board the charge of creating an official Street Tree species list and establishing guidelines for spacing street trees.

Section 7. Street Tree Species

The Town Board shall be responsible for an official Street Tree species list comprised of three groups of tree – Small trees, Medium trees, and Large trees. No trees other than those included in the list may be planted as Street Trees without written permission of the Tree Board.

Section 8. Spacing

The Town Board shall be responsible for establishing guidelines for the spacing of town trees in accordance with the three species size classes listed in Section 7 of this ordinance.

To this date, no species list or guidelines for spacing street trees has been adopted.

Without an official list of approved tree species, the Town Board has no objective reference for evaluating developers' tree selections in terms of required size at planting, size at maturity, tree viability, aesthetics, general long-term value of the tree species, or consistency of species within the Town or particular neighborhoods. With no specific guidelines for tree spacing, the Town has no consistent standard for requiring street trees per length of street.

Issue 7: Crosswalks

Placement of crosswalks are mentioned in the Subdivision Ordinance, Article VI – DEVELOPMENT DESIGN STANDARDS, Section 612 within the rule for block lengths:

Sec. 612. Blocks (a) Length:

Block length shall not exceed twelve hundred (1,200) feet or be less than four hundred (400) feet. Where deemed necessary by the Planning Board, a pedestrian crosswalk at least five (5) feet in width may be required.

The language above gives complete discretion to the Planning Board to determine the need for crosswalks on a case-by-case basis. It provides no site-specific criteria on which to base such decisions, nor does it refer to any larger guiding plan or policy of the Town.

Mid-block crosswalks are an effective way of safely channeling pedestrian traffic along major traffic arteries. Crosswalks also offer a secondary pedestrian benefit of calming traffic.

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While there are some crosswalks found in Norwood, their numbers are inadequate for current or projected pedestrian needs.

Issue 8: Off-street Parking

Article X, Section 104 of the Zoning Ordinance sets minimum off-street parking requirements:

Sec. 104. Off-Street Automobile Parking and Storage

“Each automobile parking space shall be not less than two hundred (200) square feet in area exclusive of adequate access drives and maneuvering space. Such space shall be provided with vehicular access to a street or alley, shall not thereafter be encroached upon or altered, and shall be equal in number to at least the minimum requirements for the specific use set forth below:”

The required number of parking spaces is set by building use classification irrespective of zoning districts. Most retail uses, with a few exceptions, are required to provide one space per 200 square feet of gross floor area. The Ordinance sets no limit on maximum number of parking spaces allowed. There is also no requirement that parking lots be paved.

Parking lots have a significant impact on the pedestrian-friendliness of a community. The following issues are particularly relevant for pedestrian planning:

1. Requiring off-street parking for all uses in a downtown inadvertently conflicts with the pedestrian nature of a "downtown." These areas should be designed to facilitate the movement of persons by foot, as well as by car. Most zoning ordinances either waive or significantly limit the amount of off-street parking required in a downtown setting, or give credit for on-street spaces.
2. The one space/200 square foot standard (which the ordinance calls for) has been found in most instances to be excessive. In an effort to reduce the "sea of asphalt" phenomenon, there has been a trend to lower the number of required parking spaces for retail uses and to reduce the required area of each space. Some ordinances set a *maximum* parking requirement rather than a minimum.
3. Current standards for a typical full-size parking space area usually allows a space width of nine feet and a depth of 18 feet, for a total area of 162 square feet. Such a reduction significantly reduces the size of parking lots while still comfortably accomodating larger privately-owned vehicles.
4. Unpaved parking lots do not easily accommodate pedestrians.

Issue 9: Building Setbacks

Article VII, Section 75 of the Zoning Ordinance lists minimum yard requirements including front yard setbacks for all zoning districts. The Ordinance sets no maximum setback, which means buildings can be located at great distances from the street.

Excessive building setbacks are disadvantageous and even problematic to towns for a number of reasons involving safety, economic vitality, and general pedestrian friendliness. With no regulations to establish maximum setbacks (or "build-to" lines), retailers can create very deep front yards to accommodate their off-street parking entirely in the front yard.

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Such strip-development arrangement deteriorates street definition, making pedestrian use uncomfortable.

On the other hand, minimal setbacks provide the following advantages:

1. **Safety.** Buildings set far back from streets most often require visitors on foot to navigate significant distances through parked cars (and moving ones!) in parking lots to reach their desired destination point – an often unsafe experience for pedestrians.
2. **Good business.** Buildings in a central business district are ideally built with little or no front yard setback. Businesses built close to the street offer pedestrians opportunity to “window-shop” or walk into a business immediately from the sidewalk.
3. **Comfort.** Streets with minimum setbacks are usually more inviting to walk in. This phenomenon is largely due to a sense of enclosure that buildings can impart to a street, along with the lack of large, hot expanses of asphalt. Buildings close to the street help make the street viable and interesting public space rather than the vast, open no-man’s land often found with strip development.

Issue 10: Mixed Land Use

Section 50 of the Zoning Ordinance defines eleven Use Districts. None of these Districts permit a mix of residential and non-residential uses together in the same district. Thus, land uses for the most part are segregated.

The segregation of land uses does not encourage a pedestrian-friendly environment. The physical distance between uses presents fewer opportunities for pedestrians to walk from one use to another (i.e. "being able to walk to the corner store.") Such an arrangement more often necessitates the use of a car. All too often, such scenarios lend themselves to "strip commercial" development along major highways, which are geared for the motorist as opposed to the pedestrian.

Comprehensive Transportation Plan

The Norwood Comprehensive Transportation Plan (CTP) is currently under development by the North Carolina Department of Transportation (NCDOT) Transportation Planning Branch. It is due for publication by Spring of 2007. The Plan will include the development, testing and evaluation of alternate transportation plans that considered Town goals and objectives, and identified deficiencies, environmental impacts, and existing and anticipated land development and travel patterns. The CTP will address roadway, public transportation, and bike improvements in order to meet the future mobility needs of the Town of Norwood in the coming decades.

The Stanly County Land Use Plan

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The most current County Land Use Plan was adopted in 2002. This “community driven” Plan encourages for its primary growth areas (municipalities) mixed land use patterns, traditional neighborhood design, and public institutions to serve as the focus for communities. The Plan defines Traditional Neighborhood Design (TND) as...

“...a pattern of development and design that provides neighborhoods that are walkable in scale and mixed in use. This walkability is a result of an interconnected street network, streets with sidewalks and street trees, and smaller residential setbacks; while a mix of uses results from residential uses being located “above the store” on the second floor. It is the model for most cities, towns, and other population centers in Stanly County before World War II.”

Below are some of the land use principles identified in the Plan and how they relate to the Town of Norwood specifically.

1. Future growth and development should be directed to the county’s existing population centers.

The Plan reports that the small-town, rural atmosphere indicative of Stanly County is one of its most attractive features. Residents of Stanly County generally agreed that it would be impossible and undesirable to stop growth, but questioned how new development could be managed in order to preserve the unique qualities that define the County’s rural and urban areas. Western Stanly County is already beginning to see “rural sprawl” occur, that is, scattered, unsystematic growth away from existing population centers. The Plan charges municipalities to work together to minimize sprawl in the countryside. Historically, development patterns in the region focused on the small cities and towns, and today this is still the most advantageous pattern, in terms of economic use of existing infrastructure, preservation of farmland and rural scenery, and in the ability of existing communities to absorb and sustain new development with the least amount of public investment. According to the Plan, existing municipal road systems designed on a grid pattern are the most easily expandable and can accommodate greater influxes of traffic, particularly during peak times.

4. Protect Stanly County’s unique natural and cultural resources.

Norwood’s Lake Tillery shoreline has been identified as part of a valuable countywide asset, and should be protected as a cultural resource worthy of preservation.

5. Use long-range planning for public infrastructure investments as an opportunity for community building.

Along with zoning and land use planning, the availability of services and infrastructure such as schools, public utilities, and roads are among the most effective tools for guiding and concentrating development within the Town.

6. Encourage land use patterns that provide a compact mix of land uses at a higher intensity of development.

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In Norwood, or any town in the region, the traditional land use pattern is still visible, where residential neighborhoods are located in close proximity of older commercial areas, along with libraries, schools, churches, etc. This type of development pattern encourages pedestrian circulation for routine daily activities and could conceivably reduce dependence upon vehicles particularly for school commuting, trips to parks and recreation facilities, and daily shopping and service needs.

7. The provision of parks, recreation, and open space needs to be an element of future land use planning in Stanly County.

Among the other benefits of parks and open space, these lands can provide valuable pedestrian linkages between schools, residential neighborhoods, retail and services, and active and passive recreation areas themselves.

9. Cooperation between the County, its communities, and other entities offers the best solution to future land use planning in the County.

The objectives of the Land Use Plan cannot be met without the involvement and cooperation of its municipalities. Preserving land and preventing rural sprawl will not be possible without the cooperation of the County's municipalities avoiding expansion of utilities and other urban services beyond its urban area. The Plan recommends that towns adopt comprehensive/land use plans and continue coordinated plan dialog with the County.

The Plan also underscores the importance of a **Rocky River Greenway**:

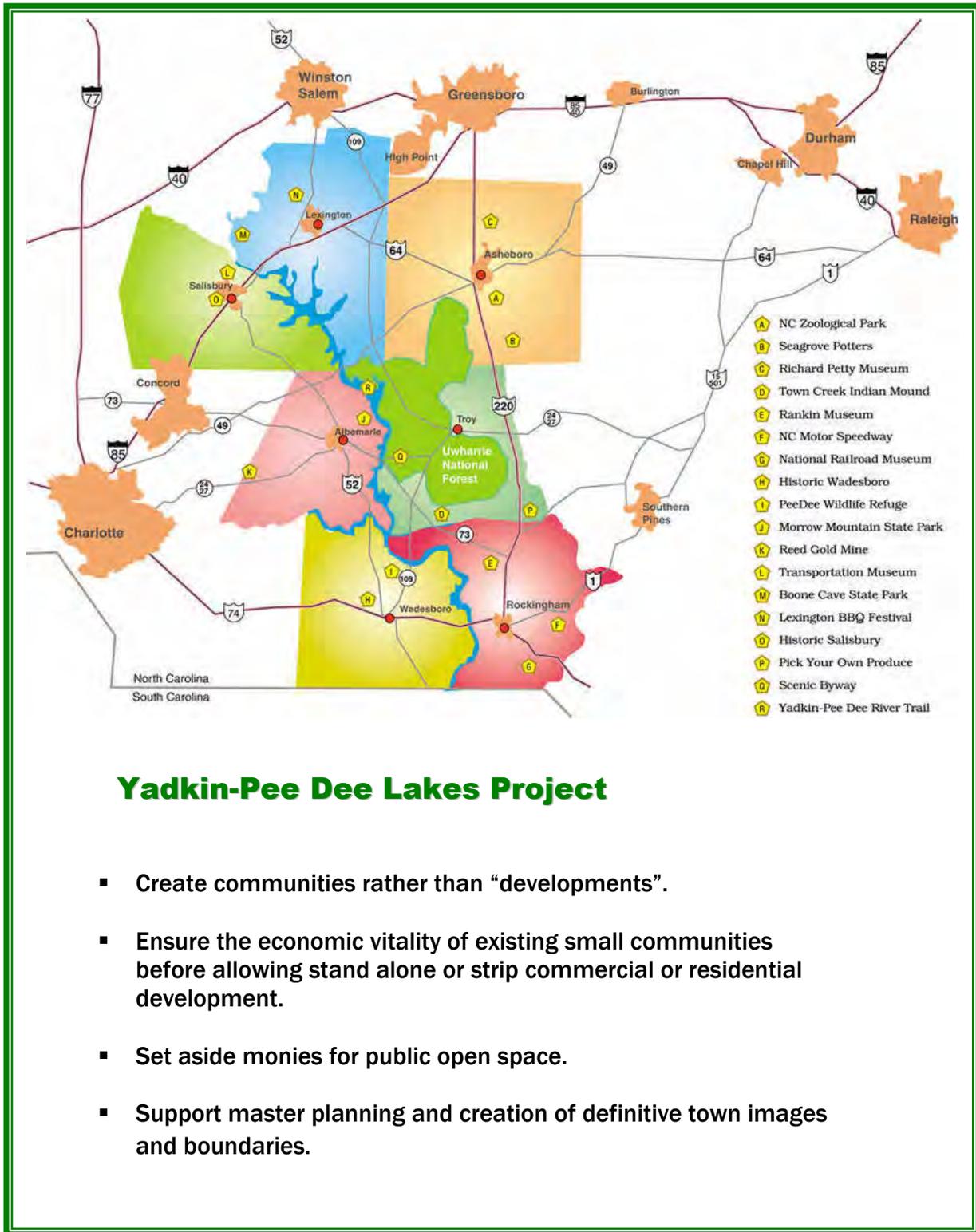
“The Rocky River presents a unique opportunity to link southern Stanly County with a regional greenway to Cabarrus, Mecklenburg and Union Counties and the Charlotte metropolitan area. A multi-purpose greenway is recommended for this corridor; a greenway that ultimately would link to the Yadkin-Pee Dee River at Norwood... (and) serve as a linear park with trails and infrastructure supporting walking, biking, canoeing and other activities.”

The County Land Use Plan also recognizes other regional planning documents, such as the North Carolina Central Park Study, which corroborate many of the planning strategies of the County Plan, particularly with respect to urban growth patterns.

North Carolina Central Park Study (Yadkin-Pee Dee Lakes Project)

The Yadkin-Pee Dee Lake Project encompasses seven counties joined by the Yadkin-Pee Dee River, including Stanly County. The Project is particularly concerned with the region's potential for developing a significant tourism economy based on its natural and cultural assets. The Central Park Study was commissioned with the idea that the region could become the "Central Park" of the Carolinas, serving as a rural hub for outdoor recreation and tourism for local residents and the growing urban population surrounding the region. The Study identifies a number of priorities particularly for its urban centers, such as the Town of Norwood and recommends the following:

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Yadkin-Pee Dee Lakes Project

- Create communities rather than “developments”.
- Ensure the economic vitality of existing small communities before allowing stand alone or strip commercial or residential development.
- Set aside monies for public open space.
- Support master planning and creation of definitive town images and boundaries.

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3. Pedestrian Programs, Events and Initiatives:

Norwood hosts a number of **annual events** that draw crowds of participants on foot. Among them:

- **Horse Trials** – The first two weeks in April, this regional equestrian event is held on Fork Farm, at the end of Fork Road.
- **Arbor Day** – Norwood celebrates a two-day festival in the Town Hall on the last weekend in April. This event draws about 7500 pedestrians for food, arts and crafts, entertainment, dancing, and (of course) tree planting. Over eighty vendor spaces are hosted by civic clubs, churches, and other community groups.
- **Car Show** – Immediately following the Arbor Day festival, Norwood holds its annual car show in the softball field on Turner Street. The event includes live music, food, and lots of show cars.
- **Picnic in the Park** – Darrell Almond Community Park's autumn event features lots of live music and food.
- **Little League Baseball** – These regular events for boys and girls draw crowds to the field at Turner drive.

The **Norwood Police Department** currently has no pedestrian programs in place, but they do assist with the annual Walk-a-Kid-to-School event. About 100 kids participate each year.

The **Neighborhood Watch Program** is reportedly coming soon to Norwood. Programs like these help make communities safer for homeowners and for pedestrians.

As a member government of the **Rocky River Rural Planning Organization (RRRPO)**, the Town of Norwood participates in transportation planning initiatives for the region, and enjoys the benefits and resources available through the RRRPO. One of those benefits has been assistance in applying for the North Carolina Department of Transportation Pedestrian Planning Grant that funded the development of this Pedestrian Plan.

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Section 6: Key Areas & Issues

As it exists today, Norwood has a number of features that visibly help make the Town a pleasant place for pedestrians. Sidewalks line the main streets in the Town center. Awnings shade many building entrances. Street trees dot the downtown pedestrian ways adding shade, beauty, separation from vehicles, and a sense of pedestrian scale.

Other pedestrian-friendly elements in the Town may be less obvious but have an even more profound impact on Norwood's walkability. These features deserve the spotlight in order that their value can be more clearly understood, so that they will be preserved, enhanced and drawn upon as the Town continues to develop.

UNIQUE OPPORTUNITIES

1. Compact urban core with a variety of land uses and destination points

Norwood has the benefit of a fairly compact urban form, centered along Main Street. The majority of the Town's community buildings and services, along with businesses, restaurants and residential neighborhoods are within an easy five-minute walking distance of this central spine.

2. Existing tight-knit well-connected community

The existing grid of streets on either side of Main Street provides a relatively well-connected network for vehicles as well as pedestrians. This means people can visit a variety of destinations on the same walking trip, and do so in a fairly efficient manner, without having to walk very far out of their way. It also means pedestrians can stroll between points by a variety of paths without always having to walk the same tedious route.

3. Large, under-developed parcels within the Town

Norwood's fairly dense core of neighborhoods is nearly surrounded by large tracts of under-developed land. These parcels present prime opportunities for development, and give the Town enormous opportunity to shape its future. Such large parcels will face increasing development pressure as the area becomes increasingly desirable to potential residents attracted to Norwood's assets, particularly its lake frontage.

4. Lake Tillery

Lake frontage has traditionally drawn part-time residents to Norwood from populated areas like Charlotte. Many of those vacation homes along the Lake have turned into year-around residencies. As the population of the region grows, lake towns like Norwood will become ever more desirable. Public access points, such as Canal Park, increase the value of the Lake for all citizens of Norwood.

5. Darrell Almond Community Park

The Park draws residents of all ages for recreation, exercise, events and informal social gatherings. It also serves as a landmark for Norwood to those traveling through Town on Highway 52. Darrell Almond Park combines a circular walking path around an expansive pond, with a ball field, picnic shelters, a fenced

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playground, restrooms, vending machines, a tree-lined stream, and seating areas. The Park occupies a strategic location in Town, linking Main Street to a primary stream corridor of Lake Tillery. This Community Park lies adjacent to established residential neighborhoods, retail businesses, and to land that is now prime for redevelopment (former Jones Fabrics).

6. Existing sidewalk network

Norwood's existing sidewalk system already connects many key destination points to surrounding neighborhoods. This established centralized network provides a main spine from which other sidewalk lengths could branch out to more destinations.

7. Existing streams and sewer easements

The various tributaries of Lake Tillery that run through Norwood provide excellent potential for greenway paths. Such off-road paths could serve as a transportation network complementary to sidewalks, and provide recreational opportunities as well.

PRIMARY PEDESTRIAN ISSUES

The factors that determine overall pedestrian quality of life for a community are numerous and interwoven. But in order to make conscious improvements to pedestrian conditions, the individual component issues must be identified and understood. Solving complex pedestrian issues requires an understanding of the major trends that led to current conditions, and that will continue to shape the future. The following represents a summarization of issues and needs that are addressed by the Norwood Pedestrian Plan Recommendations.

1. Vehicular traffic

Traffic conditions along Highway 52 - Norwood's Main Street – present an increasing challenge. The Town's busiest pedestrian corridor is also its most heavily trafficked by cars and trucks, including heavy industrial trucks. Many favor a bypass around Norwood for through traffic, but such a project may still lie many years in the future.

2. Safety concerns

With the heavy volume of through traffic traveling along Main Street, some of its intersections are becoming a growing concern in terms of pedestrian safety. Other streets within Town having long, straight sections, are also a growing safety concern.

3. Current development trends

As the region's population grows, so will demands upon its natural recreational assets. Norwood's Lake Tillery frontage will continue to draw new residents and visitors. Development pressures will rise, making the sale of larger tracts in Town increasingly more attractive. Large undeveloped or redevelopable tracts in Town need more focused planning.

4. Current development policy

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Land use plans, policies, and ordinances, which are the Town's primary tools for development, are not fully consistent with and do not explicitly support the Town's pedestrian vision. In some cases they may even work against it. Future patterns of development in Norwood will follow the guidelines set forth in these documents. If Norwood is to become a town more attractive to and safer for pedestrians, and less congested with vehicles, current development policy must be carefully scrutinized and amended with these goals in mind.

5. Current Pedestrian Facilities

Sidewalks are needed to accommodate pedestrian traffic in many corridors throughout town where they are currently not available. Norwood also has very little to offer in terms of off-road paths and trails.

6. Available funds

Pedestrian improvements like sidewalks and street trees cost money. But many other important infrastructure needs compete for local tax revenue as well. However, specific funding sources are available that are targeted solely at pedestrian streetscape improvements. Also, the cost of many pedestrian improvements could be absorbed by private development in the Town as that development occurs. The funding question relates directly to how high a standard the Town is willing to require of new development within the Town.

7. Familiarity with choices in urban form

Many people are simply unfamiliar with various forms a community's development can potentially take or how those particular forms may potentially encourage or discourage pedestrian life. People who have never personally experienced otherwise often assume the absolute necessity of automobiles for all facets of modern community life. Many citizens are also unfamiliar with how particular development patterns come about, and underestimate the power their community has to shape its own future development. It is the intention of this Pedestrian Plan to convey these options in urban form and describe the means of improving pedestrian conditions in Norwood, and with those improvements, to see the increased civic and economic vitality of the Town itself.

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PART 3: PLAN RECOMMENDATIONS

Communities can employ a number of differing strategies in implementing pedestrian improvements depending on the philosophy of its leadership. They may choose to:

1. Simply build sidewalks and other amenities on a per request basis that may or may not address overall pedestrian needs
2. Systematically identify and address existing pedestrian barriers and constraints
3. Identify and address both current and expected future pedestrian needs on a case-by-case basis
4. Develop and implement an approach that integrates the need for pedestrian amenities into other aspects of planning, in order to ensure that future development supports pedestrian travel as a practical mode of transportation

Many towns will, by default, take the first approach, or else employ a more coordinated effort the second two require. But Norwood has indicated a commitment to finding ways to integrate pedestrian needs into their comprehensive planning efforts through this Pedestrian Plan process. In this way, both current and future pedestrian needs are addressed. Additionally, tools are put into place to ensure that future development considers the pedestrian. Likewise, the developing pedestrian system will work toward the overall vision and goals of the Town: a small town where walking is not only a viable option but often the preferred way of getting to destination points, and a charming community where children, the elderly, the disabled, and everyone else can safely walk and meet on the sidewalks.

Transportation needs do not exist in a vacuum. They are interwoven with other needs reflected in the way land is used. Transportation systems and land use patterns must be mutually supportive for either to work in a fully functional and efficient manner. This is particularly true in the case of pedestrian planning, where a number of land-use factors often determine whether even the “best” pedestrian facilities actually ever get used.

This portion of the Plan begins by addressing how that integration of land use and transportation takes place, in the **Recommended Policies and Ordinance Modifications** section. The “fixes” recommended in this section all fall under the headings of “planning” or “language,” and a table shows what language can be used to accomplish the Town’s goals. The sample of **Recommended Programs**, which follows, suggests various strategies for increasing pedestrian activity. The next section, **Project Recommendations and Implementation Strategy** suggests general overall improvements to addresses current and expected future pedestrian needs in Norwood. It describes both planning efforts and facility construction required to make those improvements. The **Individual Project Identification and Priority List** that follows recommends and describes specific projects. Most of these projects will require more detailed design, as well as acquisition of right-of-way or easements, and some call for additional public input. All projects, however, along with existing facilities will require proper maintenance. A number of maintenance strategies and concerns are described in the **Recommended Maintenance Programs** section. Finally, the **Recommended Evaluation Process** briefly describes how the Pedestrian Plan’s goals and implementation strategies can be examined and improved over time.

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Section 7:

Recommended Policies and Ordinance Modifications

Norwood will find serving pedestrian needs easier if plans, ordinances and policies are coordinated and consistent regarding pedestrian travel. Furthermore, the Town will see that facilities receive greater utilization if certain programs are in place to support pedestrian travel as a mode of transportation. The following recommendations address the policies and programs that should be amended to integrate pedestrian mobility into the land use and transportation systems, so as to promote maximum use and benefit:

1. Form a Pedestrian Needs Committee.

The PNC should represent a wide variety of pedestrian interests and populations in the Town. Various areas of expertise represented by the PNC should include:

- Transportation
- Commerce
- Health
- Safety
- Education
- Aesthetics
- Environment
- Engineering and Design

The purpose of the PNC is to ensure that the Pedestrian Plan stays in the forefront of public awareness, and that it is implemented and updated as needed to reflect conditions and pedestrian needs. The PNC can be an important avenue for integrating pedestrian needs with other planning processes. The PNC can serve as advocate, monitor, facilitator, and educator, as well as ensure that emerging public needs are addressed in the planning process.

Implementation Strategy: Norwood Town Commissioners appoint PNC members and invest them with the authority and charge to follow-up on the Pedestrian Plan.

2. Develop and Adopt a Comprehensive Land Use Plan

Through the comprehensive land use planning process, a clear vision for a community is developed and documented. The Plan describes how and where the community should grow and develop in the future, and what steps the community should take to turn this vision into a reality. Pedestrian-related elements that could be included in the plan are:

- An examination of alternative overall growth and development scenarios, including those that accommodate and foster pedestrian activity.
- Economic development strategies, particularly for those located in the central business district and along major growth corridors
- Coordination of all adopted policies and documents (plans, ordinances, etc.) that affect growth and development to ensure that these
- Developing a prioritized implementation and funding schedule to help ensure that implementation strategies called for in the plan are realized
- Descriptions of individual neighborhood and corridor development schemes

Implementation Strategy: Norwood Town Commissioners select a qualified planning consultant to guide the Town through this collaborative planning process.

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3. Engage in community planning for infill of large, under-developed parcels in Town.

As part of the land use planning process, serious discussions at the community level should determine the extent to which infill development on large in-Town parcels should be encouraged, and how much street connectivity and pedestrian-friendly actions should be promoted in that development. These discussions should occur now, before these properties are developed, so that pedestrian facilities can be included in planning (because they are very difficult to successfully retrofit).



Large parcels in the Norwood area

As a part of these discussions, current zoning restrictions for these properties should be evaluated in terms of pedestrian-friendliness. Most of these properties are now zoned R-20 or RA. (See Existing Conditions Map). Both of these zoning districts require at least 20,000 square feet per dwelling unit (du) (approximately 2 du/acre), in order “to insure that residential development not having access to public water supplies and dependent upon septic tanks for sewage disposal will occur at sufficiently low density to provide a healthful environment.” The majority of these lots now lie adjacent to properties with water and sewer service. Removing this restriction through the rezoning process, will allow higher density development essential to creating pedestrian-friendly neighborhoods. A higher density (as permitted in R-10 or R-8 zones, for example), along with sidewalks and street trees, could support walking as a desirable means of transportation.

R-20 and RA zones also permit very few non-residential uses, even under conditional authorization. A mixed-use zone would allow a variety of destination points to exist in these areas - restaurants and stores, for instance - giving people more opportunities to walk in their daily routine. As noted previously, widely spaced and dispersed uses tend to discourage walking as a form of transportation between them, no matter how nice the sidewalks and trails are. And if facilities aren’t used, any jurisdiction—federal, state, or local—has a hard time justifying a commitment of money to them.

These discussions should lead to amendment of any relevant zoning or other regulations and their attendant maps.

Implementation Strategy:

- Activate the Pedestrian Needs Committee (Item 1).
- Engage the Planning Commission in discussions regarding these topics.

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- Amend related regulatory documents as needed to incorporate the changes recommended (Item 6).

4. Work with Stanly County on areas outside Norwood's ETJ.

It will be important to track and discuss the impacts of development planned for or occurring immediately outside the Norwood ETJ, in light of Norwood's articulated vision.

Norwood can determine what happens within its corporate limits and ETJ, but not what happens just over the line. Stanly County's land use plan describes the County's desire to preserve open space and scenic rural areas (in which Norwood is located) by working with the towns to create vibrant town centers of mixed and multiple uses—in other words, preserve rural areas by making cities and towns a very attractive place to live. These visions mesh extremely well and support Norwood's interest in creating a good pedestrian environment to serve as a local transportation alternative. It will be important to monitor development to see whether these mutually-supportive visions are being fulfilled, or whether something further should be done to promote them, because concentrating development in or outside the ETJ will have a real impact on the use of pedestrian facilities as a viable transportation mode.

Implementation Strategy: PNC shall monitor land development, and have frequent communication with the Stanly County Planning Department and Planning Board.

5. Address consistent Transportation Planning.

Work with NCDOT and the Rocky River RPO to ensure that future roadway plans, projects, and priorities are consistent with the adopted Pedestrian Plan (or that the Pedestrian Plan is amended if needed). Include the Pedestrian Plan as an expansion of the Comprehensive Transportation Plan as that is updated in 2007.

NC planning law now calls for communities with planning documents to review those documents and address, in plans reviews and rezonings, issues of consistency of the proposals with the planning documents. For this to work, the documents must be internally consistent. While such a process may seem burdensome, it also makes the planning process more predictable and should lead to greater adherence and success in carrying out long-term goals for community growth.

Implementation Strategy: PNC shall ensure adequate distribution and reference to the Pedestrian Plan in decision-making processes by Town Staff, Board Members, and NCDOT.

6. Coordinate with Norwood community stakeholders.

Stakeholders should include the Police Department, Schools, and other organizations on pedestrian safety outreach and education.

Implementation Strategy:

- PNC and Town staff other shall work with the Police Department, Norwood Elementary School, and other stakeholders to reach out to pedestrians about

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safety issues. The Police Department can participate by distributing materials through their Community Policing program, the Schools by distributing materials to their students and parents.

- The Town shall announce changes in facilities, upcoming construction, etc. to all its residents. Flyers can be sent home in utility bills, but equally valuable will be the posting of information on the Town's website, and at common gathering places such as the Post Office, the grocery stores, the banks, and local restaurants.

7. Enact policy and ordinance changes.

The table, which follows, summarizes specific policy and ordinance modifications that would positively impact pedestrian facility implementation or utilization.

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Section 8: Recommended Programs

Walk a Kid to School event

Each year in the month of October, the Norwood Town Board provides over 100 kids breakfast before leading them on a community group walk to school. This event has been so successful that an additional event day has been suggested for the spring school semester. Programs like these help children, parents and all participating adults see for themselves the benefits and viability of children walking to and from school.

The North Carolina Department of Transportation has more information about this type of initiative and related ones, at:

http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/walk2school_intro.html

Other related programs recommended by NCDOT include:

Walking School Bus

The walking school bus idea encourages students to walk together with supervision of one or more adults, depending on the size of the group. Adults can take turns walking with students by having assigned days of duty. The group follows a planned route, similar to the traditional school bus, on their commute to and from school. Children can be met by the group at their homes or at supervised "bus stops". The bus participants can have fun with the idea by wearing a specific color, use a wagon for the backpacks, or hold a rope linking them all together. Adults can use the opportunity to teach pedestrian safety skills to students while walking to school as well.

Walking Wednesdays

Designating a weekly or monthly Wednesday as "Walking Wednesday" can encourage students to walk to school with their friends, family, teachers, or as part of a walking school bus. Classes that have the greatest percentage of students participating can be recognized and rewarded.

Crossing Guards

Volunteers from the community can work with the local school system to provide safe crossings for school children at key crossing areas. Crossing guards help guide students safely across busy streets and provide additional supervision for children. They also serve as visual cues to drivers to slow down.

Students can also serve as safety patrol volunteers. The AAA School Safety Patrol program has helped reduce injuries and deaths among younger students most at risk for pedestrian injury. The AAA program also instills students with a sense of responsibility and leadership, as each day they protect classmates going to and from school. Contact the AAA School Traffic Safety Coordinator for North Carolina, Monique Lyles at (888) 274-4459 x6201, mllyles@mailaaa.com. Or visit AAA at:

<http://www.aaapublicaffairs.com/Main/Default.asp?CategoryID=7&SubCategoryID=25&ContentID=71>



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SCUSA Bus

Stanly County offers community transportation services through the SCUSA Bus program. Transportation includes trips to and from agencies, employment sites, businesses, medical centers (in and out of county), community college, Senior Center, nutrition sites, after school programs, group trips, dialysis, nursing homes, etc. Services are provided utilizing vans and buses through subscription and demand response routes. Vehicles are equipped to serve the disabled population. Contact Gwen Hinson for more information at (704) 986-3790.

Charity Run/Walk Event

Various charitable causes host community wide events such as walk-a-thons or 5K runs to raise money. The Town could organize such an event for a charity, or direct proceeds toward park or trail improvements. Such events would also draw attention to the healthy benefits of walking.

Adopt a Sidewalk/Trail Program

The Adopt-a-Road program is very successful in gathering volunteer groups to regularly clean a particular stretch of road. Adopting a trail or sidewalk section can be just as effective. Any interested individual or organization can care for their "own" section of trail. They may adopt a favorite site or a Beautification Committee can suggest a trail or sidewalk section most in need. Volunteers pick up litter four times annually, or more if necessary. They also serve as an extra set of eyes to watch for downed trees and branches or report other maintenance issues. Adopt-a-Trail or Adopt-a-Sidewalk signs are placed on the trails to recognize those volunteers who have taken their valuable time to keep the trails clean and help preserve these valuable assets for the community.

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Section 9: Project Recommendations and Implementation Strategy

Before considering individual site-specific projects (or how to implement them), a broad description of recommended pedestrian initiatives for Norwood is provided below. Each of these project types or strategies is intended to improve pedestrian conditions in terms of increased safety and mobility. These general recommendations are listed categorically and in no particular order of priority. Individual projects within those categories are described in detail in the **Section 9: Individual Project Identification and Priority List** and are also shown on the **Comprehensive System Map**. All improvements should be constructed and maintained in accordance with the **Facility Standards and Guidelines** section of the Plan Appendix.

I. GENERAL PROJECT RECOMMENDATIONS

These recommendations are categorized as either “Short-Term” or “Long-Term” based on the following criteria:

Short-term projects

- Address critical safety, mobility, or access needs
- Primarily improve or utilize already existing facilities
- Require minimal purchase of right-of-way or easements
- Are consistent with other previously adopted plans
- Require no changes in existing ordinances
- Require a minimum of funding

Long-term projects may have equal or greater impact than Short-term but require that one or more of the following actions be taken:

Long-term projects

- May involve private development and thus public-private cooperation
- May require additional right-of-way or easement acquisition
- May fall within NCDOT right-of-way
- May require NCDOT funding, engineering and construction
- May require ordinance modification

Short-term Project Types:

🚧 **Add warning signage** in areas where current warnings to drivers have proven inadequate, particularly along roads where high speed limits suddenly drop to low speeds.

🚧 **Construct sidewalks and improve sidewalk conditions** along existing streets in accordance with the Plan’s priorities.

Sidewalk “conditions” refers to a variety of improvements including:

- | | |
|--------------------------------|-------------|
| a. Pavement condition and type | c. Lighting |
| b. Path width | d. Drainage |

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- e. Clearance from obstructions
- f. ADA compliance
- g. Planter islands
- h. Street trees and other landscaping
- i. Trash cans, benches, and other “pedestrian furniture”

➤ **Construct new crosswalks** where shown in the **Comprehensive System Map** as recommended in the **Individual Project Identification and Priority List**.

Long-term Project Types:

➤ **Construct pedestrian trails and supporting facilities** in acquired easements and right-of-way including proposed public destination points, such as Lake access points, identified in the **Comprehensive System Map**.

New trail easements may be acquired through the subdivision process, as proposed in **Implementation Strategies Short Term Goals**, or through other means including:

- Donation of right-of-way or easements by public or private landowners
- Public purchase of right-of-way or easements
- Public/private partnerships

It should be noted that the term “trail” refers to a path other than a sidewalk that links destination points (and thus is useful for transportation) as well as a path that may be used for recreation.

When developing pedestrian trails (greenways) consider the following steps:

- 1.) Identify, plan and develop greenways in cooperation with all affected landowners, local businesses, civic organizations, pertinent citizen advisory groups, jurisdictions, and local law enforcement. A "Greenways Partnership" can facilitate communication between these groups.
- 2.) Ensure the preservation, protection and appropriate management of significant and sensitive environmental, ecological and cultural resources within greenways through conformance with the standards and criteria identified in this Plan and other pertinent policies and plans.
- 3.) Where acquisition of land needed for the greenway is not feasible or desirable, work with landowners to protect identified resources, and provide public access where appropriate, through voluntary means such as conservation and trail easements and/or cooperative agreements.
- 4.) Identify roadside segments of the greenway/trail plan. Ensure that these segments are incorporated into local and state transportation plans and developed and maintained through appropriate agencies.

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➤ **Development of Highway 52 Bypass**

Immediate improvement in vehicular and pedestrian conditions in the downtown area of Norwood could be realized with a reduction in the amount of highway through traffic utilizing Main Street. According to the current NCDOT 2006-2012 State Transportation Improvement Program (TIP), US 52 in Norwood is planned for improvements in the corridor from US 74 in Wadesboro to NC 24/27 in Albemarle with some portions on new location. The exact location of the improvements will require further detailed study. It is possible that the recommendations of the ongoing Comprehensive Transportation Plan (CTP) for Norwood will show the need for a bypass on of the town on new location to alleviate congestion caused by through traffic and heavy trucks using Main Street for regional travel. Diverting through traffic and providing alternative routes for traffic intending not to stop in Norwood, would contribute to improving pedestrian conditions in the Town, particularly those pedestrians crossing or traveling along Main Street.

The actual construction of new facilities may not be feasible in the foreseeable future due to NCDOT budget constraints and priorities; however, the Town should consider steps that will preserve future potential bypass corridors from becoming overbuilt and thus not usable for this purpose. Opportunities for potential corridor selection and preservation from future development will be enhanced at the conclusion of the planning process with the adoption of the future Norwood CTP.

➤ **Central Business District (CBD) Improvements**

Renovate downtown Main Street and expand the business district into neighboring parallel streets, such as Campbell and Gordon Streets. (See steps outlined in **Section 9: CBD Streetscape Projects**).

➤ **Continue the Town street grid** in conjunction with new private subdivision development. The street grid is designed to increase connectivity within the Town in order to:

- a) Ease the vehicular traffic burden on existing streets by providing alternative routes
- b) Provide a greater variety of pedestrian linkages throughout Town
- c) Create opportunity for town growth, in a well-integrated mix of land uses according to traditional pedestrian-friendly principals
- d) Increase economic opportunities within the Town Center

New street right-of-way may be acquired through the subdivision process according to the procedure outlined in the **Recommended Policies and Ordinance Modifications** section of this Plan. Individual projects are described in the **Individual Project Identification and Priority List** of the Pedestrian Plan. All improvements should be constructed in accordance with the **Facility Standards and Guidelines** section.

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II. IMPLEMENTATION STRATEGIES

Specific strategies are listed below under the classifications of, again, Short-term and Long-term. Each of these strategies has long-term benefits but Short-term strategies meet the most immediate needs, can be most readily addressed, and will be beneficial to later steps of implementation.

Short-term Implementation Strategies:

-  **Apply for recommended funding** and enact revisions to the local budget. See Funding Strategies and Local Budget Recommendations in this Plan.
-  **Revise current development policies** contained in the Town Zoning Ordinance, Subdivision Ordinance and other related documents, to increase connectivity and mix of land uses. The character of Norwood to this day remains fairly rural in nature. Currently within the Town limits there are about 30 tracts exceeding ten acres, with no more than a single dwelling unit. Most of these largely undeveloped parcels are prime candidates for subdivision and redevelopment. If current Town ordinances are revised according to the **Recommended Policies and Ordinance Modifications** section of this Plan, new streets and pedestrian trails will become available to the Town through the development process, with minimal cost to the Town. Encouraging mixed-use development in these parcels through the creation of a mixed-use zoning category will foster new neighborhood development where walking can serve as a useful means of transportation. Refer to the **Comprehensive System Map** for conceptual trail alignment.
-  **Establish right-of-way agreements for trails** with sanitary sewer utility company to share existing utility and stream corridors.
-  **Evaluate current Town staffing needs.** Implementation of the Pedestrian Plan will likely require some additional staff to coordinate individual improvement projects and work with the Pedestrian Needs Committee.
-  **Initiate recommended programs** for community awareness, safety and maintenance procedures.
-  **Solicit sponsorship from major employers**
-  **Create incentive opportunities for local businesses**

Long-term Implementation Strategies:

-  **Acquire right-of-way for sidewalks, trails and destination points.** All proposed corridor locations are depicted on the **Comprehensive System Map**. Projects are described in the **Individual Project Identification and Priority List**. In order to construct additional on-street pedestrian improvements (sidewalks, accessibility ramps, etc.), the Town must acquire the additional property required for

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the improvement or reach an agreement with the property owner. See the **Funding Strategies** section for various options of land acquisition and public-private partnerships. New trail easements may be acquired through the subdivision process, as proposed in the **Recommended Policies and Ordinance Modifications** chart, or through various other means including:

- Donation of right-of-way or easements by public or private landowners
- Public purchase of right-of-way or easements
- Public/private partnerships

It should be noted that the term “trail” refers to a path other than a sidewalk that links destination points (and thus is useful for transportation) as well as a path that may be used for recreation.

- ✎ **Evaluate existing and ongoing pedestrian projects and strategies.**
See the **Recommended Evaluation Process** in this Plan.



Darrell Almond Community Park

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Section 10: Individual Project Identification and Priority List

Prioritizing projects is by nature a fluid process, dependent upon factors subject to change, such as individual parcel sales, development trends, employment opportunities, and traffic demands. However, despite fluctuations in local conditions, the community has expressed its resolve to turn its pedestrian vision, stated earlier in the Plan, into a reality. That vision requires that each project meet certain **goals**, expressed here as:

1. Decreasing vehicular traffic and congestion that present obstacles to pedestrian use
2. Increased pedestrian safety
3. Greater pedestrian connectivity
4. Thorough accessibility to all potential user groups
5. Increased community identity, social interaction, and beautification
6. Positive environmental impact

In addition to meeting community goals, the projects listed below are also weighted by the following implementation **criteria**:

1. Physical/geographic constraints
2. Availability of right-of-way
3. Project costs
4. Support by existing plans and initiatives
5. Community-expressed support based on where people walk or would like to walk, particularly as a means of transportation between destination points.

Each project was evaluated in terms of meeting these goals and satisfying the criteria. The public rated the projects during the second public input meeting. The steering committee reviewed the public response and factored it into a finalized prioritization.

All project locations are shown on the attached **Comprehensive System Map**. See the **Project Recommendations and Implementation Strategy** section for background, justification and further explanation of each project type. All improvements shall be in accordance with the descriptions in **Facility Standards and Guidelines**, all pertinent NCDOT specifications and the most current **Manual on Uniform Traffic Control Devices (MUTCD)**. All improvements in NCDOT right-of-way are contingent upon NCDOT District 12 approval. For recommended procedures in acquiring right-of-way/easement, refer to **Project Recommendations and Implementation Strategy, Long-term Project Types and Funding Strategies**.

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PRIORITY LIST OF NORWOOD PEDESTRIAN PROJECTS:

A. Northwest District sidewalk (0.53 miles)

- 1.) Identify parcel owners along northeast side of Main Street from Darrell Almond Community Park to Lawnwood Drive.
- 2.) Acquire sufficient width of right-of-way to construct sidewalk and planter strip.
- 3.) Lengthen culvert and re-grade over Cedar Creek to accommodate wider sidewalk on northeast side. Contact Garlin Haywood, NCDOT Division 10 Bridge Maintenance Engineer (704-982-0101), for a response to their initial inspection and project evaluation performed December 2006/January 2007.
- 4.) Construct sidewalk extension along northeast side of Main Street from Darrell Almond Park to Lawnwood Drive.
- 5.) Create planter strip between new sidewalk and back of curb.
- 6.) Plant selected street trees along length.

ALTERNATE to steps 4 - 6: Construct new bridge across Cedar Creek adjacent to Main Street and connect existing Main Street sidewalk to Darrell Almond Community Park's existing track with new sidewalk or trail. Provide additional sidewalk/trail linkage from existing track to proposed sidewalk at Park entrance. Insure that the proposed connection is completely accessible.

- 7.) Provide street lighting.

B. CBD Projects

Norwood is in the midst of revitalizing its Central Business District, particularly in the area bounded by Anson Avenue, Whitley Street, Campbell and Gordon Street. This Plan recommends a mid-block signalized crosswalk on Main Street between the Anson and Whitley Street intersections, and another at the intersection of Pee Dee Avenue and Campbell Road.



The following steps are recommended for developing an overall master plan for Central Business District (CBD). The master plan should include individual projects for implementation.

- 1.) Review current plans for development and improvements within the CBD in light of the goals and strategies expressed in the Pedestrian Plan.
- 2.) Review pedestrian-friendly street and urban design principles and tips for implementation. To begin, see the SEQL document: **Pedestrian-Friendly Streetscapes** at <http://www.seql.org/actionplan.cfm?PlanID=16>
- 3.) Work with an experienced urban design consultant to insure that plans are developed according to a clearly expressed vision for the Town, with

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facilitated community involvement, addressing the multi-faceted needs of residents as well as local businesses, in a context sensitive manner.

- 4.) Assemble a stakeholder group that fully represents the members of all community interests groups, including the PNC, local business owners, informed citizens, elected officials, and others.
- 5.) The stakeholder group should appoint a steering committee of “key players” to oversee the entire process. The steering committee should:



- Familiarize itself with examples of existing quality streetscapes and their associated development codes to use as models; and
- Develop and implement the plan of action, which should include clearly defined short-term, mid-term, and long-term goals.

- 6.) Begin seeking out immediate sources of funding for design and other initial costs. Tap into potential contributions from various stakeholders.
- 7.) Stage a design charette to explore alignment of additional streets, land uses, and streetscape design. Streetscape design elements should include setbacks, sidewalk and planting strip widths, lighting, awnings, façade elements, street trees, on-street parking, benches, trashcans, fountains, banners, pavement types, crosswalks, and other pedestrian amenities.
- 8.) Prepare a design code/revised ordinance/design guideline for streetscape improvements.
- 9.) Invite public review of the code.
- 10.) Make necessary revisions to the code and implement it.
- 11.) Streamline the permitting process and consider other incentives to attract new development.

C. College and Turner Street connection

- 1.) Acquire sufficient right-of-way to extend College Street and Turner Street to connect at point southeast of the Community Building. (0.19 miles)
- 2.) Construct streets.
- 3.) Construct sidewalk and planter strip along the northwest side of College Street and northeast side of Turner Street. (0.30 miles)
- 4.) Provide a sidewalk connection to the Community Building from the College Street extension. (0.05 miles)

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- 5.) Plant selected street trees along length.
- 6.) Provide adequate street lighting.

D. Crosswalk at Main & Fork

- 1.) Mail improvement requests to NCDOT Division 10 Office. Include a short description of the desired improvements. Division 10 representatives will investigate the site, assess needs for improvements and render a decision. Mail the request to:

**NCDOT Assistant Division
Traffic Engineer
716 West Main Street
Albemarle, NC 28001**



- 2.) Construct sidewalk along north side of Price Street between Fork Road and Main Street.
- 3.) At Price Street, stripe crosswalk across Main Street and Fork Road.
- 4.) Add crosswalk warning signals
- 5.) Add Town signature welcome signage facing south on Hwy 52.

E. Speed limit signage on Highway 52 at Fork Road

- 1.) Mail a written request for a speed limit investigation. Posted speed limit could be reduced from 55 mph to 35 mph incrementally with an intermediate 45 mph ordinance. Include a brief description of the location. See above for mailing address. NCDOT will investigate the location, crash records, etc. and make a determination of appropriate changes.

F. Cedar Creek Trail (0.87 miles) with Summit Street connector (300 feet)

- 1.) Identify parcel owners along Cedar Creek between Darrell Almond Community Park And Lake Tillery.
- 2.) Develop plan for trail complete with estimated right-of-way width required for clearing, grading and adequate buffer.
- 3.) Acquire necessary right-of-way (or easements) in stream corridor.
- 4.) Construct trail in acquired right-of-way/easements.
- 5.) Identify parcel owners between Summit Street terminus to Cedar Creek.
- 6.) Acquire sufficient right-of-way to connect Summit Street terminus to Cedar Creek Trail.
- 7.) Construct spur trail.
- 8.) Locate trailheads at existing Darrell Almond Community Park path loop, proposed Lake Access Point in “Snuggs Cove”, and at Summit Street spur.
- 9.) Provide additional trail access points where appropriate.
- 10.) Install appropriate signage and furniture (benches, trashcans).

G. Stanly School realignment traffic light with signalized crosswalk

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- 1.) Contact NCDOT Division 10 and request crosswalk signalization and striping to be added to traffic light planned for realigned intersection.

H. Brickyard walk

- 1.) Identify parcel owners along south side of North Kendall Street and Brickyard Road from existing sidewalk on North Kendall to Richardson Road, along north side of Richardson Road, the west side of Dupree Road, and north side of western bound spur to railroad tracks.
- 2.) Negotiate right-of-way acquisition and construct sidewalk extension to connect existing sidewalk on North Kendall Street to proposed Big Cedar Creek Greenway. (0.52 miles)
- 3.) Renovate, improve and expand, as needed, the existing asphalt trail in the textile property parallel and southeast of Collins Ave. in order to connect Main Street at Doody Ave. to the cemetery on North Kendall. This step can be accomplished through the conditional zoning process with the redevelopment of the Textile Plant property. (0.21 miles)
- 4.) Renovate, improve and expand as needed the existing walk in the cemetery to complete the connection to North Kendall Street. (0.12 miles)
- 5.) Provide trailhead at Main Street and all appropriate signage and lighting.

I. “New Norwood” Trail (2.09 miles)

- 1.) Develop plan for trail to be constructed as new development occurs in the east side of Town. The new Norwood Trail shall run from Lakeshore Drive near the “Snuggs Access Point”, crossing Berry Hill Drive at property line approximately 375 feet west of Lake Head Road intersection, turning southeast to intersect creek at point adjacent to Lake Head Road, turning south and following the creek to pump station on Atkins Street, and improvements extended to connect to Wall Street. Also include in plan, spurs to Alberta Drive and Allenton Street at Island Cove Road. Plan shall include estimation of right-of-way width required for clearing, grading and adequate buffer.
- 2.) Identify parcel owners along alignment.
- 3.) Adopt alignment for the Trail.
- 4.) Amend the Subdivision Ordinance to require the dedication of open space to secure land for greenway (and other open space) development or usage. (See **Recommended Ordinance Modifications**).
- 5.) Require easements and trail construction in the conditional use rezoning process.
- 6.) Provide trailheads at Lakeshore Drive, Berry Hill Drive, Lake Head Road at creek and again at end of circle, Alberta Drive, Allenton at Island Cove Road, Wall Street and Atkins Street. Provide additional trailheads at all new street intersections.

J. Pee Dee sidewalk extension (.90 miles)

- 1.) Identify parcel owners and acquire sufficient right-of-way along east side of Indian Mound and Pee Dee Avenue from existing sidewalk at Story Street to Cedar Creek
- 2.) Construct sidewalk and planter strip.

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- 3.) Plant selected street trees along length.
- 4.) Provide adequate street lighting.

K. Vineyard Trail (2.00 miles)

- 1.) Develop plan for Trail to run from “New Norwood” Trail at Berry Hill Drive, then along Berry Hill Drive until Vineyard Road, then parallel to Berry Hill Drive behind current parcels northward to Lakeshore Drive. Continue trail along road to cross Berry Hill Drive. The trail shall then run behind parcels facing Lake Tillery along Berry Hill Drive until looping back again to reconnect with itself as shown on **Comprehensive System Map**. currently Lakeshore Drive near intersection of Berry Hill Drive.
- 2.) Follow procedure described in New Norwood Trail project.
- 3.) Provide trailheads at Berry Hill Drive at all intersection points.
- 4.) Install appropriate signage and furniture (benches, trashcans).

L. Main Street Sidewalk repair

- 1.) Repair curb and sidewalk section along Main Street from East Andrews to East Pine Street.

M. Community Center sidewalk (0.75 miles)

- 1.) Stripe a mid-block crosswalk across West Turner Street at end of existing sidewalk at Clay Drive.
- 2.) Construct on-street sidewalk (no planter strip) along southeast side of West Turner Street. Sidewalk shall abut existing chain barrier adjacent to ballpark (option: replace chain barrier with pipe rail fence). Street may require width reduction but maintain a minimum width of 22 feet (24 feet width preferred). Sidewalk shall run from proposed crosswalk to Community Center. (0.11 miles).
- 3.) Acquire right-of-way for on-street sidewalk along southwest side of North Turner Street (0.14 miles).
- 4.) Acquire right-of-way along northwest side of Anson Street from existing Anson Street sidewalk at Gordon Street to North Kendall for sidewalk and planter strip.
- 5.) Construct on-street sidewalk (no planter strip) along North Turner Street and remainder of West Turner Street.
- 6.) Construct sidewalk and planter strip along northwest side of Anson Street from Turner to North Kendall.
- 7.) Construct sidewalk and planting strip.
- 8.) Provide streetlights.



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N. Whitley Street sidewalk connection (0.13 miles)

- 1.) Identify right-of-way owner(s) along north side of Whitley Street from Railroad Street to North Kendall Street.
- 2.) If not currently owned by the Town, acquire right-of-way.
- 3.) Construct sidewalk and planter strip segment.

O. “Snuggs Trail” (1.12 miles)

- 1.) Negotiate right-of-way/easement acquisition with parcel owners.
- 2.) Construct trail in acquired right-of-way/easement. Provide trailhead connection to proposed Cedar Creek Trailhead in “Snuggs Cove”, Lakeshore Drive at “New Norwood” Trailhead, and Nicks Road.
- 3.) Install appropriate signage and furniture (benches, trashcans).

P. Snuggs Access Point at “Snuggs Cove”

- 1.) Develop preliminary plan for access point with connection to existing public right-of-way. Insure that the design process involves public input. The Plan must include estimated area required for clearing, grading and buffer.
- 2.) Negotiate acquisition of required right-of-way/easements.
- 3.) Finalize design (again with public input opportunity) and construct.

Q. Allenton sidewalk extension (1.20 miles)

- 1.) Identify parcel owners and acquire sufficient right-of-way along southeast side of Allenton Street from existing sidewalk at Wall-Ann, to Island Cove Road. Then along northeast side of Allenton from Island Cove to intersection of Foreman Drive. Also include west side of the length of Alberta Road.
- 2.) Construct sidewalk and planting strip.
- 3.) Provide striped and signed crosswalks at intersection of Allenton and Island Cove Road.

R. Acorn Acres Trail (0.58 miles)

- 1.) Identify parcel owners along drainage corridor from Ray Lee Street to terminus of Anchor Road.
- 2.) Develop plan for Trail complete with estimated right-of-way width required for clearing, grading and adequate buffer.
- 3.) Acquire necessary right-of-way (or easements) in stream corridor.
- 4.) Construct Trail in acquired right-of-way.
- 5.) Provide Trailheads at Oak Street, Anchor Road and Ray Lee Street.
- 6.) Provide additional trail access points where appropriate.
- 7.) Install appropriate signage and furniture (benches, trashcans, etc.).



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- S. Ray Lee Street sidewalk** (0.31 miles)
- 1.) Identify parcel owners along both sides of Ray Lee Street, from Main Street to Allenton Street.
 - 2.) Determine which side of Ray Lee would best accommodate sidewalk and acquire sufficient right-of-way along that side.
 - 3.) Construct sidewalk and planter strip.
 - 4.) Plant selected street trees along length.
- T. Summit Street sidewalk** (0.29 miles)
- 1.) Identify parcel owners along both sides of Summit Street, from Pee Dee to Summit Street terminus.
 - 2.) Determine which side of Summit Street would best accommodate sidewalk and acquire sufficient right-of-way along that side.
 - 3.) Construct sidewalk with planter strip.
 - 4.) Plant selected street trees along length.
- U. Big Cedar Creek Trail** (3.40 miles)
- 1.) Develop plan for Trail complete with estimated right-of-way width required for clearing, grading and adequate buffer.
 - 2.) Identify parcel owners along alignment.
 - 3.) Adopt alignment for the Trail.
 - 4.) Negotiate trail easement acquisition through textile plant property starting at Darrell Almond Community Park, along existing railroad corridor to Big Cedar Creek, and in Big Cedar Creek stream corridor to Rocky River.
 - 5.) Provide trailhead at (future) Rocky River Trail.
 - 6.) Coordinate greenway planning, right-of-way acquisition and development efforts for trail segments outside of current Town limits with the Stanly County Planning Office. The Stanly County Land Use Plan (See Pedestrian Plan **Section 5: Current Policies & Plans**) encourages the development of a Rocky River Greenway. Contact Michael Sandy, Planning Director.
- V. Rocky River Trail segment** – river segment between Little Cedar Creek and Big Cedar Creek (0.66 miles)
- 1.) Coordinate greenway planning, right-of-way acquisition and development efforts with the Stanly County Planning Office.
 - 2.) Contact the **Land Trust for Central North Carolina** about procuring greenway corridor right-of-way and easements.
 - 3.) Refer to the SEQL document: *Greenways and Open Space* for additional implementation steps, at: <http://www.seql.org/actionplan.cfm?PlanID=3>
- W. Little Cedar Creek Trail** from Turner Street to Rocky River (2.10 miles)
- 1.) Identify parcel owners along Little Cedar Creek from Turner Street to the Wastewater Treatment Plant (WTP) to Rocky River.
 - 2.) Follow procedure described in **Big Cedar Creek Trail**. Preliminary Plan for Trail segment shall include strategies for crossing under Highway 52.
 - 3.) Coordinate with Stanly County Planning Office regarding trail segments outside of current Town limits.

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- 4.) Provide trailhead at (future) Rocky River Trail length.
- 5.) Provide streetlights.

X. Railroad Trail (0.50 miles)

- 1.) Identify parcel owners from intersection of Anson Ave. and Turner St., crossing Whitley St., Pine St., and Dock St., to run parallel to Railroad Rd. and terminating at the existing trail.
- 2.) Follow procedure for “Snuggs Trail”.
- 3.) Provide trailheads at all intersections.

Y. Island Cove Sidewalk (0.73 miles)

- 1.) Identify parcel owners along both sides of Island Cove and Anchor Road.
- 2.) Follow procedures for Summit Street Sidewalk

Z. Carver & Price Street Sidewalk

- 1.) Identify parcel owners along both sides of Carver Road and Price Street.
- 2.) Follow procedures for Summit Street sidewalk project.

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Section 11: Recommended Maintenance Programs

Sidewalks and other pedestrian paths must be properly maintained and kept clear of debris, overgrown landscaping, tripping hazards, or areas where water accumulates. Other pedestrian facilities, such as signage, lighting, striping and landscaping, require other care and occasional replacement.

In general, maintenance costs include:

- Personnel Costs – Wages and benefits for the people who perform the work.
- Materials – Or supplies, including paving materials, and landscape materials such as soil, rocks, and plants.
- Water – For irrigation.
- Utilities – Including electricity and phone for running automatic or centralized irrigation systems and traffic signals.
- Equipment – For on-going maintenance and future purchases of maintenance tools.

Maintenance Considerations for Landscaped Areas

All outdoor public areas require regular maintenance procedures, such as weed control, litter pickup, inspection and general repair. Additionally, individual landscape areas require particular maintenance procedures.

- For tree and shrub areas: structural pruning, sucker removal, pest/disease control, fertilizing, adjustment/checking/repair of irrigation systems, applying post/pre-emergents, staking and bracing of trees, rodent control, and pruning and clearing branches or trimming shrubs when they encroach on the travel path or impair the line of sight for drivers and pedestrians.
- For groundcover areas: pruning, edging, applying post/pre-emergents & plant growth regulators, fertilizing, adjustment/checking/repair of irrigation systems, rodent control and dead-heading (removal of dead blooms).
- For turf areas: mowing, edging, aeration, fertilizing, adjustment/checking/repair of irrigation systems, cleaning hardscape areas (paths, squares, etc.), and rodent control.
- For non-vegetated areas (open space): applying post/pre-emergent (selected areas), fire abatement, cleaning of hardscape areas (concrete pathways, squares, etc.)
- Additional work as needed: decorative light inspection/repair, inspection for acceptance of new sites, vandalism and graffiti cleanup.

Maintenance & Operations of Off-road Trails

Facility inspections are an essential part of maintaining any facility. Planning and design of all off-road trails should include management plans that help gauge operational funds for various maintenance projects. Proper maintenance must address both the performance condition of the trail preserving the environmental integrity and character of any environmental areas that are adjacent to the trail. Maintenance and repair projects can be managed either through annual service contracts put out to bid, or become an integral part

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of the Facilities Management maintenance program. Annual budgets for trail maintenance and operations should document maintenance items, facility improvements, and other related costs to ensure the long-term health of trail facilities, the environment, and safety for users.

Three tiers of maintenance programs should be included in the management plan:

1. **Long-term maintenance programs** - includes renovation of facilities and trail resurfacing. Comprehensive inspections should occur twice a year to record user impacts, general wear and tear, and other factors that may affect safety, environmental features, or structural integrity of the facility. If long-term maintenance programs are deferred, the safety of the trail is compromised and costly capital improvement funds to renovate damaged areas will be required. Typical long-term maintenance activities include:
 - Annual vegetation clearance (June and September)
 - Annual inspection by engineer to identify potential repairs needed for bridges and structures, drainage structures, pavement, railings, and fences
 - Revegetation during planting seasons
2. **Routine maintenance** – includes safety and repair issues that occur throughout the life of the facility. Frequency of routine maintenance should take place on a monthly basis, dependent upon the amount of usage and availability of funds. Typical routine maintenance activities include:
 - Removal of litter and general cleaning
 - Sweeping and leaf removal
 - Mowing and weed control
 - Pruning and removal of encroaching/fallen branches
 - Trail edging
 - Route signage maintenance
 - Graffiti control
 - Regular presence of volunteers to report faults
3. **Emergency repairs** - necessitated when storm damage makes the trail unsafe for daily use. Severe weather may occasionally cause damage to the facility either through wind, erosion, or fallen trees. Emergency repair funds for severe weather should be allocated and allowed to rollover from year to year for this inevitability.

Volunteer programs

Volunteer programs for greenway maintenance can be organized through the “Adopt-A-Park” program or could be coordinated with the existing Broad River Greenway volunteer program. <http://www.broadrivergreenway.com/volunteer>

Volunteer labor can yield a substantial savings for labor costs on routine maintenance and repair. Materials can be donated by a group, provided through a corporate sponsor, or purchased by the Town.

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Section 12: Recommended Evaluation Process

As the Norwood Pedestrian Plan is implemented and pedestrian facilities are constructed, it is recommended that the Town perform a periodic evaluation of the goals and the processes described in the Plan. Plans in themselves are static and unchanging documents, but circumstances change constantly. Though the Town remains true to the vision described in this Plan, the means of achieving that vision may change with fluctuating economic conditions, fluid population trends, changing development practices, and evolving technology. The following recommendations are provided as examples of regular means of evaluation.

1. Pedestrian Needs Committee should periodically meet to confirm and re-evaluate the priorities of this Plan and its recommended projects, particularly as tracts of land are developed.
2. The Public Works Director should regularly report facility conditions and needs.
3. Public surveys, similar to the one conducted in formulating this Plan, can be used to solicit the opinions of everyday users to determine if the plan and its rate of execution are adequately meeting the needs of the populace.

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PART 4: FUNDING

Section 13: Sample Cost Estimates for Facilities

In order to build pedestrian facilities, a number of different costs associated with projects must be considered. There are material costs, labor costs, mobilization costs, right-of-way purchase or easement costs, design costs, and project management expenses. Sidewalk and trail projects might also include changes to existing grades and necessitate alterations to drainage structures. Together these items are considered “project costs.” In addition to the project costs, there are also ongoing expenses associated with the new facility, such as maintenance, security, promotion and other programs necessary for the initial and continued success of the facility.

The cost estimates provided below are primarily limited to material and labor. They are provided only as a guide and are approximate. Prices are current for the time of this publication. Materials, labor and other project costs will vary with fluctuating interest rates and inflation.

Sidewalks and Trails

Costs Per Mile		
<u>Surface Material</u>	<u>Costs Per Mile</u>	<u>Longevity</u>
Concrete	\$150,000 - 300,000	20 years +
Asphalt	\$ 80,000 - 150,000	7-20 years
Crusher fines	\$ 80,000 -120,000	7-10 years
Wood chips	\$ 65,000 - 85,000	1-3 years
Soil cement	\$ 60,000 -100,000	5-7 years
Native soil	\$ 50,000 - 70,000	variable
Boardwalk	\$1.5 - 2.0 million	7-15 years
Recycled materials	variable	variable

Costs Per Unit	
Conventional Concrete	4 ft. wide path=\$15/LF.
Pervious Concrete	10 ft. wide path=\$45/LF.
Asphalt	10 ft. wide path, 3” thick = \$20/LF.
Crusher fines	4 ft. wide path=\$5/LF.

Installation costs do not include ROW purchase, grading or utility relocation.

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Total Cost of Resurfacing Trails

Concrete	\$ 25 LF
Asphalt	\$ 10 LF (per linear foot) (\$ 5 LF to overlay w/ top coat)
Crushed Stone	\$ 5 LF

Typical Annual Maintenance Costs for a 1-Mile Paved Trail

Drainage and storm channel maintenance	\$ 500
Sweeping/blowing debris off trail head	\$ 1,200
Pickup/removal of trash	\$ 1,200
Weed control and vegetation management	\$ 1,000
Mowing of 3-foot grass shoulder along trail	\$ 1,200
Minor repairs to trail furniture/safety features	\$ 500
Maintenance supplies for work crews	\$ 300
Equipment fuel and repairs	\$ 600
TOTAL	\$ 6,500

Street Improvements

Crosswalks

Approximate installation costs per unit:

Regular striped	\$ 100
Ladder crosswalk	\$ 300
Patterned concrete	\$3,000
Raised	\$4,000

4-way pedestrian signals: \$20,000 per unit

Striping: 12-inch: \$1 per linear yard (LY)
4-inch: \$10 K per mile, or \$2 LF

Costs do not include maintenance, which varies according to materials used.

Curb extensions: \$40,000 - 80,000 for four corners

Concrete curb and gutter: \$12 - \$15/LF

Curb inlets \$2000 per unit

Speed humps: \$1,700 per unit

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General Facilities

Bike Racks: \$350-\$750 (10-12 bikes)

Trees: \$200/tree, installed

Lighting: \$ 45/LF frontage

Street Furniture:

Prices vary greatly according type of facility, brand, and level of customization. Benches installed start at approximately \$600/unit.

General park facilities \$ 25/SF

The construction of new park or open space facilities on land not currently used as park, with some furniture and amenities.

Cost Estimate Sources:

"Trails For The 21st Century," published by Rails-To-Trails Conservancy, 2001:

<http://www.trafficcalming.org/measures2.html>

http://www.nysphysicalactivity.org/site_beactiveenv/nybc/source_files/3_pedfac_improve/FHA_EmergTechPedXWalk.pdf

<http://www.charmeck.org/Departments/Transportation/About+Us/Speed+Humps.htm>

National Trails Training Partnership

<http://www.americantrails.org/resources/trailbuilding/AsphaltCO.html>

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Section 14: Funding Strategies

Careful planning of pedestrian facilities is half the battle. The other half is building them. Both procedures require funding. However, there are many sources available for funding the planning and construction of pedestrian improvements. Using the right source and getting the best return requires strategy. This Plan itself was funded by the NCDOT Bicycle and Pedestrian Planning Grant. But grants usually provide only a portion of overall funding needs. The most successful strategy for a municipality to develop and improve its pedestrian system will involve an appropriate combination of all possible sources, public and private.

Private Funding Sources

As shown earlier in this Plan, improving the pedestrian quality of Norwood may have more to do with guiding the Town's growth patterns than it has with building individual sidewalks or trails. These patterns of development are guided by the Town's ordinances. If these documents are directing privately funded growth in a coordinated, pedestrian-friendly manner, private development will accomplish many of the Town's pedestrian-friendly goals through private initiative and investment. For examples of how the Town's Subdivision and Zoning Ordinance can accomplish this, refer to the **Recommended Policies and Ordinance Modifications** of this Plan.

Individual ideas by which private investment can help build and maintain public pedestrian improvements are limited only by the imaginations and incentive of those involved. If the Town has a definite vision of what it wants, and promotes that image clearly and positively, it will attract developers that will be more inclined to work with the Town to accomplish mutual goals.

Public-private Partnerships

Due to the linear and connective nature of many pedestrian facilities, oftentimes improvements may involve numerous landowners. Greenway projects, for example, can present complex challenges of working with multiple property owners and jurisdictions. Creating partnerships may be the only way to solve the complex problems that ensue, as well as deal with the inevitable web of utility lines and transportation corridors. Though these partners may have some conflicting interests at times, opportunities for funding, support and publicity may arise and broaden by involving partners with diverse interests.

Multiple uses of utility corridors provide one example of effective partnership. Most utilities use a linear corridor but occupy only a small portion of the ground surface. Rather than being solely dedicated to that one isolated use, these valuable corridors can often include a complementary public transportation and recreation use along with the utility functions. Utilities benefit from sharing corridors with trails through maintenance savings.

Find more information about partnerships through American Trails, at:
<http://www.americantrails.org/resources/greenways/GrnwyUrbanSHM.html>

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Federal Funding Sources

Certain Federal-aid transportation funding sources may be used for building, or improving accessible pedestrian facilities through rural planning organization (RPO) process. Federal funding sources for bike and pedestrian facilities are available mainly in the form of:

1. Enhancement program, since 1991
2. Safe Routes to Schools program under the new SAFETEA bill.

STP funds may be used only if the new bike/ped facilities are built as parts of a new highway construction project.

Transportation Enhancement Program

Congress created the Transportation Enhancements (TE) program under the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 to address growing concerns about air quality, open space, and traffic congestion. This program is the first Federal initiative to focus on enhancing sidewalks, bike lanes, and the conversion of abandoned railroad corridors into trails. The new transportation bill - the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed into law in 2005, continued the transportation enhancement activities through a set aside of 10% funding from the surface transportation program (STP).

Safe Routes to School

The SAFETEA-LU bill established a new Safe Routes to School program. This new program receives \$612 million in transportation funds over five years to make it safer for children to walk or bicycle to school. Funding for Safe Routes to School will be distributed to states in proportion to the number of primary and secondary school students in the state, with no state receiving less than \$1 million annually. Communities will be able to use the funds to fix hazards and slow traffic on roads, pathways or trails near schools while increasing safety through focused enforcement and education programs. Each state is being directed to create a position of a Safe Routes to School coordinator, and the bill also provides funds for a national Safe Routes to School clearinghouse.

Eligible projects and activities include: planning, design, and construction of infrastructure-related projects that will substantially improve the ability of students to walk and bicycle to school, on any public road or any bicycle or pedestrian pathway or trail within approximately 2 miles of a primary or middle school; and non-infrastructure-related activities to encourage walking and bicycling to school, including public awareness campaigns and outreach to press and community leaders, traffic education and enforcement, student training, and funding for training, volunteers, and managers of SR2S programs. The Program is designed to assist projects that will result in:

- Increased bicycle, pedestrian, and traffic safety
- More children walking and bicycling to and from schools
- Decreased traffic congestion
- Improved childhood health

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- Reduced childhood obesity
- Encouragement of healthy and active lifestyles
- Improved air quality
- Improved community safety
- Reduced fuel consumption
- Increased community security
- Enhanced community accessibility
- Increased community involvement
- Improved physical environment for increasing the ability to walk and bicycle to and from schools
- Improved partnerships among schools, local municipalities, parents, and other community groups, including non-profit organizations

Contact:

Sarah O'Brian – interim Safe Routes to School Coordinator
Bicycle & Pedestrian Division, NCDOT
401 Oberlin Road, Suite 250
Raleigh, NC 27601
Phone: 919-515-8703
Email: skworth@ncsu.edu
<http://www.ncdot.org/programs/safeRoutes/>

Accessible pedestrian projects can also be funded through other Federal-aid Highway Programs including Federal Lands Highway Program, National Scenic Byways Program, Recreational Trails Program, Transportation and Community Systems Preservation Pilot Program (TCSP), and Job Access and Reverse Commute Grants. (U.S. Department of Transportation, 1998).

For additional information about Federal programs as well as grant writing assistance, visit the American Trails website at:
<http://www.americantrails.org/resources/fedfund/index.html>

USDA Rural Business Enterprise Grants

<http://www.rurdev.usda.gov/rbs/buspr/rbeg.htm>

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 may be used for sidewalk and other community facilities. For more information from the local USDA Service Center, see <http://offices.sc.egov.usda.gov/locator/app?service=page/ServiceCenterSummary&stateCode=37&cnty=045>

Community Development Block Grant Program

<http://www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm>

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. Grants from this program range

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from \$50,000 to \$200,000 and are either made to municipalities or non-profits. There is no formal application process. Funding targets projects that benefit low- and moderate-income persons, and development projects designed to improve the health or welfare of the community.

Wetlands Reserve Program

<http://www.nrcs.usda.gov/programs/wrp/>

<http://www.ngpc.state.nc.us/wildlife/wrp.html> - informational site

The Department of Agriculture also 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 and can therefore assist with trail/greenway funding efforts.

Rivers, Trails, and Conservation Assistance Program

http://www.ncrc.nps.gov/programs/rtca/ContactUs/cu_apply.html

The National Parks service operates this program aimed at conserving land and water resources for communities. Eligible projects include conservation plans for protecting these resources, trail development, and greenway development.

State Funding Sources

North Carolina Department of Transportation

Projects under \$100,000 involving pedestrian facility improvements and related landscaping can qualify for North Carolina Department of Transportation (NCDOT) funds. Contact the NCDOT Division 12 Division Operations Engineer.

FHWA Recreational Trails Program

The Recreational Trails Program is actually a Federal program administered by the FHWA from the Highway Users Trust Fund dollars derived from Federal fuel tax. But each state receives an annual portion committed to grants for recreational trail projects. For FY 2006 states will share in \$60 million, increasing to \$85 million by FY 2009.

Contact the Recreational Trails Program North Carolina Administrator:

Darrell L McBane,

State Trails Coordinator

NC Division of Parks & Recreation

12700 Bayleaf Church Road

Raleigh NC 27614-9633

phone: 919-846-9995

fax 919-870-6843

email: darrell.mcbane@ncmail.net

<http://www.ils.unc.edu/parkproject/trails/home.html>

Clean Water Management Trust Fund

North Carolina's Clean Water Management Trust Fund (CWMTF) was established to help local governments, state agencies and conservation non-profit groups finance

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projects that specifically address water pollution problems. Grant monies from CWMTF may be used for a variety of water quality improvement projects, including: Land acquisition for riparian buffers for the purposes of environmental protection of surface waters or urban drinking water supplies and for establishing a network of **greenways** for environmental, educational or recreational uses. For more information, contact Bern Shumack at (336) 366-3801 and visit: <http://www.cwmtf.net/appmain.htm>.

The North Carolina Division of Forest Resources

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

Other Grant Sources

Robert Wood Johnson Foundation

The Foundation seeks to help communities become increasingly walkable and thereby promote more active lifestyles that include exercise, like walking or biking, as a part of daily routine, particularly for children. Learn more about available grant opportunities at: <http://www.rwjf.org/applications/independent/overview.jhtml>

Local Public Revenue Strategies

Facility Maintenance Districts (FMDs) can be created to pay for the costs of on-going maintenance of public facilities and landscaping within the areas of the Town where improvements have been concentrated and where their benefits most directly benefit business and institutional property owners. An FMD is needed in order to assure a sustainable maintenance program. Fees may be based upon the length of lot frontage along streets where improvements have been installed, or upon other factors such as the size of the parcel. The program supported by the FMD should include regular maintenance of streetscape or off road trail improvements. The Town can initiate public outreach efforts to merchants, Chamber of Commerce and property owners. In these meetings Town staff will discuss the proposed apportionment and allocation methodology and will explore implementation strategies.

The Town can manage maintenance responsibilities either through its own staff or through private contractors. The public and, in particular, those within the FMD, should periodically be informed about who to contact in the Town about maintenance issues. The Town should provide a link on the Town Website that clearly refers to reporting maintenance issues.

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

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limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

Local Budget Recommendations

In order for Norwood to carry out the vision expressed in this Plan, a steady commitment to implementing Plan projects should be maintained. This can be accomplished by coupling the above-mentioned funding opportunities with an annual allotment from the Town's public works budget. The Town may choose to commit a regular percentage of its Capital Improvements Program toward that end, in addition to its Powell Bill allotment for street-related pedestrian projects.

Additional funding information sources:

Facility Maintenance Districts

<http://www.ci.livermore.ca.us/firststreet/streetscape/DowntownLandscapeMaintenanceDistrict.html>

Streetscape Utility Fees - City of Salem (Oregon)

http://www.cityofsalem.net/~spubwork/press_releases/pr_s-scape.htm

Federal Funding Sources

<http://www.pagreenways.org/funding-federal.htm>

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Section 15: The Plan Adoption and Approval Process

Upon final approval of the Pedestrian Plan by the Steering Committee and NCDOT's Division of Bicycle and Pedestrian Transportation, the Steering Committee will submit the the Plan to the Town Planning Board for review. At this time the Plan Consultant (Centralina Council of Governments) will also submit the Plan to the Rocky River Rural Planning Organization for endorsement.

The Planning Board will make any recommendations it sees fit and either return the Plan to Steering Committee for revision and resubmittal, or will recommend the Plan to the the Town Board for review.

The Town Board and attorney will review the Plan, and hold a public hearing of the Plan for public comment. The Town Board will then either publicly adopt the Plan, or make other determinations.



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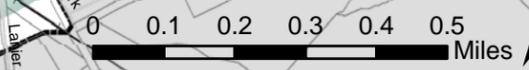
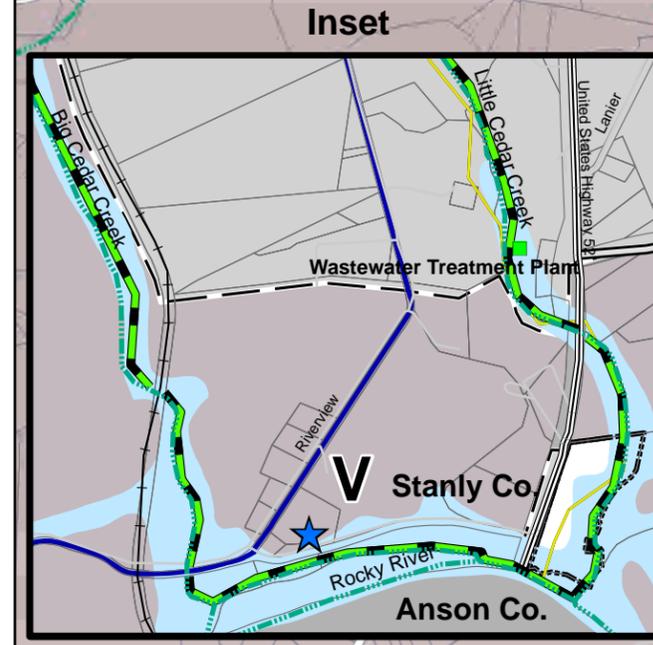
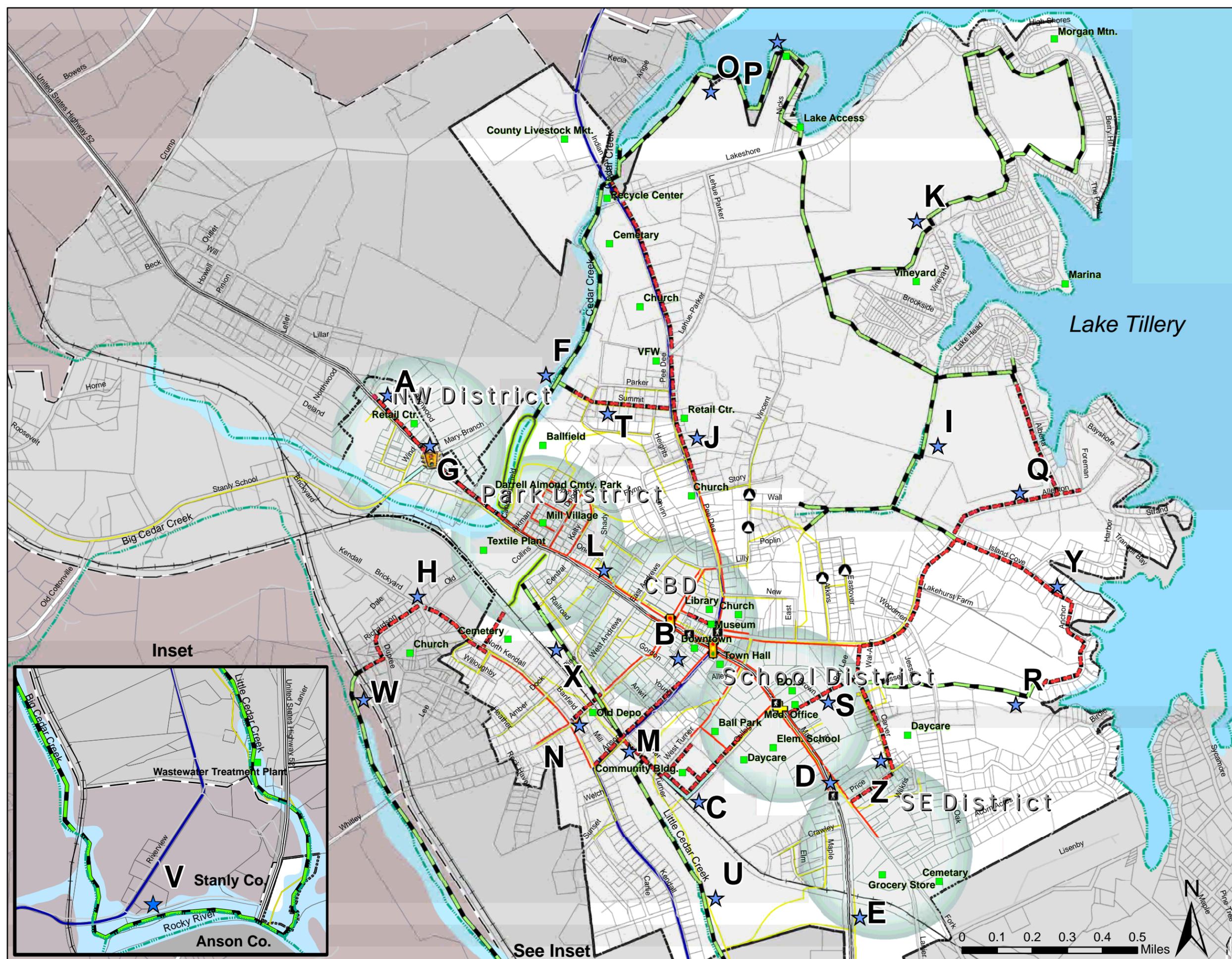
- Proposed Projects** ★
- sidewalk (Refer to Plan for individual project descriptions)
 - trail
 - street
 - 🚦 Traffic light w/ signalized Xwalk
 - 🚦 Signalized Xwalk

- Existing Pedestrian Facilities**
- sidewalk
 - asphalt path
 - 🚦 Traffic light
 - ⊕ Cross walk
 - ⬇️ Speed hump

- Existing Features**
- Destinations
 - Streets
 - State Highway
 - US Highway
 - County Bikeroute
 - Rail
 - Sewer Lines
 - Stream
 - 🌊 Lake
 - 🌊 Floodzone
 - ⬠ Town
 - ⬠ ETJ
 - 🏠 County
 - 🏠 Districts (1/4 mi. radius = 5 min. walk)

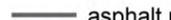
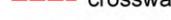
COMPREHENSIVE SYSTEM MAP

February 2, 2007

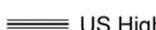
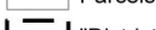
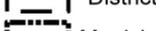


NORWOOD PEDESTRIAN PLAN

Existing Pedestrian Facilities

-  sidewalk
-  asphalt path
-  traffic light
-  crosswalk
-  speed hump

Legend

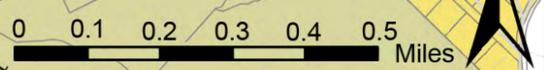
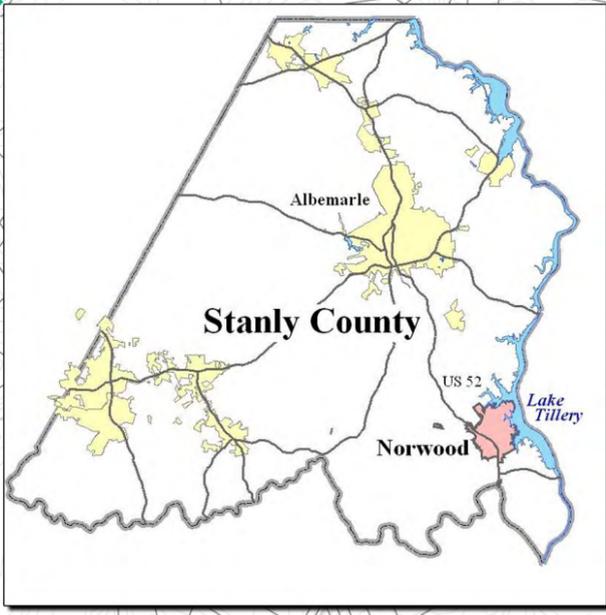
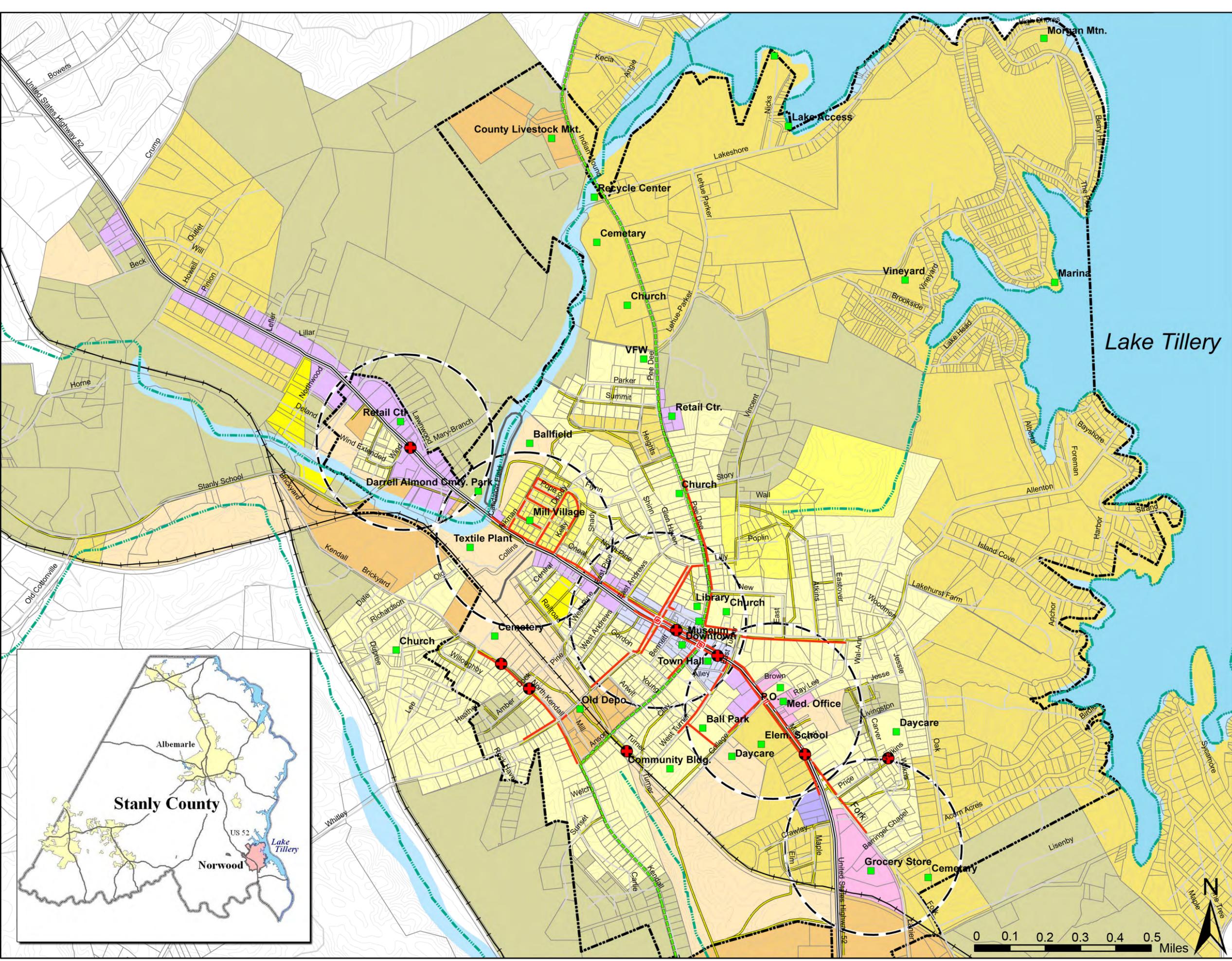
-  Destinations
-  Pedestrian Accidents Reported
-  Streets
-  State Highway
-  US Highway
-  Rail
-  County Bikeroute
-  Stream
-  Sewer Lines
-  Floodzone
-  Lake
-  Parcels
-  "Districts" (1/4 mi. radius)
-  Municipal Boundary

Zoning

- | | | |
|--|--|---|
|  R-8A |  RA |  HB |
|  R-8 |  CB |  M-1 |
|  R-10 |  NB |  M-2 |
|  R-20 |  GB | |

EXISTING CONDITIONS MAP

February 2, 2007



NORWOOD PEDESTRIAN PLAN

Recommended Policies and Ordinance Modifications

Issues affecting walkability	Current Ordinance	Concern With Current Regulations	Revision Recommended
1. Street connectivity	SUBDIVISION ORDINANCE- Article VI, Sections 601 states that the locations of new streets are to be in accordance with "official plans and maps". Section 602 proscribes the continuation of existing "principal streets". Section 603 gives full discretion regarding the connectivity of adjoining properties to the Planning Board.	There is no mandate for connectivity in Norwood's regulations. Subdivisions (particularly ones in previously undeveloped areas, or "greenfields") are not required to have connections with streets in adjoining lots. Greater street connectivity would increase pedestrian-friendliness by allowing shorter trips and a wider variety of travel paths.	This issue can be addressed in a variety of manners including: 1. Mandating that new subdivisions have at least one stub to adjoining properties. This would require either a connection to an existing street or providing a stub for an adjoining (future) development to hook into the subdivision. 2. Limiting the use of cul-de-sacs to promote internal connectivity within the subdivision. This could be accomplished by a) Limiting the percentage of streets within a subdivision that can be cul-de-sacs; b) Institute a connectivity ratio for all subdivisions which uses an established mathematical standard for street connections both within the subdivision and connections to other streets and properties at the subdivision periphery.
2. Cul-de-sac street length	SUBDIVISION ORDINANCE- Article VI, Section 611 allows for cul-de-sacs to be of unspecified length.	As cul-de-sacs lengths increase, properties accessible from only one direction become more isolated and difficult to reach, and vehicular traffic on the cul-de-sac increases.	Amend Article VI, Section 611 to limit cul-de-sac lengths. If the cul-de-sac maximum length was set to 400 feet, this would allow up to 8 Single-Family R-20 lots to front on a cul-de-sac.
3. Block length	SUBDIVISION ORDINANCE- Article VI, Section 612 allows for blocks to run uninterrupted for up to 1200 feet (4 football field lengths).	1. Long block lengths allow for cars to travel at fast speeds and hinder pedestrian accessibility. 2. Long blocks present pedestrians with fewer route alternatives.	Amend Article VI, Section 612 to allow blocks to be no greater than 800 feet in length.
4. Sidewalks: location, condition, connections	SUBDIVISION ORDINANCE- Article VII, Section 703 leaves the placement of sidewalks at the discretion of the Town Board. The Town's Zoning and Subdivision Regulations do not mandate sidewalks and give no further guidance as to sidewalk standards.	No comprehensive plan is referenced to guide these decisions on a broader than case-by-case basis. To promote pedestrian-friendly developments, sidewalks should be required in new subdivisions according to a Town-wide pedestrian plan. Furthermore, sidewalks should meet all applicable ADA standards.	1. Amend the Subdivision Ordinance to state that sidewalks shall be required in all new subdivisions both within the subdivision and on any frontage roads that the subdivision abuts. 2. Use funding strategies recommended in this Pedestrian Plan to implement proposed sidewalks and improve existing sidewalks per this Pedestrian Plan. The Town's development ordinances need to be made clear as to where sidewalks are required in non-subdivision developments. This is especially critical for non-residential uses and along major highways (such as NC 52).
5. Greenways, Trails & Open Space	The Town's Zoning Ordinance and Subdivision Regulations make no mention with respect to greenways, nor to the provision of open space in developments.	The Town has no mechanism in place to secure right-of-way for off-road pedestrian corridors or destination points within town limits, or to connect to destinations just outside of Town.	Amend the Subdivision Ordinance to require the dedication of open space to secure land for greenway (and other open space) development or usage. NCGS 160A-372 gives NC municipalities the authority to require this as part of a subdivision development. These areas should be open to the general public and fall under municipal responsibility for construction, maintenance, security and liability.

Issues affecting walkability	Current Ordinance	Concern With Current Regulations	Revision Recommended
6. Street Trees	<p>TREE ORDINANCE- The Town Board is charged in the Ordinance with creating an official Street Tree Species list (Section 7) and for establishing guidelines for the spacing of town trees (Section 8). However, neither is provided in the Ordinance itself.</p>	<p>Without an official list of approved tree species, the Town Board has no objective reference for evaluating developers' tree selections in terms of required size at planting, size at maturity, tree viability, aesthetics, general long-term value of the tree species, or consistency of species within the Town or particular neighborhoods. With no specific guidelines for tree spacing, the Town has no consistent standard for requiring street trees per length of street.</p>	<p>1. Develop and adopt an Approved Tree Species List as part of the Tree Ordinance. The List should classify trees in categories such as evergreen or deciduous, and large maturing or small maturing, for reference in landscape plans particularly that require street trees and buffer trees. The List may include additional tree descriptors such as growth rate, shape, fall color, drought toleration, etc.</p> <p>2. Incorporate tree spacing standards into the Tree Ordinance. Tree spacing should be based on maturing size category.</p> <p>3. Consider further development of the Tree Ordinance to provide additional guidelines for land development with the Town and ETJ.</p>
7. Crosswalks	<p>SUBDIVISION ORDINANCE- Article VI, Section 612 leaves the placement of crosswalks at the full discretion of the Planning Board. The Town's Zoning and Subdivision Regulations do not mandate crosswalks on any public streets to facilitate pedestrian crossings and give no further guidance as to crosswalk standards.</p>	<p>Mid-block crosswalks are an effective way of safely channeling pedestrian traffic along major traffic arteries. Crosswalks also offer a secondary pedestrian benefit of calming traffic. While there are some crosswalks found in Norwood, their numbers are inadequate for current or projected pedestrian needs.</p>	<p>1. Use Town funds to implement proposed crosswalks and improve existing crosswalks as shown in this Pedestrian Plan. In this Plan, crosswalks are proposed at strategic locations where increased pedestrian activity, linked to existing or proposed sidewalks, potentially comes into the most conflict with vehicular traffic.</p> <p>2. Amend the Town's land use regulations to require crosswalks along principal streets within subdivisions (unless the block length is short enough (less than 500 feet) that a crosswalk would not be required).</p> <p>3. Amend the Town's zoning regulations to require that all uses that generate substantial amount of pedestrian traffic (i.e., schools, library, etc.) be subject to a conditional use. A condition that could be placed on such uses is the installation of crosswalks on major streets that abut such facilities.</p>
8. Off-street Parking Requirements	<p>ZONING ORDINANCE- Article X, Section 104 sets minimum off-street parking requirements irrespective of zoning districts. The section also requires most retail uses, with only a few exceptions to provide one space per 200 square feet of gross floor area. Section 104 also requires that each parking space "shall be not less than 200 square feet in area." The Ordinance does not set maximum parking requirements, nor does it mandate that parking lots be paved.</p>	<p>1. Requiring off-street parking for all uses in a downtown inadvertently conflicts with the pedestrian nature of a "downtown." These areas should be designed to facilitate the movement of persons by foot, as well as by car. Most zoning ordinances either waive or significantly limit the amount of off street parking required in a downtown setting.</p> <p>2. The one space/200 square foot standard (which the ordinance calls for) has been found in most instances to be excessive. In an effort to reduce the "sea of asphalt" phenomenon, there has been a trend to lower the number of required parking spaces for retail uses and to reduce the required area of each space.</p> <p>3. Unpaved parking lots do not easily accommodate pedestrians.</p>	<p>1. Waive the requirements for off-street parking in the C-B district. The only uses that should be required to have a certain amount of off street parking are residential uses located in the Central Business District (CBD) (and the ordinance would have to be modified to allow to occur.)</p> <p>2. Increase the off-street parking ratio to take into account modern trends. Many ordinances now have a 1 space/300 sq. ft. gfa parking standard.</p> <p>3. Reduce required parking space dimensions to a minimum of 18' long and 9' wide (162 sf area)</p> <p>4. Require all required off-street parking areas to be paved.</p>

Issues affecting walkability	Current Ordinance	Concern With Current Regulations	Revision Recommended
<p>9. Building Setbacks</p>	<p>ZONING ORDINANCE- Article VII, Section 75 lists only minimum front yard setbacks. No maximum front yard setbacks are required.</p>	<p>With no regulations to establish maximum setbacks (or "build-to" lines), retailers can create very deep front yards to accommodate their off-street parking entirely in the front yard. Such strip-development arrangement deteriorates street definition, making pedestrian use uncomfortable. It also requires pedestrians to walk (and navigate) long distances through parked cars (and moving ones!) in parking lots.</p>	<p>Eliminate the off-street parking requirements in the C-B and N-B districts. Establish "build-to" lines or maximum front yard setbacks in the other commercial-oriented non-residential zoning districts (G-B & H-B districts) or establish guidelines as to how much of the required off-street parking shall be allowed to be placed in the front yard.</p>
<p>10. Mixed Land Uses</p>	<p>ZONING ORDINANCE- Mixed use opportunities are limited in Norwood. Zoning regulations do not allow for the development of residential uses in non-residential districts. Thus, uses for the most part are segregated.</p>	<p>The segregation of land uses does not encourage a pedestrian-friendly environment. The physical distance between uses presents fewer opportunities for pedestrians to walk from one use to another (i.e. "being able to walk to the corner store.") Such an arrangement more often necessitate the use of a car. All too often, such scenarios lend themselves to "strip commercial" development along major highways, which are geared for the motorist as opposed to the pedestrian.</p>	<p>Re-examine the table of permitted uses contained in Norwood's Zoning Ordinance. Simple changes that could be made include:</p> <ol style="list-style-type: none"> 1. Allowing residential uses in certain non-residential zones; 2. Allowing for mixed residential-commercial developments. 3. Allowing for planned developments to occur in a variety of residential and non-residential zoning districts and allow these uses to have commercial components.



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Appendices:

1. Facility Standards and Guidelines
2. Some Benefits of Greenways
3. How to Build a Sidewalk
A STEP-BY-STEP GUIDELINE FOR BUILDING PEDESTRIAN IMPROVEMENTS
4. Additional References

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Facility Standards and Guidelines

CONTENTS:

I. Facilities:

1. **Sidewalks** – width, connectivity, paving
2. **Pedestrian Buffer Zones** – planting strips, paved buffer zones, on-street parking
3. **Street Trees** – planting and maintenance, visibility, tree characteristics, pits & grates
4. **Crosswalks**
5. **Striping, Signage & Signalization**
6. **Traffic Calming Devices**
7. **On-street Parking**
8. **Lighting** – location, type, style
9. **Street Furniture** – seating, trash receptacles, bike racks, raised planters, water features
10. **Off-Road Paths/Trails** – trail types, paving, environmental concerns, grade and site lines, accessibility, multi-use, acquisition and ownership, liability, security and safety, front-yard v. backyard paths, access points, maintenance and operations

II. Additional Accessibility Information

III. Information Sources

Specific locations for facility installation and site improvements are provided in the **Project Identification and Priority List**. Any recommended improvements proposed to be located in the North Carolina Department of Transportation (NCDOT) right-of-way are under the jurisdiction of NCDOT Division 12. Contact the Division 12 Engineer before considering implementation of any improvements in the NCDOT right-of-way: Mike Holder, Division 12 Engineer, P.O. Box 47, 1710 E. Marion Street, Shelby, NC 28151, email: mholder@dot.state.nc.us.

All facilities shall adhere to the current U.S. Access Board definition of the American's with Disabilities Act (ADA). See: <http://www.access-board.gov/>

For additional facility information, refer to the NCDOT Office of Bicycle & Pedestrian Transportation's *Planning and Designing Local Pedestrian Facilities*, available by request: Email: bikeped_transportation@dot.state.nc.us

1. SIDEWALKS

Public sidewalks are intended to provide pedestrians a clear and convenient path of travel within the public right-of-way, separated from roadway vehicles, in a manner that is safe and accessible to all members of the public. They also provide places for children to walk, run, skate, ride bikes, and play. Sidewalks should feature a continuous travel path, clear of poles, signposts, and other obstacles that could block the obstruct pedestrians, obscure a driver's or pedestrian's view, or become a tripping hazard.

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Width of travel path

The Plan recommends a minimum travel path width of 5 ft. for a sidewalk or walkway, in accordance with the Federal Highway Administration (FHWA) and the Institute of Transportation Engineers (ITE). This width allows two people to pass comfortably or to walk side-by-side. This minimum width of the travel path must be free of obstructions, such as utility poles, or pedestrian amenities such as street furniture, trashcans, etc. and shall meet all requirements of the ADA standards for "accessible pathway".

Where sidewalks abut public or commercial buildings, or anywhere high concentrations of pedestrians are expected, a minimum travel path of 8 ft. should be allowed for.

Where sidewalks align with the edge of an angled or 90-degree parking lot, a minimum of 30 inches of parked car overhang obstructing the sidewalk shall be taken into account in order to maintain the minimum travel path width.

Connectivity

The alignment of new sidewalks shall be designed and constructed to serve pedestrians in the most direct and convenient manner possible without causing undue physical or aesthetic damage to existing trees or other site features. The design of new sidewalks shall also respect all required or proposed landscaping and other site features.

All new commercial and industrial development shall feature an on-site sidewalk system that connects the main entrance or the most convenient accessible entrance of the primary building to existing public sidewalks or public trails that are adjacent to or abutting the property. Sidewalk/driveway crossings shall be minimized in on-site sidewalk systems.

Paving type

For typical concrete sidewalk paving and construction method, refer to Town Standard Specifications and Construction Details for method of standard sidewalk paving and construction method.

Alternative paving should be considered for the following applications:

- A change in paving type can help distinguish the pedestrian buffer zone from the pedestrian travel path. Sand-set pavers are recommended in the buffer zone for ease of utility maintenance.
- Paving type should vary as a pedestrian path crosses a vehicular path in order to visually cue pedestrians (and drivers) and provide a tactile warning to the visually impaired.
- Textured pavements can be used to add significant aesthetic value and help define a unique place.

2. PEDESTRIAN BUFFER ZONES

Buffer zones between pedestrian paths and vehicular traffic provide a sense of security to those on foot or in wheelchairs and give the path a comfortable scale and clear definition. Buffers can also provide other benefits to pedestrians depending on the type used.

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- **Planting Strips** – Continuous zones of landscape, located between the sidewalk and the street curb or the edge of road pavement, perform a multitude of essential tasks. In addition to the safety buffer referred to above, planting strips contribute to the walkability of a street by providing shade. This element alone can often clinch the decision for a potential pedestrian on whether a route is “walkable” or not, particularly in the hot summer months. In addition to providing shade, street trees - along with turf and other plantings - help reduce urban temperatures, improve water quality, lower stormwater management costs, and add beauty to the street for the pedestrian, the driver, and the adjacent land use. The recommended planting width to permit healthy tree growth is 6 to 8 feet measured from the back of curb. Planting strips are the preferred means of providing a buffer, but are not feasible or appropriate in all pedestrian situations. Areas of high foot traffic may preclude landscaping due to maintenance considerations.
- **Paved buffer zones** - In some situations, continuous planting strips are not feasible, particularly where there is a high degree of foot traffic between the sidewalk and the street. Grass and other plantings would simply be trampled. In these cases, a buffer zone of some other kind should be provided between the travel path of the sidewalk and the curb. Though a constant width is preferred for this buffer zone, the width may vary as long as the buffer does not interrupt the pedestrian travel path. Items located in the buffer zone can include street furniture, planters, trees planted with tree grates, streetlights, street signs, fire hydrants, etc. Such items are placed in the buffer zones so as not to restrict pedestrian flow in the travel path. An additional buffer zone may also exist along the opposite side of the travel path, adjacent to buildings, open space, or off-street parking.
- **On-street parking** – As with other buffers, pedestrians feel safer with a physical barrier of a row of cars between them and moving vehicular traffic. Read further for more information about on-street parking strategies.



Though the buffers described above each provide some sort of physical barrier from moving vehicular traffic, it is vital for pedestrians on the sidewalk to have a clear view of drivers and vice-versa. This is a particularly important consideration in designing and maintaining planting strips.

3. STREET TREES

This Plan strongly recommends enhancing the Town of Norwood Tree Ordinance to give more complete direction for tree installation and maintenance. For more information about

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tree planting standards and other related policy and programs, see:

<http://www.seql.org/actionplan.cfm?PlanID=10>

Planting and Maintenance requirements

All street trees should be selected according to the standards described in the *American Standard for Nursery Stock* of the American Nursery and Landscape Association.

See: <http://www.anla.org/applications/Documents/Docs/ANLStandard2004.pdf>

Install and maintain trees according to the International Society of Arboriculture (ISA) guidelines. See: <http://www.treesaregood.com/treecare/treecareinfo.aspx> or contact: ISA, P.O. Box 3129, Champaign, IL 61826-3129, USA. E-mail: isa@isa-arbor.com

Visibility

Street trees should never be allowed to obscure the line of sight between pedestrians and drivers. A clear view should be maintained between 30" and 72" above street. This area must be free of limbs and foliage for safe cross visibility. Other plantings should also follow this rule within 50 ft. proximity of street corners and other designated crossing points.

Tree characteristics

FORM - In order to maintain visibility, provide shade, and a comfortable pedestrian corridor, street trees should primarily be vase shaped, columnar, or oval in form (habit) with large spreading crowns.

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

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

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

SPACING – typically, large trees should be spaced approximately 40 – 50 feet when planted in a line, and small trees spaced at approximately 30 ft.

Species not recommended – Due to inherent problems with weak branches, aggressive roots, invasive spreading, or vulnerability to vehicular fumes, the following species are not recommended for street tree use:

- ❖ Bradford Pear / *Pyrus calleryana* 'Bradford' Pine
- ❖ Eastern White Pine / *Pinus strobus*
- ❖ Silver Maple / *Acer saccharinum*
- ❖ Norway Maple / *Acer platanoides*
- ❖ Sweetgum / *Liquidambar styraciflua*
- ❖ Tree-of-Heaven / *Ailanthus altissima*

Tree Pits and Tree Grates

Street trees should generally be located in open planting strips, however tree pits with tree grates may be a practical (though expensive) alternative in very high pedestrian traffic areas.

Tree pits should be constructed so that a continuous channel of soil under the pavement connects the individual pits and allows greater volumes of soil for root growth and water storage. Raised tree planting areas should likewise be designed to accommodate multiple rather than single trees.

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Tree grates should generally not encroach upon the travel path. However, for optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway". Gratings should have openings not greater than 1/2" wide with slots perpendicular to the general direction of travel and have a coefficient of friction at least 0.6 on flat surfaces and 0.8 on ramps.

4. CROSSWALKS

Marked crosswalks indicate preferred locations for pedestrians to cross streets. They provide paths of increased safety to pedestrians as they warn motorists to yield to pedestrians in this designated right-of-way. Crosswalks should be placed strategically at high pedestrian volume locations, such as signalized intersections and high volume mid-block locations. Their placement should always be supported by other measures that help reduce speeds and warn drivers to be prepared to stop.

The effectiveness of crosswalks can be greatly enhanced by curb extensions. They shorten the crossing distance for pedestrians and improve their visibility of the crosswalk to oncoming vehicular traffic. They also serve as traffic calming devices whether pedestrians are crossing or not. See: **Traffic Calming Devices**.

For crosswalk markings, dimensions and other standards, refer to the Manual on Uniform Traffic Control Devices (MUTCD).

5. STRIPING, SIGNAGE & SIGNALIZATION

- All pedestrian and vehicular pavement striping, signage and signals, and the locations thereof shall conform to the MUTCD.
- Though traffic signage can carry legal authority, it should not be relied upon as the primary or sole means of influencing driver or pedestrian behavior. However, it is essential to anticipate the need for traffic signs in every situation to provide clear direction for both pedestrians and drivers. It is also important to avoid unnecessary signs as they may cause physical or visual obstruction, will require maintenance, can confuse and erode the significance of necessary signage and add to visual blight. Signs should only be installed when they fulfill a need based on an engineering study or engineering judgment.
- Traffic signals are intended to assign the right-of-way for vehicular and pedestrian traffic. Most traffic signals are installed based on vehicular traffic considerations, but some high-volume pedestrian circumstances warrant traffic signals themselves. According to the MUTCD, a traffic signal may be warranted when the pedestrian volume crossing a major street or mid-block location during an average day reaches 100 or more for each of any 4 hours; or 190 or more during any 1 hour. However, simply meeting one of the MUTCD warrants for signalization does not necessarily justify installation of a traffic signal. Even where warranted, traffic signals can cause

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excessive delay for drivers and pedestrians alike, and can increase certain accident types.

- All signalization should feature controlled timing operable by pedestrians and ADA compliant.

6. TRAFFIC CALMING DEVICES

Traffic Calming Devices (TCDs) are physical measures in street design that cue drivers to slow down. The effectiveness of TCDs does not depend upon a driver's compliance with traffic signs and signals, or police enforcement, though they may be used effectively in conjunction with them. In coordinated combinations, TCDs reduce speeds, alert drivers to pedestrians, and reduce the severity of collisions.

Though most of the examples listed below are not specified in the **Project Identification and Priority List**, the following TCDs are generally recommended for consideration by the Town on a project-by-project basis:

- **Speed humps** - raised "bumps" placed across residential streets to control chronic speeding problems where other methods of slowing traffic have not been effective. They are designed to calm traffic in residential areas, particularly near parks and schools. Similar to a speed bump, the speed hump is wider and has a more sloping side taper. The physical impact on passing vehicles is less severe at slower speeds than at higher speeds. Speed humps reduce vehicular speeds between intersections.
- **Speed Tables** - flat-topped speed humps typically long enough for the entire wheelbase of a passenger car to rest on the flat section. They often constructed with brick or other textured materials on the flat section.
- **Raised crosswalks** - Speed Tables outfitted with crosswalk markings and signage. By raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks can be appropriate for midblock pedestrian crossings where vehicle speeds are excessive.
- **Raised intersections** - raised flat areas that cover an entire intersection, with ramps on all approaches. By modifying the level of the intersection, the crosswalks are more readily perceived by motorists to be "pedestrian territory". Raised intersections should be used only where there is substantial pedestrian activity where other traffic calming measures have not been effective. Textured paving should be incorporated into the edges in order to provide visual and tactile cues.
- **Textured pavements** - stamped pavement or alternate paving materials to create an uneven surface for vehicles and pedestrians to traverse. Textured street pavement provides a visual and tactile cue for both drivers that they are driving in an area of high pedestrian use. Similarly, they cue pedestrians that they are entering a vehicular zone, and are a particularly effective treatment to warn visually impaired pedestrians. Textured street pavements should be used in areas of substantial pedestrian activity and where noise is not a major concern.
- **Neckdowns** – intersections with curbs that are extended to the edge of the vehicular travel lanes, reducing total roadway width from curb to curb. Curb

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Extensions slow vehicles by alerting drivers to potential pedestrians, visually tightening the vehicular path, and physically reduces turning radii. Curb Extensions also increase safety for pedestrians by shortening the road crossing distance.

- **Chokers** - curb extensions at midblock locations, usually combined with a crosswalk. Also known as “pinch points”.
- **Medians** – an island located along the centerline of a street that may or may not narrow the vehicular travel lanes at that location. Medians can be combined with crosswalks to provide pedestrians a temporary “refuge” as they cross the street. They are often landscaped to provide a visual amenity. Placed at the entrance to a neighborhood, and often combined with textured pavement, and called "gateway islands." Medians may be raised or partially sunken and combined with hydrophilic landscaping and drainage infrastructure to treat and drain storm water.

Other strategies that do not rely on pavement and curb manipulation can also be employed to cue drivers to the presence of pedestrians and induce slower vehicular speeds. Among them is on-street parking.

7. ON-STREET PARKING

Through a variety of means, on street parking benefits both pedestrians and drivers, and can contribute to the economic viability of a street.

- On-street parking provides a comforting physical buffer between pedestrians on sidewalks and moving traffic in the streets. Pedestrians feel safer with such a barrier that still allows them to clearly see into the street and drivers to clearly see pedestrians.
- On-street parking compliments pedestrian-friendly setbacks for on street commercial development. Commercial establishments with on street parking require fewer parking spaces in large expanse pedestrian-unfriendly parking lots. When commercial buildings are set back behind parking lots, longer walking trips through vehicular areas are necessitated for pedestrians coming from the street. This arrangement discourages pedestrian usage of the area.
- On-street parking calms traffic. Drivers tend to slow down when they sense potential conflict with opening car doors or vehicles suddenly moving into the traffic lane.
- On-street parking can be easily monitored and controlled in order to maximize short-term visitor usage.
- On-street parking can even provide a source of revenue that helps pay for parking enforcement and other transportation improvements.

Despite the potential for on-street collisions, such collisions more commonly occur in interior parking lots.

On-street parking alignment options include: parallel, diagonal or angle, and perpendicular.

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- 1.) **Parallel parking** is preferred. Parallel parking permits drivers a clear view of oncoming traffic. And it requires the least amount of additional right-of-way depth to accommodate parked cars.
- 2.) **Diagonal or angle parking.** Though diagonal parking provides the advantage of greater ease in maneuvering into a space with fewer steps than parallel parking, it is the most accident-prone on-street parking arrangement commonly used, providing the most potential conflicts between vehicles and pedestrians. Diagonal parking is the least efficient use of space per car and is exceptionally unsafe of bicyclists. Diagonal parking can be either “back-out” or back-in”.
 - a. **Back-out diagonal parking** requires a person leaving a parking space to back out into traffic, often without a good view of approaching cars or pedestrians.
 - b. **Back-in diagonal parking** requires additional maneuvering skill but provides some advantages over back-out diagonal parking:
 - i. Children are directed to the sidewalk and shielded by the door.
 - ii. Easier to unload and load trunk at the sidewalk.
 - iii. Sight visibility is improved for drivers and cyclists.
- 3.) **Perpendicular parking** has many of the disadvantages of angled parking but requires the even more depth in right-of-way.

For further information about parking management, see:

<http://www.seql.org/actionplan.cfm?PlanID=13>

8. LIGHTING

Location

Lighting for sidewalks and off-street paths should be provided where considerable pedestrian traffic is expected at night, where there is insufficient available light from the surrounding area, and at all designated road crossings.

Type

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

Style

Light fixtures, as well as other on-street facilities, like street furniture, can add a great deal in terms of street aesthetics and reinforce community identity. The Plan recommends the community adopt a particular style of street lighting fixture appropriate for the Town’s identity and coordinate this choice with stylistic choices in other street facilities.

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9. STREET FURNITURE

Well-designed walking environments are enhanced by street furniture, such as outdoor seating, lighting fixtures, bus shelters, trash receptacles, and water fountains. To select and properly site street furniture, careful attention should be given to the physical and social needs of the community and the various groups within it.

General design principles for selection, design, and siting of street furniture are listed below:

- Street furniture placement should never be placed so as to restrict regular pedestrian flow.
- Street furniture can be positioned to help reinforce a physical or visual buffer between pedestrians and vehicular traffic.
- Consider the role street furniture can take by providing familiar tactile landmarks, which can aid navigation for the visually impaired.
- Coordinate the style of various street elements to complement one another and reinforce a sense of common identity for the community.

Seating

- Seating should be located periodically along well-traveled paths and at destination points. For paths frequented by elderly citizens, adequate seating should be provided for along the path at a minimum of 150 ft.
- Provide seating in locations that are logical destinations or gathering points to allow opportunities for community interaction, particularly for students and the elderly.
- Seating should be oriented toward travel ways and areas of visual interest.
- Whenever possible in destination areas, provide moveable chairs.
- Seating should generally be located to take advantage of shade or in “suntraps” - areas that take advantage of winter sun and blocked from the wind.
- In addition to benches and other pre-manufactured seating, additional opportunities for seating may include other areas that meet the following parameters: smooth, level areas with a minimum depth of 14 inches, a minimum height of 12 inches, and a maximum height of 36 inches.

Trash receptacles

- Well placed, attractive, and properly maintained trash receptacles encourage pedestrian behavior toward keeping a cleaner community.
- Design style of trash receptacles should be carefully coordinated with other street furnishings to optimize aesthetic quality and opportunity for reinforcing community identity.

Bike racks

- Bike racks encourage pedestrian life by providing greater opportunity for people to leave their cars at home.
- Rack design should be attractive to encourage use by cyclist and property owners.
- Racks must allow the bike frame and wheel(s) to be locked securely.
- Racks should be built from heavy duty, weather & tamper resistant materials.
- Racks must support the bicycle frame and not hold the wheel.

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- Most racks are misused to some degree. Look for racks that provide the same opportunity for security whether the bike is on the end or middle of the rack.
- Locate racks next to entrance doors and in line of site of a window.

Raised Planters

- Planters can provide opportunities in addition to planting strips for street landscaping.
- Raised planters should be located either to act as buffers between pedestrian and vehicular ways, or to help define or enhance a public gathering space. Planters should not be located in the travel path or where they will otherwise obstruct normal pedestrian flow.
- Raised planters should be designed to provide additional opportunities for comfortable seating (meeting the dimensions specified in the **Seating** section).

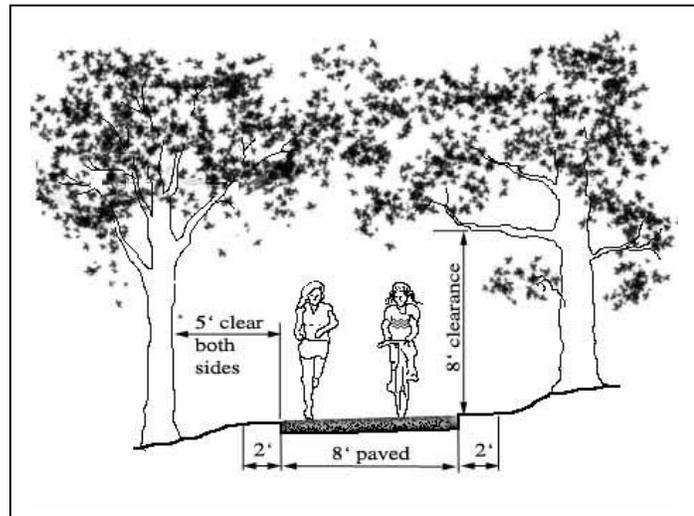
Water features

- Decorative Fountains usually provide an inviting visual and audible focal point for a public space. They are usually the dominant feature in any space.
- Fountains should be designed with audible effects in mind, so as to create an atmosphere conducive to conversation. Splashing water provides an element of privacy in public areas as it masks conversational tones.
- Raised fountains can provide highly favorable additional seating area.
- Fountains should be designed to permit free access to water by pedestrians.
- Great care should be given in planning fountain projects. Insure that there is an ongoing funding source for adequate fountain maintenance, as well as sufficient liability protection.

10. OFF-ROAD PATHS/TRAILS

Trail types

- 1.) **Proposed Urban Paths** – Pavement types may vary between conventional or pervious concrete, asphalt or crusher fines. Width of pavement should be maintained at 8 ft., with 2 ft. improved shoulders. Deviations for very short distances are acceptable when existing conditions do not physically permit standard trail width. Paved surfaces of all trail segments must be at least 6 ft. in width to allow accessibility for maintenance

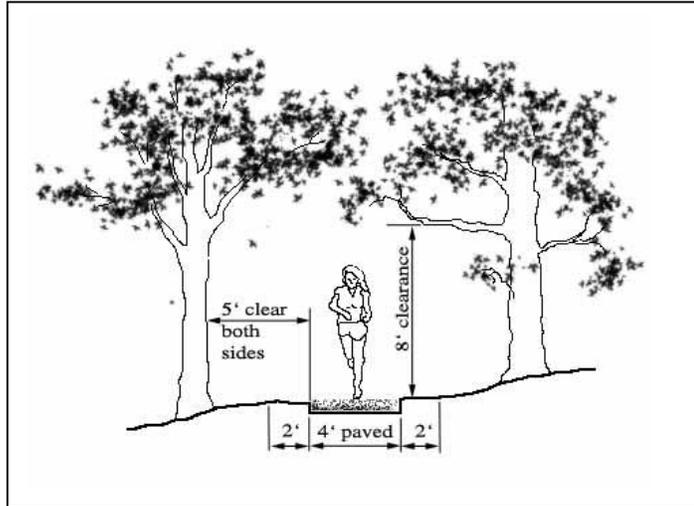


Urban path

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equipment (ATV type). Maximum slope shall not exceed 8%. Maintain a vertical clearance minimum of 10 feet.

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



Foot Path

Paving

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

- **Conventional Concrete** – Costly installation and maintenance, but requires less periodic maintenance than asphalt or crusher fines. Install 4-inch thickness on compacted 4-inch aggregate base course.
- **Pervious Concrete** – Allows storm water to percolate when used over permeable soils, superior traction, unfavorable to rollerblading and skateboarding, higher installation cost. Install according to manufacturer's specifications.
- **Asphalt** – smooth, joint free and softer than concrete, preferred by runners, rollerbladers, cyclists, handicap users, and parents pushing baby buggies, construction is quicker and costs significantly less than a concrete. Install a minimum 2-inch I-2 asphalt thickness with 4-inch aggregate base course. Pavement can last up to 20 years with periodic maintenance. Repair is quick and inexpensive.

For further information, see:

<http://www.americantrails.org/resources/trailbuilding/betterAsphalt.html> &

<http://www.americantrails.org/resources/trailbuilding/AsphaltCO.html>

- **Crusher fines** – Excellent for running trails, as well as walking, mountain bike and equestrian use. Can be constructed to meet ADA requirements. Constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix. Typically costs about 1/3 the price of concrete paths, installed. For detailed information, see:

<http://www.americantrails.org/resources/trailbuilding/BuildCrushFinesOne.html>

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- **Dirt** – Recommended for mountain bikes and equestrian uses.
- **Boardwalk** – very expensive, for environmentally sensitive areas and wetlands.

For comparative costs of pavement types, see **Sample Cost Estimates for Facilities**.

Environmental Concerns

Trail corridors serve the community by protecting and enhancing the natural environment. Trails provide more transportation choices for people who wish to walk or bicycle. By doing so, they help to decrease dependence upon automobiles and thus contribute to improved air quality. Trails also improve water quality by establishing buffers along creeks and streams. These buffers provide habitat for a diversity of plant and animal species. They serve as natural filters, trapping pollutants from urban runoff, eroding areas and agricultural lands. Stream buffers also reduce the severity of flooding by releasing storm water more gradually, giving the water time to evaporate, or percolate into the ground and recharge aquifers, or be absorbed and transpired by plants.

All proposed trails and other improvements should be designed, constructed and maintained with their ecological value in mind. Any disturbance of natural features should be kept to a minimum and conform to all jurisdictional environmental policy and ordinances.

Grade and sight lines

Trails should be designed with a minimum slope to insure proper drainage and prevent pooling. The maximum slope should not exceed 8% on primary paths to prevent undue erosion of the trail, accessibility, safety and ease of use.

Horizontal and vertical curves should be gentle in order to permit ADA accessibility, the safe use of bicycles on the path, and to allow maximum sight distances for the safety and security of all trail users. Sight lines along the trail should be maintained at a minimum of 100 ft. wherever feasible.

Accessibility

The trail system should be designed to accommodate all people, regardless of age and ability. Off-road trails should meet ADA accessibility requirements whenever possible in the design. See: <http://www.ncaonline.org/monographs/1trail-surfaces.shtml>

Multi-use

Off-road trails should accommodate a wide range of activities including exercise, family outings, shopping expeditions, or as a means to get to school or work.

Acquisition & Ownership

Acquisition negotiations of the proposed off-road trail corridors can result in various types of agreements with current landowners. The owner of the property need not be the same entity that operates and maintains the trail corridor if appropriate agreements are drawn. Ownership options to consider for individual trails include:

1. **Local government** – An existing department within the Town government (usually a department of parks and recreation) is assigned to manage and maintain the corridor.

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2. **Non-profit association** – A non-profit association or council may assume ownership of the corridor or control of the trail property. Local organizations that are experienced in trail management have distinct advantages in managing the trail system and responding to public needs. Local land trusts or trail conservancies may also be formed to take ownership of the trails.
3. **Private landowners** – May open their land to trail use by formal or informal agreement, and may sell or donate conservation easements while retaining other rights to the land.

Several legal instruments that may be used to transfer ownership or interests in property, either temporarily or permanently:

1. **Titles** – transfer permanent ownership of the land, usually acquired in “fee-simple” through contribution or outright sale.
2. **Easements** – permanently or temporarily convey ownership and control of a certain interest, right or tangible element of the property to a second property while the other retains other rights to the land. Conservation easements are often particularly appropriate to retain off-road trail ways, as these lands are often valuable for lowland or wildlife corridor protection.
3. **Access and Use Agreements** – specify how a portion of property may be used for a specified time. The agreement should contain a termination clause, obligations of the Town or trail manager, and a list of impermissible activities.
4. **Leases** – convey almost all rights, control and liability of the property to the lessee for a specified number of years (usually 25 or 99) and may provide the landowner with compensation from the lease.

Acquisition of land for trail corridors, on land that is currently underdeveloped, can take place as part of the Town’s subdivision process. As large parcels are subdivided, corridors that are specified in the adopted Pedestrian Plan are acquired from the developer and incorporated in to the Town’s trail system through whichever legal instruments are specified in the Town’s Subdivision Ordinance. The Town may choose to require through the ordinance that the developer contribute a fee for the construction of the trail improvements, as well as continual maintenance fees for its upkeep through a portion of homeowners’ association fees.

Liability

The following risk management strategy steps should be taken as the trail is planned and developed:

1. Identify potential hazards in the proposed trail alignment.
2. Develop a list of permitted trail uses along with the risks associated with each.
3. Identify applicable laws.
4. Design and construct the trail in accordance with recognized guidelines.
5. Develop a plan for handling medical emergencies.
6. Conduct regular inspections once the trail is open for use (see **Routine maintenance**).
7. Document inspection findings and actions taken.

For detailed information concerning liability, see:

<http://www.americantrails.org/resources/adjacent/RailLiability.pdf>

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Security & Safety

- Safety concerns, such as minimizing accidents and exposure to risk should be addressed during the design process of any off-road trails.
- Safety design elements to consider include:
 1. Lighting and emergency phones,
 2. Elimination of obstructions
 3. Clear sight lines by selective vegetation removal
 4. Planting prickly shrubs at select locations
- In addition to standard police patrol, Adopt-A-Trail programs should be considered that encourage local residents to police trails much like Neighborhood Watch.
- Trails are typically accessible during daylight hours only, and violations after dark are viewed as trespassing.
- Emergency access points for Police, Fire, and EMS should be signed and have restricted-access bollards that allow emergency vehicles into the site while prohibiting access by unauthorized vehicles. Most maintenance access points also suffice as emergency access points.
- When extreme weather is expected, efforts should be taken to close trail to protect the safety of the public.

“Front yard” v. “backyard” paths

Although off-road trails will typically follow stream banks and utility corridors, they should be designed as “front yard elements” whenever possible, connecting to existing sidewalks, as well as civic, residential and commercial destinations. This arrangement will maximize the transportation value of the trail, and also increase visibility and safety for users.

Access Points & Linkages to private property

Access opportunities to off-road trails should be maximized. The trail system should readily accessible from sidewalks in the public right-of-way. Commercial and institutional establishments, as well as residential developments, are strongly encouraged to provide direct access to the trail from their property at points convenient to potential users.

Maintenance & Operations

Facility inspections are an essential part of maintaining any facility. Planning and design of all off-road trails should include management plans that help gauge operational funds for various maintenance projects. Proper maintenance must address both the performance condition of the trail preserving the environmental integrity and character of any environmental areas that are adjacent to the trail. Maintenance and repair projects can be managed either through annual service contracts put out to bid, or become an integral part of the Facilities Management maintenance program. Annual budgets for trail maintenance and operations should document maintenance items, facility improvements, and other related costs to ensure the long-term health of trail facilities, the environment, and safety for users.

Three tiers of maintenance programs should be included in the management plan:

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1. **Long-term maintenance programs** - includes renovation of facilities and trail resurfacing. Comprehensive inspections should occur twice a year to record user impacts, general wear and tear, and other factors that may affect safety, environmental features, or structural integrity of the facility. If long-term maintenance programs are deferred, the safety of the trail is compromised and costly capital improvement funds to renovate damaged areas will be required. Typical long-term maintenance activities include:
 - Annual vegetation clearance (June and September)
 - Annual inspection by engineer to identify potential repairs needed for bridges and structures, drainage structures, pavement, railings, and fences
 - Revegetation during planting seasons
2. **Routine maintenance** – includes safety and repair issues that occur throughout the life of the facility. Frequency of routine maintenance should take place on a monthly basis, dependent upon the amount of usage and availability of funds. Typical routine maintenance activities include:
 - Removal of litter and general cleaning
 - Sweeping and leaf removal
 - Mowing and weed control
 - Pruning and removal of encroaching/fallen branches
 - Trail edging
 - Route signage maintenance
 - Graffiti control
 - Regular presence of volunteers to report faults
3. **Emergency repairs** - necessitated when storm damage makes the trail unsafe for daily use. Severe weather may occasionally cause damage to the facility either through wind, erosion, or fallen trees. Emergency repair funds for severe weather should be allocated and allowed to rollover from year to year for this inevitability.

Volunteer programs for greenway maintenance can be organized through the “Adopt-A-Park” program or could be coordinated with the existing greenway volunteer programs. Volunteer labor can yield a substantial savings for labor costs on routine maintenance and repair. Materials can be donated by a group, provided through a corporate sponsor, or purchased by the Town.

Additional Accessibility Information

The following accessibility standards and guidelines are provided by the **Pedestrian and Bicycle Information Center** (www.walkinginfo.org)

A Checklist for Accessible Sidewalks and Street Crossings

The Americans with Disabilities Act (ADA) requires that new and altered facilities be accessible. Title II of the ADA covers sidewalk and street construction and transit accessibility, referencing the ADA Accessibility Guidelines (ADAAG) or the Uniform Federal Accessibility Standards (UFAS) for new construction and alterations undertaken by or on behalf of a state or local government. The

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Department of Justice (DOJ) title II regulation specifically requires that curb ramps be provided when sidewalks or streets are newly constructed or altered. (Requirements for existing pedestrian networks not otherwise being altered are also included in the DOJ regulation, available on line at www.ada.gov/reg2.html). The ADA Accessibility Guidelines (www.access-board.gov/adaag/html/adaag.htm) include standards for site development applicable to new construction and alterations in the public right-of-way.

CURB RAMPS

A curb ramp or other sloped area is required wherever a new or altered pedestrian walkway crosses a curb or other barrier to a street, road, or highway. Similarly, a curb ramp is required wherever a new or altered street intersects a pedestrian walkway. A curb ramp may be perpendicular to the curb it cuts or parallel with the sidewalk. Other designs may also comply, including sidewalks that ramp down to a lesser curb height, with a short perpendicular curb ramp to the street; blended or at-grade connections, or raised crossings that connect at sidewalk level.

The running slope of a new curb ramp should not exceed 1 in 12 (8.33%). Steeper ramps are not usable by many pedestrians in wheelchairs and scooters. Cross slope should be limited to 2%.

A level landing should be provided at the top of a perpendicular curb ramp. A curb ramp must connect at the top to a level landing that is at least 48 inches deep with a cross slope of no more than 2%. The side flares of a curb ramp are not intended for accessible travel (the slope of a side flare is limited so that it will not present a tripping hazard to pedestrians).

The foot of a curb ramp should be contained within the crosswalk markings. Pedestrians who use wheelchairs should not be directed outside the crosswalk or into an active travel lane in order to cross stopped traffic. If a diagonal ramp is used, a 48-inch long bottom landing must be provided in the space between the curb radius and curb line extensions.

The transition from curb ramp to gutter should be flush. Lips are not permitted. Gutter counter slope in the line of travel should not exceed 1 in 20 (5%) and should connect smoothly with other elements of the pedestrian network.

The boundary between the sidewalk and street should be detectable underfoot. A 24-inch strip of truncated dome or other approved detectable warning material should be provided the full width of the ramp or other uncurbed connection to the crosswalk so that pedestrians do not inadvertently travel into the street.

SIDEWALKS

A new sidewalk should be wider than the minimum accessible travel width of 36 inches. Additional maneuvering space is necessary for a pedestrian using a wheelchair to turn, to pass by other pedestrians, to operate and pass through an entrance door, to use sidewalk telephone or to activate a pedestrian crossing button. A 60-inch minimum width can accommodate turns and passing space and is recommended for sidewalks adjacent to curbs in order to provide travel width away from the drop-off at street edge; a 48-inch width can accommodate side-by-side travel with a service animal.

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The cross slope of a sidewalk should not exceed 2%. Excessive cross slope requires additional energy to counteract and tends to direct wheelchair users into the street, particularly when it is wet, icy, or snowy underfoot. At driveways there should be a minimum 36-inch (915 mm) wide passage with a cross slope of no more than 1:48 (2%). Corners at intersections should comply in both directions, since the running slope of one walkway will be the cross slope of another.

Street furniture, plantings, and other fixed items should not protrude into travel routes. Pedestrians with vision impairments can detect objects mounted on walls or posts if they are installed so that the leading edge is less than 27 inches above the sidewalk. Items mounted above this height should not project more than 4 inches into any circulation route. Particular care should be taken to locate temporary signage so that it does not impede pedestrian travel.

STREET CROSSINGS

Consider the information needs of blind and low-vision pedestrians at intersections.

When pedestrian signals are provided, their crossing and timing information should be available to all users. The audible and tactile information delivered at the pedestrian button of an accessible pedestrian signal (APS) can identify pedestrian signal phases and provide other non-visual information about the nature of a crossing.

Insufficient crossing time may be a barrier for some pedestrians. Every pedestrian cohort should be expected to contain some walkers whose rate of travel is less than 3.5 feet per second. Some jurisdictions add additional time using video technology; others employ a pedestrian button to call for a longer crossing cycle.

TEMPORARY WORK

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

OTHER PEDESTRIAN FEATURES

Pedestrian facilities on and along sidewalks must be accessible. Signal actuating buttons, drinking fountains, telephones, kiosks, and other pedestrian elements should meet accessibility criteria for approach and maneuvering space, reach range, and operation.

Additional rights-of-way guidelines may be found at the U.S. Access Board's website at www.access-board.gov. The Board also maintains a toll-free technical assistance line at 800/872-2253 (V); 800/993-2822 (TTY).

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Information Sources:

Planning and Designing Local Pedestrian Facilities – NCDOT, Office of Bicycle and Pedestrian Transportation, February 1997

North Carolina Bicycles Facilities Planning and Design Guidelines – NCDOT, Office of Bicycle and Pedestrian Transportation, January 1994

James City County Greenway Master Plan June 25, 2002
Greenway Maintenance and Management, www.jccegov.com

American Trails – Resources & Library
<http://www.americantrails.org/resources/index.html>

Creating Connections

The Pennsylvania Greenways and Trails How-to Manual – Russ Johnson, Pennsylvania Environmental Council, Pennsylvania Greenways Partnership, 1998
<http://www.pagreenways.org/toolbox/creatingconnections.pdf>

Rail-Trails and Liability

A Primer on Trail-Related Liability Issues & Risk Management Techniques – Hugh Morris, Rails-to-Trails Conservancy in cooperation with the National Parks Service Rivers, Trails and Conservation Assistance Program, September 2000
<http://www.americantrails.org/resources/adjacent/RailLiability.pdf>

Cary Parks, Recreation and Cultural Resources Facilities Master Plan
<http://www.townofcary.org/depts/prdept/greenwayreco.pdf>

Walkinginfo.org

Trafficcalming.org

Sustainable Environment for Quality of Life - SEQL.org

The Social Life of Small Urban Spaces – Whyte, William H., 1980

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Some Benefits of Greenways

➤ From the Great Rivers Greenway District in St. Louis

Greenways improve everyday living.

An interconnected system encourages neighborhood and community lifestyles that emphasize outdoor recreation and promote walking and bicycling to school, work and shopping. By linking the system to streets, sidewalks and other public spaces, it helps communities and neighborhoods to function in a more connected, healthy and enjoyable way.

Greenways Link a Community's Resources.

By providing physical connections and green "buffers," a system of greenways, parks and trails helps unite spaces within a community. Residential and commercial districts, educational campuses, civic and cultural amenities, and light industry all can be interwoven with a well-designed open space plan that incorporates and respects the natural environment.

Greenways Create a Stronger Tax Base.

Neighborhoods and communities thrive when public investment is made in greenways, parks and trails, encouraging additional public and private investment in the area. The enhancement of "green infrastructure" is an important aspect of redevelopment and contributes to increased property values and, thus, tax revenue. Neighborhoods and communities prosper, job opportunities increase and the region stabilizes financially. In established and growing communities, the additional open space provided by the interconnected system also increases.

➤ Research from the National Park Service:

By conserving a greenway corridor rather than permitting intensive development, local agencies may reduce costs for public services such as sewers, roads, and school facilities. Establishing a greenway in an area prone to hazards, such as flooding, may decrease costs for potential damages. Greenways and associated vegetation can also help control water, air and noise pollution by natural means, resulting in potential decreased pollution control costs. Greenways and trails may promote physical fitness, leading to decreased public health care costs.

Greenway corridors provide a variety of amenities, such as attractive views, open space preservation, and convenient recreation opportunities. People value these amenities. This can be reflected in increased real property values and increased marketability for property located near open space. Developers also recognize these values and incorporate open space into planning, design, and marketing new and redeveloped properties.

Cases and examples: <http://www.nps.gov/pwro/rtca/propval.htm>

More information available at: <http://www.nps.gov/pwro/rtca/index.htm>

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🚩 From San Marco Greenbelt Alliance:

Several examples of development and tax revenue

<http://www.smgreenbelt.org/benefits.htm>

Trail users generate tax revenue and income for local businesses. A study conducted by the Maryland Department of Natural Resources found that although the Northern Central Rail-Trail cost \$191,893 to construct, it generated \$303,750 of State tax revenue during one year. (see <http://ntl.bts.gov/DOCS/430.html>) And the 1992 "Impacts of Rail-Trails" study by Roger L. Moore, et al. found that for the three trails studied, trail users of each trail were responsible for generating over \$1.2 million for local businesses. "Users spent an average of \$9.21, \$11.02, and \$3.97 per person per day as a result of their trail visits to the Heritage, St. Marks, and Lafayette/Moraga Trails respectively." For more data on outdoor recreation spending, "Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors" at the National Forest Service site: <http://www.nps.gov/pwro/rtca/econindx.htm>

🚩 From Florida Greenways, "What is a greenway? Economic Prosperity"

Property near but not on the Burke-Gilman Trail in Seattle sold at an average of 6.5 percent more than similar property elsewhere. Property values directly adjacent to the trail were not affected, either in average price or ease of sale. Approximately 60 percent of the owners of homes and condominiums adjacent to the trail believed either their homes sell for more because of the trail or would not be effected. It was also found that homes and condominiums near the trail are easier to sell because of their proximity to the trail (Source: Evaluation of the Burke-Gilman Trail's Effect on Property Values and Crime, by the Seattle Engineering and Department Office of Planning, 1987).

<http://www.geoplan.ufl.edu/projects/greenways/whatisagreenway.html#economicprosperity>

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How to Build a Sidewalk

A STEP-BY-STEP GUIDE FOR BUILDING PEDESTRIAN IMPROVEMENTS

I. PROJECT REQUEST

All requests for new sidewalks (or other pedestrian facilities) should be directed to the Pedestrian Needs Committee (PNC). A request may come from sources such as:

1. A Pedestrian Plan evaluation exercise (see the **Plan Evaluation** section)
2. An unsolicited request from an individual or group
3. Observations of PNC members themselves, elected officials, Town Administrator, Public Works Director or other Town staff members.
4. Other

II. PROJECT EVALUATION PHASE

The PNC should evaluate the project with respect to the following criteria:

1. Appropriateness of the project with respect to the Pedestrian Plan

- a. Does the project meet the goals of the Pedestrian Plan?
- b. Where does the project fall into the priorities of the Plan?
- c. Does the project meet current and anticipated needs and conditions?
- d. Can the requested project be altered in some way to meet the above criteria?

2. Ownership of the land

Does the Town already own the right-of-way? If not, the PNC should determine and recommend the most appropriate course of action:

- a. Purchase the property required by fee simple.
- b. Acquire an easement on the property.
- c. Condemn the portion of the property needed.
- d. Find an alternate project to meet the goal.

3. Source and availability of proper funding

The PNC should determine and recommend the most appropriate funding strategy for the project. The PNC may wish to consider:

- a. Powell Bill Funds
- b. Applicable grants
- c. Other sources (See **Funding Opportunities**).

III. PROJECT DESIGN/CONSTRUCTION PHASE

If the project meets the intent of the Pedestrian Plan, and it has been determined that the property required for the project can be obtained, the PNC should then examine the project in terms of the four specific parameters listed below. Each of these parameters will determine some aspect of how the project construction process will play out.

1. Project Area

Larger projects require additional state permitting. If the project involves one acre or more of disturbed earth, a plan must be submitted to the North Carolina

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Department of Natural Resources (NCDENR) for a 30-day review of the project. The process for submitting projects to NCDENR, as well as the application forms required, can be found at their Division of Land Resources webpage: <http://www.dlr.enr.state.nc.us/pages/sedimentforms.html>

Additional permits may be required for particular projects depending upon the site involved. For more information, contact the local NCDENR office at 704-663-1699.

2. Project Cost

A rough estimate of the overall project cost should be performed at the outset to determine if the project must be bid publicly.

Project cost <\$300,000

Project does not require public bidding, however obtaining multiple bids, informally, is recommended to find the most competitive price for project construction.

Project cost >\$300,000

- Public bid for the project is required according to General Statute.
- Requires Town Planning Board Approval
- Bid projects using a professional list serve. Advertising in newspapers may serve this purpose, but are usually not as cost-effective.

3. Project Property Owners

Owners of properties directly affected by the project must always be contacted, but depending upon the project size as well as its civic importance, this can occur privately or may require a public workshop.

4. Project Design

Some projects are small enough and/or do not require exact measurements for construction; short trail sections, for instance. These may be field determined and built according to a standard specification (see **Facility Standards & Guidelines**). But projects that tie into existing streets or other facilities more often require careful coordination and measured plans. An attempt to save money at the front end by skipping the requirement for construction plans can likely produce a project that is unsatisfactory, problematic, and reap unexpected expense.

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Additional References

Listed below are some additional specific references to existing documents that may aid implementation of the Plan.

Sustainable Environments for Quality of Life (SEQL) is a regional initiative in the rapidly growing 15-county Charlotte, NC /Rock Hill, SC area. SEQL supports the region's efforts to develop integrated and sustainable long-range plans to ensure robust economic development, a clean and healthy environment, and a positive quality of life for its future. SEQL is funded in part by a grant from the EPA to Centralina Council of Governments in cooperation with Catawba Regional Council of Governments. Initiatives include the development of an action notebook for local jurisdiction elected officials and planners to use as a guide to development of policies and actions on the local level. Outreach extends to chambers, environmental groups and citizens. See more at www.seql.org
Pedestrian-related Action Items include:

- Pedestrian Friendly Streetscapes
<http://www.seql.org/actionplan.cfm?PlanID=16>
- Connectivity for Multi-Modal Transit
<http://www.seql.org/actionplan.cfm?PlanID=4>
- Greenways and Open Space
<http://www.seql.org/actionplan.cfm?PlanID=3>

Active Living by Design is a national program of The Robert Wood Johnson Foundation and is a part of the UNC School of Public Health in Chapel Hill, North Carolina. The program will establish and evaluate innovative approaches to increase physical activity through community design, public policies and communications strategies. For more information, visit www.activelivingbydesign.org or call: 919-843-2523.
For trail-related information, see: <http://www.activelivingbydesign.org/index.php?id=29>