BADIN

PEDESTRIAN PLAN

FEBRUARY 2008

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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PEDESTRIAN PLAN

February 2008

EXECUTIVE SUMMARY

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THE VISION

A UNIFIED TOWN
Bridge the communities of east and west Badin and establish practical and accessible connections between them. Create a central area of assembly where activities are available for the whole Town to enjoy.

A PEDESTRIAN-FRIENDLY ENVIRONMENT
Maintain a small town atmosphere and provide citizens 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.

A UNIQUE HERITAGE PRESERVED AND CELEBRATED
Preserve and restore the unique assets of the Town and its surroundings, such as Native American archaeological sites, state parklands, and unique Industrial Era architecture and urban form. Enhance their exposure through promotion, interpretive tours, museums, cultural events and greater pedestrian accessibility.

A REGIONAL DESTINATION FOR TOURISM
Provide greater access to Badin Lake for the local community and the region. Improve destination points along Badin's share of the Lake shoreline and link them to other parks, and to business and residential areas in Town through sidewalk connections and trails, which would then continue into the region. Develop recreational and historical interests to attract visitors. Create hiking, camping, kayaking and golfing opportunities, and attractions such as an amphitheatre, a restored vintage theatre, and an extensive trail system.

CURRENT CHALLENGES

A TOWN DIVIDED
Despite careful planning at the Towns inception, this community is bisected by the long impenetrable wall of the Badin Works Alcoa facility, a long impenetrable barrier to pedestrian activity.

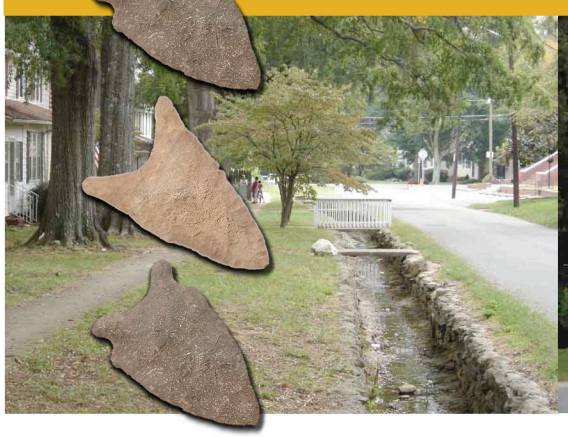
DETERIORATING SIDEWALK CONDITIONS
Impeding utility poles, overgrown shrubbery, and sidewalk cracks have compromised the usefulness of many facilities.

INADEQUATE LIGHTING
Visibility is insufficient at night, making walking conditions unsafe.

PARK NEEDS
Badin has few recreational opportunities and the Town's existing parks need improvements.

DECLINING POPULATION
Disinvestment threatens Badin's west side neighborhood.

AN UNCERTAIN ECONOMIC FUTURE
The economy of this community has always been tied to the aluminum plant. Now, with the plant's future in doubt, the Town is at a crossroads.



RECOMMENDED ACTIONS

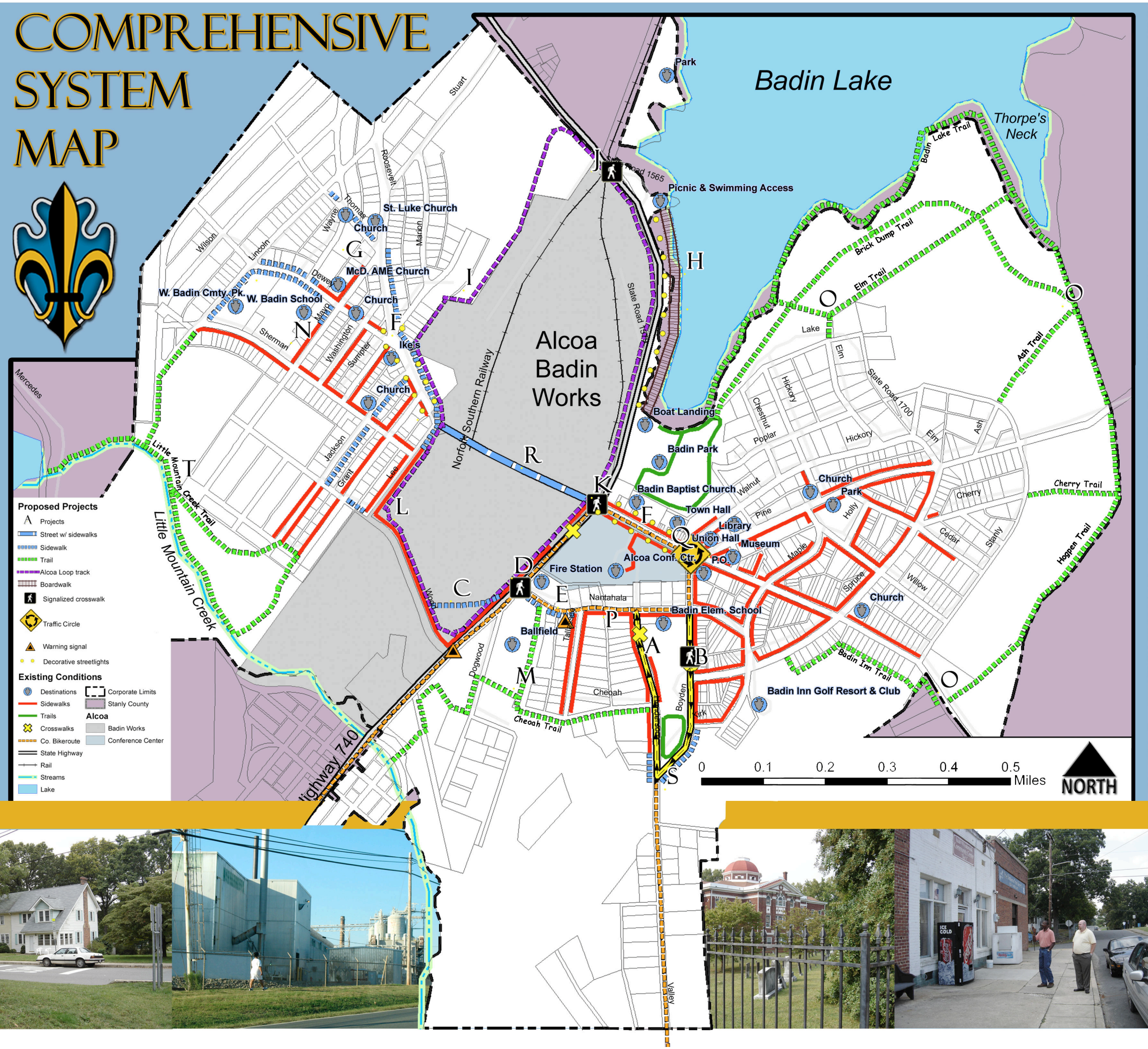
1. Form a Pedestrian Needs Committee.
2. Develop and Adopt a Comprehensive Land Use Plan
3. Expand the Current Badin Zoning Ordinance into a Unified Development Ordinance with Subdivision Regulations.
4. Engage in community and land use planning ofAlcoa Badin Works property and other large, under-developed parcels.
5. Coordinate with Stanly County on areas outside of Badin.
6. Address consistent Transportation Planning.
7. Enact policy and ordinance changes.

RECOMMENDED PROJECTS

A. Badin School One-Way routing
B. Boyden St. Crosswalk improvements
C. Lagoon Walk
D. Nantahala crosswalk on NC 740
E. Nantahala sidewalk extension
F. Falls Rd. & Roosevelt St. charette
G. West Badin Sidewalks
H. Badin Lake Boardwalk
I. Alcoa Loop Trail - North Segment
J. North Badin Works crosswalk
K. Falls Road crosswalk
L. Alcoa Loop Trail - South
M. Cheoah Trail
N. W. Badin Park & School Plan
O. Badin Lake trail system
P. Nantahala St. sidewalk widening
Q. Falls Road traffic circle
R. Falls Road/Roosevelt St. connection
S. Badin Elem. School sidewalk
T. Little Mountain Creek Trail

BADIN PEDESTRIAN PLAN

COMPREHENSIVE SYSTEM MAP



PART 1: PLAN OVERVIEW

1.1 Introduction

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

PART 1: PLAN OVERVIEW
The Overview starts with an **Executive Summary** outlining the Plan's key findings. **Realizing the Vision** describes the Town's need for the Plan, it's pedestrian vision, and how the Plan can help bring about that vision. The **Benefits of a Pedestrian Lifestyle** section provides some background information about pedestrian planning and some examples of how pedestrian-oriented improvements will benefit the Town of Badin.

PART 2: CURRENT CONDITIONS
A description of Badin'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 and other facilities. It also describes population trends of the Town that have direct bearing on current and future pedestrian needs. The **Current Policies, Ordinances and Plans** section contains an analysis of existing planning documents and current Town ordinance, and how may they aid or hinder pedestrian-friendly development. **Current Projects, Programs and Events** describes local and regional projects affecting the quality of pedestrian life in Badin, along with pedestrian-oriented programs and events currently active in Town. 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 provides recommendations to improve Badin's pedestrian future. It begins with **Recommended Policies & Ordinance Modifications**, which integrates pedestrian planning measures into the Town's overall planning processes. Real change requires active involvement by citizens who care and have a stake in the matter. A selection of **Recommended Programs** is given to assist them. **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 next 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**.

1.2 Executive Summary

See attachment.

1.3 Realizing the Vision

THE NEED

The Town of Badin has a charm and scale that invites anyone for a stroll. The wooded hills of the Yadkin River Basin provide a cozy but majestic setting for this unique and historic town by the Lake. Civic buildings form the core of a close-knit community of French-style quadraplex homes. Sidewalks and trees line its fabric of streets where traffic is generally low. Many residents enjoy this setting on foot as they exercise, but they also enjoy the fact that they can walk to the places they need to go in order to accomplish everyday tasks.

But there are significant issues that challenge these idyllic conditions. Some of these issues have been with the Town for a long time; others are just now growing apparent.

- **A town divided** - Despite careful planning at the Town's inception, the community is bisected by Alcoa Badin Works. This industrial facility poses a long impenetrable barrier to pedestrians seeking to travel from one side of town to the other.
- **Deteriorating sidewalk conditions** – Impeding utility poles, overgrown shrubbery, and sidewalk cracks have compromised the usefulness of many facilities.
- **Inadequate lighting** – Visibility is insufficient at night, making walking conditions unsafe.
- **Park needs** – Badin has few recreational opportunities and the Town's existing parks need improvements.
- **Declining population in the town's west side** – Disinvestment threatens this neighborhood.
- **An uncertain economic future** – The economy of this community has always been tied to the aluminum plant. Now, with the plant's future in doubt, the Town is at a

Each of these conditions requires specific actions that will produce tangible results. Such actions are most effective when they flow from a broad, cohesive strategy that the community supports and can realistically implement. Rather than simply reacting to the problems in a piecemeal manner as they occur, this comprehensive planning process for pedestrian transportation improvements provides a systematic approach to the Town for taking on these challenges, and others that threaten its pedestrian environment, with consensus and a coordinated effort.

THE VISION

Through the pedestrian planning process, the Town and its citizens have expressed a clear four-fold vision for their community.

1. **A unified town**
   Bridge the communities of east and west Badin. Establish practical and accessible connections between the two sides of Town. Create a central area of assembly where activities are available for the whole Town to enjoy. Foster a small town environment where all citizens can readily take part in the community and participate in its varied activities.

2. **A pedestrian-friendly environment**
   Maintain a small town atmosphere where neighbor can meet neighbor and sidewalk conversations are normal fair in daily life. 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.

   Badin 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 Badin'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.

   Provide trail connections to all sections of Town and the surrounding environs. Improve street conditions and build trails to connect to areas like Morrow Mountain State Park. Provide Wifi coverage to allow people to enjoy a mobile workplace. Encourage the use of scooters and golf carts for basic in-town transportation needs, and police patrol on ATVs.

3. **A unique heritage preserved and celebrated**
   Preserve and restore the unique assets of the Town and its surroundings, such as Native American archaeological sites, state parklands, and unique Industrial Era architecture and urban form. Enhance their exposure through promotion, interpretive tours, museums, cultural events and greater pedestrian accessibility.

4. **A regional destination for tourism**
   Badin desires to serve its own community and the region by providing greater access to Badin Lake. Through the improvement of public destination points along its share of the Lake shoreline, Badin could attract more 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.

Develop recreational and historical interests to attract visitors. Create hiking, camping, kayaking and golfing opportunities, and attractions such as an amphitheatre, a restored vintage theatre, and an extensive trail system.

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

- **A compelling tool** to promote the Town's pedestrian vision
- **An effective source** for educating decision makers and the general public about the value and methods of making Badin a pedestrian-friendly community
- **A clear blueprint** for the revision of Town ordinances and policies that address development in order that all will support the same unified goals
- **A comprehensive guide** to the implementation and improvement of pedestrian routes and amenities
- **A 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:

1. Walkability and connectivity become guiding principles for decision-making, so that walking is a practical option as a transportation choice.
2. Pedestrian safety is made a top priority, so that pedestrians can feel safe accessing downtown business areas, and other areas in Town.
3. Pedestrian facilities become accessible to all members of the community.
4. 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.
5. The Badin pedestrian network is linked, where appropriate, to larger county and regional networks.

6. The Badin 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.
7. Badin clearly offers to residents and visitors the features that make life in the community rewarding.

THE SCOPE

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

1. Policy and ordinance revision
2. Participation 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 METHOD

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 Council 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 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.

1.4 Benefits of a Pedestrian Lifestyle

Throughout the country and 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. Overcoming these barriers requires more than simply building more sidewalks or 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 practical, safe and convenient, and brings vitality back to the streets.

Walkable towns present numerous advantages to their citizens and provide many perks that attract visitors. They offer valuable incentives to prospective residents and businesses. Investments in a community through pedestrian-oriented improvements can, in just a few short years, show visible and economic results. Though a town like Badin may already posses many pedestrian-friendly qualities, those attributes can be improved upon in substantial ways. Such improvements would help make the Badin community healthier, more vibrant and a more attractive place to live, visit, work and own a business.

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

1. **Local Economy**
   Retail and commercial developers have learned that walkable context sells. Pedestrian-oriented streets encourage shoppers to linger and enjoy the setting. 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, pedestrian-oriented communities are more likely to attract as new residents the type of people most likely to help stimulate the local economy. Badin already has a close-knit pattern of walkable streets. The area also includes a significant amount of land likely to be available for redevelopment in the foreseeable future. If Badin's existing pattern of mixed land-use in a loose grid street network were carefully expanded into these re-developing properties, the Town would grow in a way that reflects its historic heritage and current charm. Such a community, set amidst tourist attractions like Badin Lake, Badin Inn Golf Resort & Club, and Morrow Mountain State Park, would draw more visitors from around the region and State and the smaller-scale commercial development that thrives in tourism economies.

2. **Safety**
   Drivers familiar with a community learn which streets are generally more populated with pedestrian traffic. The more pedestrians likely to be encountered, the more cautious most 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.

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 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 an even more significant part of daily life in Badin, 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, other pedestrian amenities and, most importantly, a mix of significant destinations within close proximity of each other, walking becomes a safer and more reasonable option, particularly to those who need it most.

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 around the car. Walkable communities 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 connectivity in future developments in Badin will help the current system of streets function best for both pedestrians and vehicles.

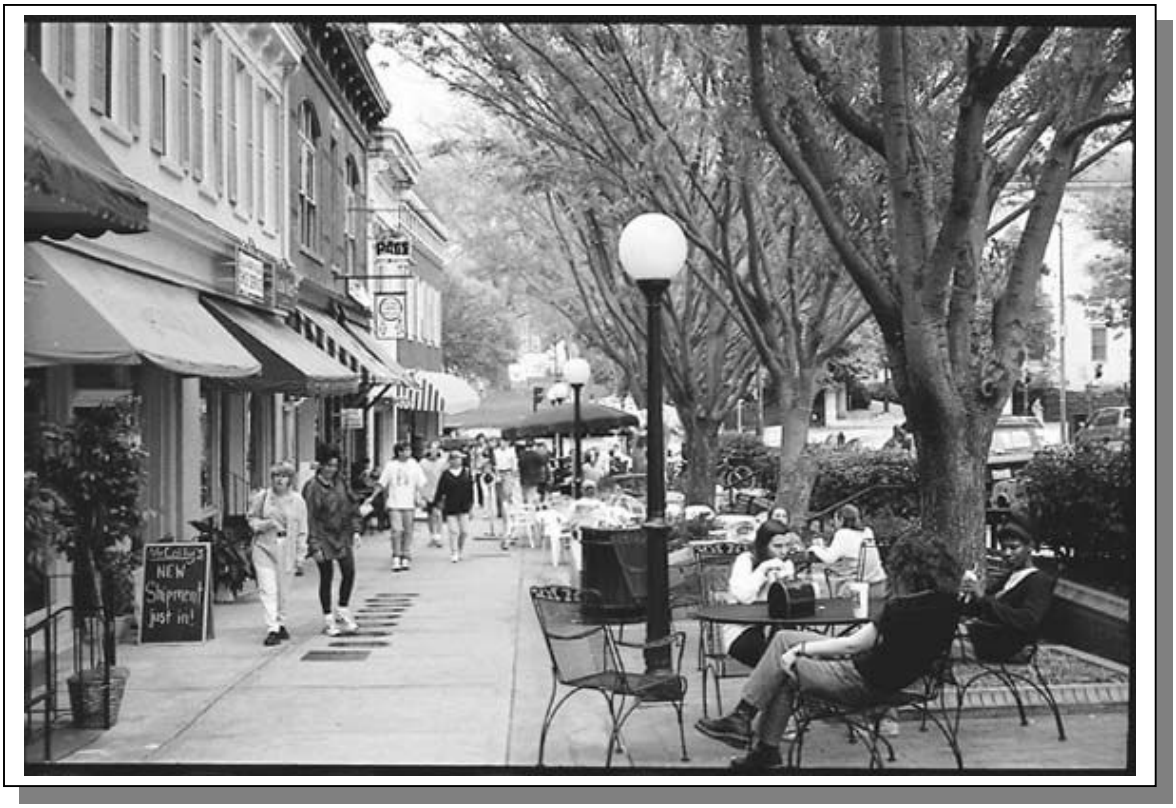
8. **Cultural and Community Life**
   Towns that feature interesting streets and public spaces with active pedestrian life become vibrant cultural and economic centers that draw visitors from the surrounding

region. This is particularly true when these towns offer unique natural features, like Badin Lake and Morrow Mountain State Park.

9. Transportation

Walkable communities have the most affordable and most efficient transportation system available. And as Badin continues to develop around walkable commercial 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 every economic, social, or political ill 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.



Part 2: CURRENT CONDITIONS

2.1 Existing Conditions and Trends

1. CONDITIONS AND TRENDS IN GENERAL

The **Town of Badin** rests about six miles northeast of the City of Albemarle in Stanly County, North Carolina. It is nestled along the shores of Badin Lake of the Yadkin River at the western edge of the Uwharrie National Park. The terrain of the Town is somewhat hilly and rises steeply to the east and south toward the River and toward Morrow Mountain State Park. Much of the community is surrounded by forestland.

Both the Town and the Lake owe their origins to the dam, built at a narrow spot in the River, to generate electricity for the production of aluminum. The Town that grew up around this early twentieth century industry continues to display the legacy of its origins. Like most American towns founded before the advent of the automobile culture, Badin has a typical compact layout with a mix of civic, residential and commercial buildings tucked neatly together and within easy walking distance of each other. Unique to Badin, however, is the collection of French-influenced architecture that owes its origins to L'Aluminum Francaise, the company that planned the Town. But in addition to these historic characteristics, a third aspect of Badin's legacy has also been preserved. The Town was originally laid out into two distinct communities: one black, one white. These communities remain divided to this day by the monolithic presence of the Alcoa Plant.

Alcoa Badin Works

From its inception, the life and prosperity of the Town of Badin has been inextricably linked to the aluminum plant that engendered the community. Now, with the approaching closure of the Alcoa Badin Works, the Town finds itself at a definitive crossroads in its history.

The **population** of Badin reached an early peak of nearly 5,000 before workers had the opportunity to live and commute from other areas. By 2005, the number of residents had decreased to 1,964. Much of the

population decline has occurred in the Town's west side minority community. While Badin's population is declining, it is also growing older. According to the 2000 census, about 20% of its populace is below 16 years of age, about the same as the state average, but more than 18% of Badin's residents are over the age of 65. This percentage significantly exceeds the state average of only 12%. Badin's average age resident is nearly 40 compared to the national average of 36.

The decline over the years in the Town's population is, like all things Badin, linked to the fate of Alcoa Badin Works, its primary **employment center**. In the past, over 1000 workers were employed at the Badin plant. But as of the drafting of this Plan, there are only 57 remaining. Other primary employment centers for the Town include the Badin Inn Golf Resort & Club, and the Yadkin Dam APGI.

Commuters make up a significant percentage of the working population in Badin. Most of those travel by car to Albemarle, though some portion work in Norwood, New London, and other Stanly County destinations. Badin workers also commute to employment centers in neighboring counties, including Charlotte.

Despite the need for many of its citizens to leave the area daily for employment, the Town of Badin itself has much to offer its residents and visitors in terms of natural and cultural resources. **Residential development** pressure is currently low as the Town endures an uncertain economic future. However, with all the community's assets, the potential is strong for the Town to attract additional residential and resort development. Across the Yadkin River in adjacent Montgomery County, a very large residential development is currently underway including 1200 new homes in a golf course community. But for now, residential development in Badin is largely contained within the town's historic layout.

The **street network** in Badin forms a fairly tight but irregular pattern. West Badin features a strong rectangular grid, while its eastern counterpart presents a curvilinear lacework. Both communities offer an interconnected grid of streets, with short and easily negotiated blocks, providing the pedestrian many choices of route. Further from the center, block lengths become longer and the flavor of Town becomes less urban. Many of Badin's primary historic civic buildings face Falls Road, which forms the central spine of Badin's east side. This wide central avenue terminates on its western end at NC Hwy 740 and the Alcoa Plant. In West Badin, Roosevelt Road serves as the primary spine, intersecting with the majority of the streets as it curves from east to north. Roosevelt forms an expansive "five-points" as it intersects with two other primary streets creating a logical town center area.

Sidewalks line most of Badin's historic streets. Construction plans and details for Badin's roads and sidewalks are dated between 1918 and 1919. The majority of existing sidewalks remain in fairly good condition. Sidewalk dimensions and character vary considerably depending upon location.

The **Existing Conditions Map** at the end of Part 2 of this Plan shows the location of all existing sidewalks. Most of Badin's east side between Spruce Street, Pine, and Boyden and including Falls Road, Tallassee and portions of Henderson are served by sidewalks on both sides of the street. A few additional sidewalks extend past this area. In West Badin,

sidewalks extend along a single side of the majority of streets south of Dewey. These two communities are tenuously connected by a lengthy continuous stretch of sidewalk that skirts the southern end of the Alcoa plant. It travels a distance of 0.6 miles from the end of Falls Road, down Hwy 740, and then up Wood Street to connect to Lee.

Along Falls Road from the Post Office to Hwy 740, paved sidewalks conditions are more generous, widening to about eight feet and even wider at storefronts. 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 maintenance and levels of compliance with current ADA standards.

Another distinctive feature of Badin is the original network of stone-lined **storm drains** that run parallel to the streets and sidewalks of some of the east side, particularly along Spruce Street. This historic feature lends a unique character to the street, but the system is in need of repair.

Falls Road

Spruce Street

Nantahala Street

Lee Street

Crosswalks exist at three strategic locations in Town. Two serve Badin Elementary School crossing Boyden and Henderson Streets. The third serves Alcoa connecting it to a major parking lot across Hwy 740. All three crosswalks are prominently striped and feature signs

to warn drivers of pedestrian activity. The Hwy 740 crosswalk also features pedestrian warning lights.

Currently, Badin has no formal walking **trails**, although off-road foot traffic is apparent between West Badin to Badin Lake traveling around the north side of the Alcoa plant. The Badin Inn Golf Resort and Club golf course has a system of asphalt cart paths that are likely utilized on occasion by non-golfers for pedestrian travel. There is also a short asphalt trail leading from the Alcoa Conference Center to the neighboring parking lot along Hwy 740. The physical conditions and layout of Badin, including all existing pedestrian facilities described in this section, are shown on the **Existing Conditions Map** at the end of Part 2.

Path to Alcoa Conference Center

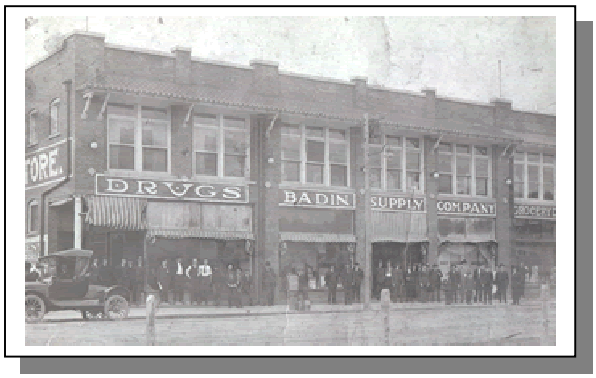
Beyond the rich historical interests of Badin's turn-of-the-century industrial origins, the area is also host to one of the oldest and most significant Native American archaeological sites in the eastern United States, according to the North Carolina State Historic Preservation Office. The **Hardaway Archaeological Site** is listed in the National Register of Historic Places as a National Historic Landmark. Alcoa owns the site but has donated 1.5 million of its artifacts to the University of North Carolina. According to research, the site served as a base camp where various hunting and gathering groups lived for extended periods. The high-quality stone from nearby outcrops in the Uwharrie Mountains provided a rich source for replenishing their supply of stone tools. At this point in time, no protective measures or interpretive improvements have been made to the Hardaway Site, Badin's landmark connection to the distant past.

Right now, it's Badin's future that is the focus of concern. Since the inception of this 20th century town, Badin's fate has been linked to the aluminum plant. But the state of the **Alcoa Badin Works facility** is on the brink of change and, consequently, the Town is facing a time of transition unprecedented in its history. In the summer of 2002, Alcoa Aluminum announced an idling of operations at Badin Works. Up until recently, it has maintained a minimal level of employment at the facility. On July 30th of 2007, Alcoa laid off the remaining employees at the Badin Plant. The lay off, however, did not affect the hydroelectric operations in the Badin area.

Badin's ties to the industry that founded it run deep and exert a pervasive influence to this day. Aside from the industrial complex and conference center at the heart of Town, Alcoa's physical presence is evident throughout the community, subtly in street right-of-ways and visibly in empty lawns scattered throughout Town, or forest lands that hem in its east side. Together with its sister power company, APGI, Alcoa owns a substantial percentage of Badin property (See **Appendix** for map of holdings). Whatever plans are made for the future of Badin – a future without Alcoa – they must take these properties into account.

2. ORIGIN-DESTINATION POINTS

Many of the most visited destination points within Badin are located along the first block of **Falls Road**, which runs about two tenths of a mile from its beginning at Hwy 740 to the five points where Boyden, Pine and Walnut intersect with it. Formerly, this main street and its vicinity (Yadkin Court) was lined with commercial buildings, but many of those structures were purchased by Alcoa and replaced with parking lots for their commuting workers. Still, a variety of prominent places are located along or immediately adjacent to this broad central avenue section. They include:



Yadkin Court

Falls Road today

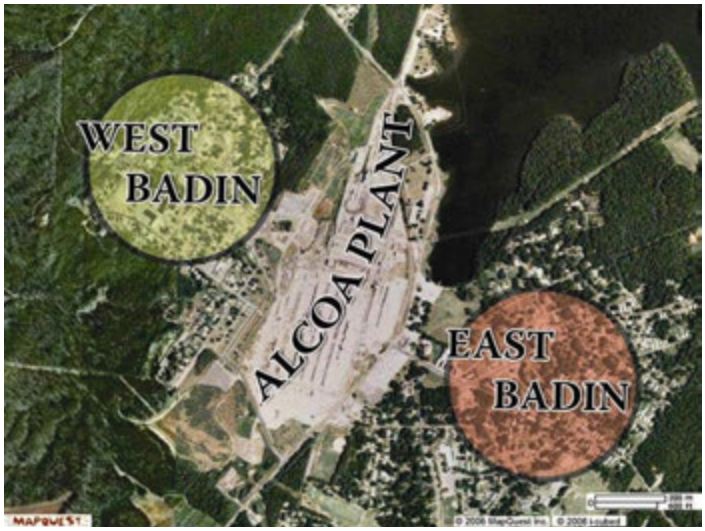
- Town Hall
- Badin Historic Museum Complex:
  - Historic Museum
  - Quadraplex Museum
  - Firehouse Museum
- Post Office
- Library
- Alcoa Conference Center
- Badin Baptist Church
- Various businesses

The Post Office occupies the most prominent site in Town, at the focal point of Falls Road. Formerly this was the site of the famous Badin Theatre, which was demolished in 1959. Badin Elementary School is only a short block away from the Post Office, as is Union Hall. In less than five minutes, one can also walk to three park areas, a ball field, the Badin Inn Golf Resort and Club entrance, the Lake Badin boat landing, the Fire Station, additional churches and a large portion of the residential district.

West Badin's five points is formed at the intersection of Roosevelt, Dewey and Mayo. The Community Center is located at this center of West Badin, and three churches are located within 1/10 mile. West Badin School and the Community Park, and additional churches, are located within a five-minute walk.

Additional noteworthy destinations within Town include the Picnic & Swimming Access Area at the north end of Badin Works, and the Badin Inn Golf Resort & Club at the southeast side of Town. Of interest just outside of Town are Morrow Mountain State Park, Palmerville, and the Narrows (refer to the **Existing Conditions Map** at the end of Part 2).

3. SPECIFIC PEDESTRIAN BARRIERS AND CONSTRAINTS



By far, the single most pervasive barrier to pedestrian mobility within Badin is the **Alcoa Plant.** The small and compact nature of Badin, coupled with its generally tight interwoven street network lined with sidewalks, in general, makes the Town very easy to traverse by foot. However, Badin is a divided community in a very definite sense. While pedestrians in many communities must deal with the physical barrier presented by a busy central road — often a state highway — the barrier that divides Badin is an uncrossable monolithic tract of land nearly one mile long by a third of a mile wide. Alcoa Badin Works stretches from one side of Town to the other. The mill creates a visual and very physical boundary dividing the Town into two socially and historically distinct communities. To reach the center of one community from the other, a pedestrian must walk ¾ of a mile around the mill's southern end, where there is very little else to see except the mill itself. Safety along this long stretch of lonely sidewalk beside the mill may be a concern to some potential travelers or parents, but there is currently no other route to choose from. No established pedestrian linkage exists around the north end of the mill.

Alcoa Badin Works viewed from West Badin

If the Alcoa Badin Works closes and the land is considered for redevelopment, brownfield conditions could potentially impede that redevelopment for many years. The issue of lingering pollutants resulting from decades of aluminum production would need to be resolved before most redevopment opportunities could be realized.

The Alcoa mill presents an enormous challenge to pedestrians, and to the Town as a whole in additional and even more profound ways. But there are other barriers in Badin that inhibit safe, practical and comfortable walking, which also require attention.

Highway 740 at Falls Road looking south toward the crosswalk

Highway 740 runs along the eastern edge of Badin Works, skirting the Town from north to south. The highway connects Badin to New London and Richfield toward the northwest, and to the City of Albemarle to the southwest. This route sees a traffic count of roughly 2900 (north of Falls Road) to 3500 (south of Falls Road) vehicles per day. This amount of traffic presents some degree of concern to pedestrians crossing this highway. Alcoa recognized this when they installed a flashing warning light to protect their workers who use the pedestrian crossing from the parking lot across the highway. This crosswalk adequately serves the Alcoa parking lot, but it is located far from other desirable crossing points: over ¼ mile from Wood Street, and over ½ mile form the Picnic and Swimming Access Area. The nearest intersection is Falls Road, but for most pedestrians approaching from the north side, who want to cross the highway to access Falls Road, the additional distance they would need to cover to utilize this crosswalk is excessive. They are more likely to ignore this inconveniently located facility.

Though NCDOT has received zero reports of vehicular crashes within the Town involving pedestrians since as far back as 1990, citizens of Badin are concerned about a number of local situations that exhibit a dangerous potential for injury to pedestrians.

Much concern has been expressed over the situation that develops during the daily pick up and drop off procedures at **Badin Elementary School**. During peak commuting hours (7:30-8:30 am and 2:15-3:15 pm), students and parents entering and leaving the school, along with faculty and other school employees facilitating the process, are routinely required to negotiate congested traffic conditions in a confined area.

West Badin Community Park is a major pedestrian draw for this community, but is inadequately accessible by sidewalks. Its northern and western sides have no sidewalks at all. To access the park from its north side, a pedestrian is forced to walk along the side of Dewey Street. Pedestrians in the roadway are at a particular risk along this blind curve that consists of a combination of horizontal and vertical curve that begins west of Mayo Street. The Park can be alternately approached from the east along Mayo Street, but there is a large gap in the sidewalk that must be negotiated on this steeply sloped road.

Nantahala Street just west of Tallassee is notoriously dangerous for its hidden curve, particularly for pedestrians who have no sidewalk to use at this point. A warning signal has been placed here but conditions remain worrisome to local residents.

Southern end of Alcoa Badin Works at Hwy 740 and Wood Street, with utility and stormwater structures

The **corner of Wood Street and Hwy 740** is the most critical point of pedestrian linkage between the east and west sides of Badin. A number of conditions, however, make it a very tenuous connection. The distance to this point from populated areas on either side of Town is quite lengthy. The area is, therefore, isolated and potentially unsafe. Contributing to these unsafe conditions is the sharp corner that must be negotiated with limited site distance, obscured as it is by tall plantings and a steep cross-slope. Also, a nearby concrete stormwater structure poses a potential threat for lone travelers or children. This stretch of sidewalk is also broken and overgrown in many places. In addition, there is very little to offer pedestrians in terms of interest or comfort on this lengthy route that rounds the southern end of the Alcoa Badin Works facility.

Southern approach to Badin on Hwy 740

Despite the particular negative conditions of this location briefly described here, the primary issue concerning this area is that it plays such a poor but prominent role in Badin's overall pedestrian system. It is the only connection between Badin's twin communities. Coincidentally, it is also the southern gateway to the community for travelers on Hwy 740.

4. GENERAL CONCERNS ABOUT PEDESTRIAN CONDITIONS:

The particular areas of need described above focus on specific locations, but they are all part of a larger system that requires attention on a number of fronts. The general conditions listed below each exert a negative influence on the community and limit pedestrian activity. Each may contribute in some way to the reality or perception that walking is not as safe, practical or enjoyable as it should be. Each may inhibit citizens who find themselves with no other choice of transportation, from making a necessary or desired trip. Each may discourage those on the cusp of a decision between walking and driving, to make the effort on foot.

1.) Gaps in the current sidewalk system – the specific example mentioned above of Nantahala Street between Tallassee and Hwy 740 provides a clear illustration of the potential danger of gaps in the sidewalk system. Gaps can also pose a minor inconvenience to the physically disabled.

2.) Many sidewalks are in need of repair.

3.) Many existing sidewalks are inadequately lit. Lighting conditions are repeatedly cited as inadequate about Town. Aside from the tall "cobra" lights hwy 740, and the existing lights lining Falls Road that add illumination and charm, street lighting in the rest of Town is described as "hit and miss". Street names are reportedly in dire need of illumination.

4.) Many existing sidewalks permit too narrow a passage, whether by obstruction or original design, to meet ADA requirements for physically impaired pedestrians or to permit more than one pedestrian walking side-by-side.

5.) Limited access to Badin Lake particularly from West Badin.

6.) No formal trail system exists.

7.) Primary streets generally lack street trees.

Sidewalk gap on Nantahala at Tallassee

Obstructed and narrow sidewalk near Badin Elementary School

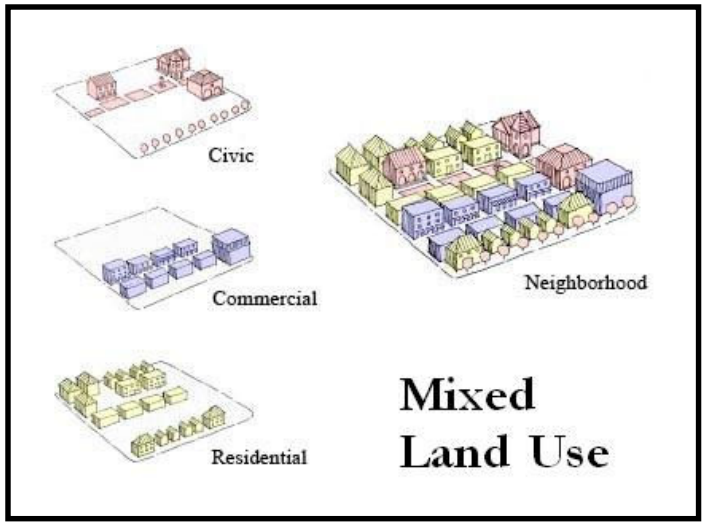
2.2 Current Policies, Ordinances & Plans

ZONING ORDINANCE

Badin's Official Zoning Ordinance, approved in 1999, is the most binding legal document affecting the contemporary form of the Town and its future development patterns. The degree to which Badin will retain its existing pedestrian-friendly features – with all the benefits thereof – as it adapts to changing economic and social conditions, will depend upon the continuing development of this document. A wide variety of pedestrian-related issues can be guided and directed by municipal zoning and subdivision ordinances. As it is, the Badin Ordinance currently addresses only a few of those issues.

Issue 1: Mix of Land Uses

Chapter 3 of the Zoning Ordinance defines seven distinct Zoning 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 varying uses presents fewer opportunities for pedestrians to walk from one use to another (i.e. "being able to walk to the corner store.") The Town of Badin is currently compact enough to permit a walkable proximity of uses. But, as the Town expands, the growing physical distances between limited use zones will increasingly necessitate the use of a car. All too often, such scenarios lend themselves to "strip commercial" development along highways, which are designed for the motorist and not the pedestrian.

Issue 2: Building Setbacks

Section 4.3 of the Zoning Ordinance describes 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. Such an arrangement deteriorates street definition, making pedestrian use uncomfortable, unsafe and impractical.

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 3: Off-Street Parking

Chapter 7 of The Town's Zoning Ordinance – OFF-STREET PARKING AND LOADING REQUIREMENTS – governs various issues related to parking including location, sharing of, dimensions and general design requirements of spaces and aisles, surfaces, number required, and associated landscaping.

Parking lots have a significant impact on the pedestrian-friendliness of a community, in addition to the degenerative environmental impacts of associated impervious pavement, maintenance costs, and a less-than-profitable use of valuable commercial space. Parking lots may provide motorists a convenience, but they contribute to a landscape that is barren, uncomfortable, unsafe and inconvenient to pedestrians. The following strictly parking-related issues are especially relevant for pedestrian planning.

1. **Number of off-street spaces required per use –**

   ZONING ORDINANCE:
   Sec. 7.1.12 Off-Street Parking Space Requirements
   Table 2 of the Ordinance provides six pages of requirements for minimum number of parking spaces permitted by right. The required number of spaces is set by group number corresponding to group code in Table #1 of Chapter 4. Group codes are

based solely upon building use classification irrespective of zoning districts. The Ordinance sets no limit on maximum number of parking spaces allowed.

COMMENTS:

A. 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. Pedestrian-friendly 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.

B. Typical allotments of required parking spaces per use is often found to be excessive for most uses. 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.

2. Parking Space Dimensions –

ZONING ORDINANCE:

Sec. 7.1.6 A. Parking Space Dimensions

> "Each parking space (other than those designed for the disabled) shall contain a rectangular area at least **twenty** (**19**)* feet long and ten (10) feet wide. Lines demarcating parking spaces may be drawn at various angles in relation to curbs or aisles, so long as the parking spaces so created contain within them the rectangular area required by this section:"
> (* mistake in the ordinance)

COMMENTS:

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 accommodating larger privately owned vehicles.

3. Efficient Parking Strategies –

Various parking management strategies can be employed to meet parking needs and make the most efficient use of existing parking spaces. The Zoning Ordinance is currently using some of these strategies.

ZONING ORDINANCE:

Sec. 7.1.5 Cooperative Parking

"Cooperative provisions for off-street parking may be made by contract between two or more adjacent property owners."

COMMENTS:

Allowing landowners the opportunity to voluntarily share parking spaces helps decrease the total number of parking spaces in the area while still satisfying the parking needs of the uses. This ordinance encourages common sense cooperation and helps eliminate unnecessary paved surfaces.

ZONING ORDINANCE:

Sec. 7.1.4 Location of Required Parking

"Off-street parking spaces shall generally be provided on the same lot as the principal use. In instances where such parking for a principal non-residential use cannot be reasonably provided on the same lot, it may be provided on a separate lot. At least ½ of the required parking shall be provided on the lot containing the principal use or the satellite lot, provided said parking lies within a 300 foot walking distance to the lot containing the principal use, or 300 foot walking distance if the use served is allowed in residentially zoned areas or is any non-residential use seeking parking in a residentially zoned district (R-A - R-20, R-10)."

COMMENTS:

This section grants further flexibility to businesses without placing undue hardship on customers. Such flexibility encourages clustering of businesses and civic uses near a common parking area within a walkable proximity. Motorists can park in one location and conveniently walk from there to a variety of destinations. This ordinance also encourages a greater mix of uses within reach of residential areas.

ZONING ORDINANCE:

Sec. 7.1 Off-Street Parking, Loading and Storage Requirements

"Every new use shall require off-street parking, loading, and/or storage in compliance with these regulations. Any enlargement, expansion or alteration or change of an existing use shall also require off-street parking, loading, and/or storage space in compliance with these regulations. However, if the enlargement, alteration or expansion is of a use located in the C-B Zoning District, the use shall be exempt from providing additional off-street parking, loading, and/or storage space, as required in this Section."

COMMENTS:

This section provides some relaxation of parking requirements to uses in the C-B Zoning District. The Ordinance recognizes the physical confines of uses in this District but, in so doing, it also treats the area as a more urban (thus more pedestrian) zone, and therefore grants it a unique, more pedestrian-friendly status.

THOROUGHFARE REPORT FOR THE CITY OF ALBEMARLE

This report for the Albemarle Study Area was prepared by the North Carolina Department of Transportation (NCDOT) Statewide Planning Branch and was completed in May of 2002. The study area includes Albemarle, Badin, and surrounding areas southwest of Badin that NCDOT anticipates to become "urban" by the year 2025.

The Plan designates Falls Road and Hwy 740 as "major thoroughfares", meaning these roads are "designed to provide for the expeditious movement of high volumes of (vehicular) traffic within urban areas." Henderson Street (Valley Road) and the segment of Nantahala Street from Henderson to Hwy 740 are defined as "minor thoroughfares". Hwy 740 south of Falls Road, along with Henderson, Nantahala, Boyden Street and Falls Road from Boyden to Hwy 740 are designated as State Bicycle Routes. The Plan makes no recommendations for improvements of these roads or any other in the Badin area.

THE STANLY COUNTY LAND USE PLAN

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."

Selected land use principles from the County Plan that particularly relate to pedestrian issues in the Town of Badin are described below. The numbers shown correspond to the those of the County Plan.

#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.
The Badin Lake shoreline has been identified as part of a valuable countywide asset, and should be protected as an ecological and cultural resource worthy of care and 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.
In Badin, and other towns 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, post offices, 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.

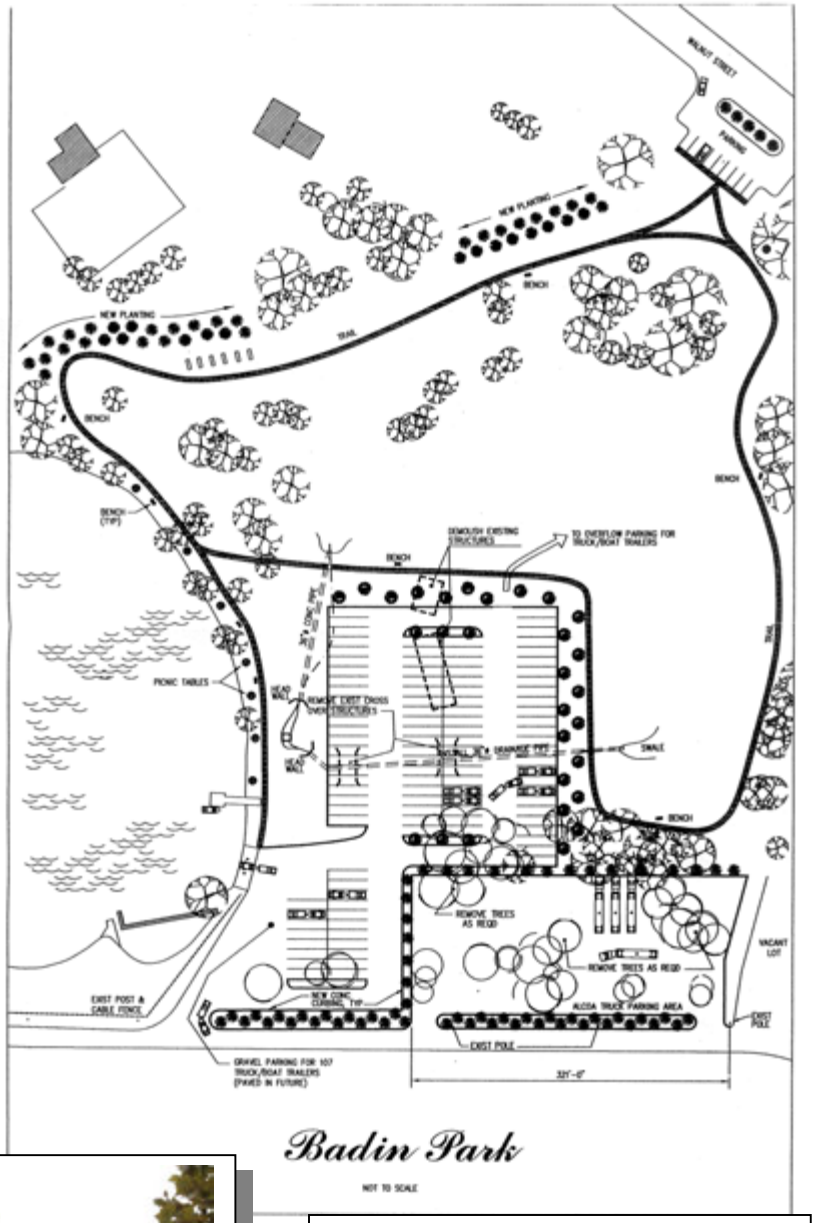
#7. The provision of parks, recreation, and open space needs to be an element of future land use planning in Stanly County.
Among the other benefits of parks and open space, these lands can provide valuable pedestrian linkages between schools, residential neighborhoods, retail and services, and active 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 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. This study is described in the next section of the Pedestrian Plan.

BADIN PARK PLAN

A new recreational centerpiece for Badin is planned for the area between Falls Road, Hwy 740, Walnut Road and the Lake. The plan for Badin Park includes a walking path that lines an expansive green, with picnic shelters, a fenced playground, restrooms, vending machines, and seating areas. Its pedestrian trail will encircle the Park, running from the improved boat landing, along a shoreline picnic area, to new parking facilities on Walnut Street and destinations along Falls Road. The Park will serve as a strong pedestrian link between some of Badin's most prominent destination points.



Badin Lake Boat Landing

Badin Park construction preliminaries

2.3 Current Projects, Programs & Events

With the dramatic events that have unfolded in Badin in the last few years, particularly with respect to its economy, much attention has recently been focused upon the Town. A number of economic and culturally based studies have been completed, assessing the Town's resources and proposing ways it might adapt and eventually prosper in its changing economic conditions.

THE BADIN SMALL TOWN AREA REVITALIZATION (STAR) PROJECT

This program, developed by the Yadkin-Pee Dee Lakes Project and modeled on the National Main Street Program, was intended to improve and strengthen the physical and economic health of the community. Its key components included: economic development, recreation, marketing, historic preservation and design. The Project recognized Badin's key resources as: historic/heritage, natural/scenic/recreational, cultural/human. The STAR Project was to include a Strategic Plan for Revitalization that focused on long-term and incremental projects

As a precursor to this effort, the UNC-Charlotte Urban Institute completed a visioning project from April through August 2005. The Institute recorded its findings in a November 2005 report entitled "Drawing from the Past to Past to Plan for the Future – An Inventory of Historic, Natural and Cultural Resources".

No further work has been reported in this effort.

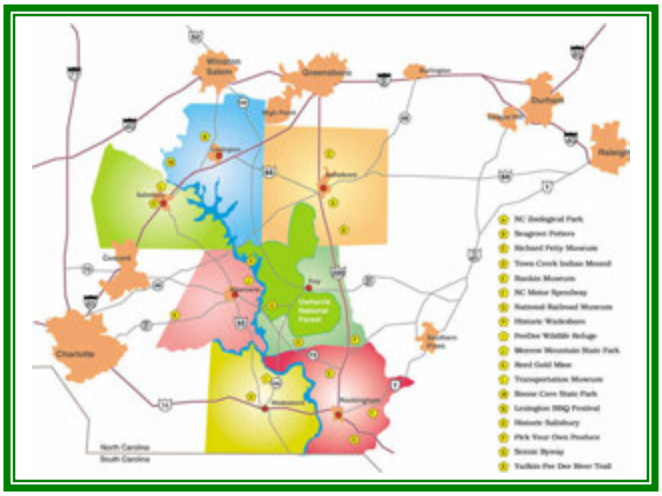
FERC RELICENSING

The Yadkin Hydroelectric Project FERC No. 2197 Application for License provides a description of recreation resources and maps of their locations. Those resources listed with the Town of Badin Limits and immediate vicinity include:

N-28 Palmerville Access Area
N-29 Badin Lake Swim and Picnic Area
N-30 Badin Lake Boat Access
N-31 Narrows Dam Canoe Portage

For further information, see:
http://www.alcoa.com/yadkin/en/info_page/online_documents.asp

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 Badin and recommends the following:

- 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.

THE BADIN BULLETIN

This monthly posting alerts citizens and potential visitors to various news and events around Town. Many of the events described are outdoor activities. The Bulletin recently posted a this article:

School Zone Warning!

If you ride anywhere near Badin Elementary School we are asking everyone to please slow down in the school zone area! There is a growing concern of how fast cars are riding in the school zone. Please obey all speed limits and watch for the children. We want a safe environment for our kids and drivers as well. Slow down it could save a life. Thank You.

BETTER BADIN

Better Badin is a Foundation of the Carolinas Approved Organization. For more information, contact Calvin Deese at 704-985-4789 or visit http://72.14.209.104/search?q=cache:L5ZTYoQ9N1EJ:www.visitbadin.com/images/VillagerFeb2007.pdf+%22better+badin%22&hl=en&ct=clnk&cd=10&gl=us

BADIN FLOWER POT BRIGADE

Downtown area flowers and shrubs have a small but dedicated group of volunteers who care for them throughout the year. The Brigade actively recruits for help with watering during the summer months and, on a special workday before the Best of Badin Festival, the group spreads mulch, performs maintenance on shrubbery, and prepares winter plantings. Their work beautifies the civic center of town, encouraging citizens to enjoy and take pride in their community.

As a member government of the **Rocky River Rural Planning Organization** (RRRPO), the Town of Badin 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.

The **Badin Police Department** conducts various safety-related programs, such as the Gang Awareness program.

Badin's Neighborhood Watch Program helps keep community safer for homeowners and for pedestrians.

Badin is home to a number of **annual events** that draw crowds of participants on foot. Among them:

- **The Best of Badin Festival** is a two-day annual outdoor event that draws thousands. 2007 marks the thirteenth year of the event.
- **Family Fun Day in the Park** beside Badin Lake is a free event hosted by volunteers of the Badin's Revitalization Committee. The event takes place in the planned park beside Badin Lake and features activities for all ages including boat and carriage rides.
- **Little League Baseball** – Badin Recreational Park is home to several leagues with regular events for boys and girls throughout the season that draw crowds to the field on Dogwood Dr.
- **Numerous fishing events**, including the Bass Masters Classic, are annually held on Badin Lake.
- **Badin Inn Golf Resort and Club** hosts numerous golf tournaments throughout the season.

2.4 Key Areas & Issues

As it exists today, Badin offers many features that make the Town a very inviting place for pedestrians. Sidewalks line the Town's main streets. Awnings shade downtown building entrances. Mature trees line many of its streets. Other pedestrian-friendly elements in the Town may be less overt but have an even more profound impact on Badin's walkability. These features deserve the spotlight in order that their value can be more clearly understood, and their characteristics 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**
   The east and west sides of Badin both exhibit a fairly compact urban form. On the east side, 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 each other. West Badin is also compact within a very walkable radius.

2. **Tightly interconnected street network**
   The existing grid of streets and short blocks within either side of Town provides a very well connected network for vehicles as well as pedestrians. This arrangement allows pedestrians to visit a variety of destinations on the same walking trip, in an 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. **Existing sidewalk network**
   Badin's existing sidewalk system already connects many key destination points to surrounding neighborhoods. This established centralized network provides a substantial core for a pedestrian system that could branch out to serve even more destinations.

4. **Large redevelopable parcels within Town**
   While the Alcoa Badin Works facility presents Badin with a tremendous challenge to the Town's unity and cross-town connectivity, the land it occupies also provides Badin with an enormous opportunity. In addition to the industrial site, this opportunity extends as well to the scores of other Alcoa properties sprinkled throughout Town. These substantial tracts present prime opportunities for redevelopment, and give the Town great flexibility to shape its future. While complete redevelopment may take many years, depending upon the rate of any required clean-up operations, in the meantime, these lands could provide intermediate opportunities for recreational uses, including a fitness trail circuit that could begin to knit the isolated sides of Town together. The main Alcoa site and the various other Alcoa owned parcels will face greater development pressure as the area becomes increasingly desirable to potential residents attracted to Badin's assets, particularly its lake setting.

5. **Badin Lake**
   As the population of the region grows, lake towns like Badin will become ever more desirable. Lake frontage has traditionally drawn part-time residents to other towns on the Yadkin-Pee Dee, such as Norwood on Lake Tillery to the south, from population centers like Charlotte. Many of those vacation homes along the Lake have turned into year-around residencies. Lake amenities like public access points and boardwalks increase the value of the Lake for all citizens of Badin.

6. **Badin Park**
   The new park and its associated improvements planned for the current boat landing will draws residents of all ages for recreation, exercise, events and outdoor social gatherings, and provide greater access to Badin Lake. The Park will occupy a central location in the Town and serve as a landmark for Badin to those traveling through Town on Highway 740. In addition to its Lake frontage, the Park will be adjacent to primary civic buildings, established residential neighborhoods, retail businesses, and properties that will someday likely be prime for redevelopment.

7. **Scenic and recreational resources**
   Badin is a nexus for vacation and recreational opportunities. Known as the "French-flavored town at the foot of the Uwharries", the community is situated just across the Yadkin River from the Uwharrie National Forest. Just south of town, down the North Carolina Scenic Byway, Morrow Mountain State Park offers scenic hiking and equestrian trails and historic sites, opportunities for camping, boat rentals, and swimming. Interesting hiking trails in the wilds can be found even closer at the Narrows in the Yadkin-Pee Dee River. Boating, fishing and swimming opportunities are also available on Badin Lake. The Town is also home to the Badin Inn Golf Resort and Club, which features an eighteen-hole golf course.

8. **Cultural history**
   Badin exhibits a living history with its many examples of turn-of-the-century French architecture complete with its original system of rock-lined storm drains. Though not all of its historical landmark treasures are still standing, the Town still largely exists in its original layout and is listed on the National Register of Historic Places. Ancient Native American history is also represented among the nearby Hardaway ruins. Findings there have significantly contributed to the body of scientific knowledge regarding ancient peoples in eastern North America.

PRIMARY PEDESTRIAN ISSUES

The specific factors that contribute to the overall pedestrian quality of life for a community are numerous and interwoven. In order to make meaningful and lasting improvements to pedestrian conditions, these individual component issues and their relationships to one another must be identified and understood. The major trends that led to current conditions, and will continue to shape the future, must be recognized and anticipated. The following is

a brief summary of the issues and needs that the Badin Pedestrian Plan **Part 3: Plan Recommendations** will focus upon.

1. **Neighborhood Connectivity**
   While the neighborhoods in Badin are compact and well connected within themselves, the over-arching pedestrian issue of the Town is its stark, physical division into two distinct communities. The division feeds a disparity in the communities where many desirable destinations convenient to one are at a challenging distance to the other. This condition has been true since the Town's inception and has forged its social framework. The issue goes hand in hand with questions regarding the future of the Alcoa Badin Works property. Badin's physical consolidation, to whatever degree it takes place, will depend upon how this land will eventually pass into new uses.

2. **Sidewalk Conditions and Current Pedestrian Facilities**
   - More sidewalks are needed to accommodate pedestrian traffic in many corridors throughout town where there are currently none available.
   - A number of existing sidewalks are uneven, broken up, or are impeded by telephone poles or overgrown shrubbery that make passage unmanageable or unsafe.
   - Badin has very little to offer in terms of off-road paths and trails.
   - Certain streets lack adequate speed warnings and controls for drivers making pedestrian conditions unsafe.

3. **Street Crossings**
   - Some existing crosswalks are inadequately visible to drivers.
   - Some crosswalks are inconveniently located for many pedestrians.
   - Additional crosswalks are needed at select locations.

4. **Lighting**
   - Lighting is inadequate for safe and comfortable evening pedestrian use throughout most of the Town.

5. **Parks**
   - Both sides of Town are in need of more parks and more recreation facilities within existing park areas.
   - Access to existing parks needs improvement particularly for the safety of children.

6. **Economic Future**
   With all the uncertainty surrounding the Alcoa Badin Works and its properties, the future of Badin, particularly its economic future, hangs in a balance. While the threat of economic decline may loom in the wake of a total shutdown of Alcoa facilities, the Town must also plan for a contingency of growth and revitalization, particularly as Alcoa properties become available for redevelopment. With that possibility comes the potential for inappropriate redevelopment that compromises the integrity of the natural and cultural resources that makes Badin special. Were redevelopment to

occur in Traditional Neighborhood Development patterns (TND), they would tend to 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 Badin 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 Badin area, there is little pressure *not* to develop outside of the Town's current corporate limits. 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.

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

8. **Current development policy**
   The Badin Zoning Ordinance is the Town's primary tool to guide future development. However, this code provides very little guidance to support the Town's pedestrian vision. For Badin to continue as a town congenial to pedestrians for years to come, current development policy must be carefully scrutinized and amended with explicit pedestrians goals in mind.

9. **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.

PART 3: PLAN RECOMMENDATIONS

Communities can employ various strategies for implementing pedestrian improvements depending upon 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 current pedestrian barriers and constraints
3. 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 Badin has indicated a commitment to finding ways to integrate pedestrian needs into their comprehensive planning efforts through this Pedestrian Plan process, so that both current and future pedestrian needs are addressed. Additionally, the Town is committed to implementing policy tools to ensure that future development decisions strongly consider pedestrian interests. Through this process, the Town will work toward the realization of the overall vision and goals of the community by helping to engender a unified community where walking is not only a viable option but often the preferred way of getting to destination points. The process will help Badin grow as a community whose heritage is preserved and celebrated, and as a unique and attractive destination within the region.

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.

Citizens may be unfamiliar with how particular development patterns come about, or they may not realize how those forms of development may encourage or discourage pedestrian activity and lifestyle. And they may underestimate the power their community has to shape its own future development. This Pedestrian Plan is intended to convey options in urban design and describe the means of improving pedestrian conditions in Badin and, with those improvements, to see the increased civic and economic vitality of the Town itself.

3.1 Recommended Policies and Ordinance Modifications

To realize its pedestrian vision, the Town will need to ensure that its local plans, ordinances and policies are all coordinated and consistent regarding pedestrian travel. North Carolina 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 process 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.

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
   - Industry
   - Health
   - Safety
   - Recreation
   - Education
   - Aesthetics
   - Environment
   - Engineering and Design

   The purpose of the PNC is to raise public awareness of the Pedestrian Plan and its concerns, and to ensure 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: Badin Town Council appoints PNC members and invests them with the authority and charge to follow-up on the Pedestrian Plan.

2. **Develop and Adopt a Comprehensive Land Use Plan**
   Through a public participation planning process, the Town of Badin can establish a clear vision for a community and can document this vision in a comprehensive land use plan. Typically, such a plan will describe 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. High among the considerations of this Plan should be how the Town can best anticipate the redevelopment of the Alcoa properties.

   Pedestrian-related elements that could be included in the Plan are:
   - An examination of alternative growth and development scenarios and how they encourage and accommodate viable pedestrian activity.

- Economic development strategies, particularly for properties located in the central business district in the Falls Road area, the West Badin center, and along NC 740 and other major corridors.
- Coordination of all adopted policies and documents (plans, ordinances, etc.) that affect growth and development to ensure that these are consistent with the Pedestrian Plan vision statement and goals.
- Developing a prioritized implementation and funding schedule to help ensure the realization of implementation strategies called for in the Plan
- Descriptions of individual neighborhood and corridor development schemes

Implementation Strategy: Badin Town Council selects a qualified planning consultant to guide the Town through this collaborative planning process.

3. **Expand the Current Badin Zoning Ordinance into a Unified Development Ordinance with Subdivision Regulations.**
   In its current state, Badin's Zoning Ordinance cannot ensure that future development in Badin will follow the Town's traditional patterns, or meet the pedestrian Vision and Goals expressed in this Plan (see Part 1). Many issues are not addressed in the Ordinance, particularly ones guiding development of new properties or redevelopment of existing land uses. Up to this point in the Town's history, regulations to guide Badin's growth have been unessential. However, with the profound economic realities Badin may soon be facing, the Town must prepare itself for change. New development pressures will arise as Alcoa property becomes available for redevelopment, and as highway projects in Stanly County are implemented. Future highway projects including the eastern leg of NC 24/27 and the widening of NC 49 will mean a shorter commuting time from Badin to the Charlotte area and likely result in a push for new subdivisions in Badin's vicinity. In the current Zoning Ordinance, Planned Residential Development (Section 5.26) provides very minimal and subjective guidelines for subdivision development. By expanding the current Ordinance to include adequate subdivision regulations, Badin can help to preserve its unique character in the wake of development pressure.

Implementation Strategy: Badin Town Council selects a qualified planning consultant to guide the Town through this collaborative planning process.

4. **Engage in community and land use planning for redevelopment of the Alcoa Badin Works property and other large, under-developed parcels in Town.**
   Through a public participation process, the Town will need to 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. It is important that this public participation process be carried out in a timely fashion so that pedestrian-friendly strategies and facilities can be included in the planning of new development, rather than attempting costly and less-effectual pedestrian facility retrofits after the fact.

   Mixed-use zoning 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.

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 Board in discussions regarding these topics.
- Amend related regulatory documents as needed to incorporate the changes recommended (Items 2 & 3).

5. **Work with Stanly County on areas outside of Badin's incorporated area.**
It will be important to ensure that Badin's vision, as articulated in the Comprehensive Land Use Plan and the Pedestrian Plan, is consistent with development planned for or occurring immediately outside Badin's incorporated area. Badin can determine what happens within its corporate limits, 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 Badin 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 attractive places in which to live. The County's vision meshes extremely well with Badin's, but 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. Concentrating development within the incorporated limits will have a substantial impact on the viability and practicality of a pedestrian lifestyle within Badin, and on the quality of life in general both within Badin and around it.

Implementation Strategy:

- PNC shall monitor land development, and have frequent communication with the Stanly County Planning Department and Badin Planning Board.
- Adopt an Extra-Territorial Jurisdiction (ETJ)

6. **Address consistent Transportation Planning.**
The Town will need to monitor and ensure that the transportation planning carried out by NCDOT, the Rocky River RPO, and the Town itself is consistent with the adopted Pedestrian Plan, including future roadway plans, projects, and priorities. In some cases, it may be advisable to amend the Pedestrian Plan to conform to the planning of various agencies. Include the Pedestrian Plan as an expansion of the Comprehensive Transportation Plan as that is updated.

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

7. **Coordinate with Badin community stakeholders.**
   Stakeholders should include representatives of both the east and west communities of Badin, as well as the Police Department, Schools, Better Badin, Alcoa and other major employers, along with other organizations focused on pedestrian safety, outreach and education.

   Implementation Strategy:
   - PNC and Town staff shall work with stakeholders to educate the public on pedestrian safety issues. The Police Department can participate by distributing materials through their Community Policing program. The Schools can participate by distributing materials to their students and parents.

   - The Town shall announce any construction on new or existing pedestrian facilities on the Town's website, and at common gathering places such as the Post Office, the West Badin Community Center, and local restaurants. Other means of announcement my include flyers in utility bills, etc.

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

3.2 Recommended Programs

Pedestrian facilities, old or new, will receive greater use if pedestrian outreach programs are in place to encourage pedestrian activity, especially for those who are not accustomed to walking often. In addition to current events and programs hosted within the Town, the following programs are recommended.

Archaeology Days
Organize field trip events to the Historic Museum for Badin school children to be synchronized with Hardaway exhibit programs developing at the University of North Carolina. The Alcoa Foundation awarded UNC a grant for outreach programs to educate school children and the public about the 1.5 million artifacts Alcoa donated to the University's Research Laboratories of Archaeology, and about the original site from which those artifacts originated. Alcoa's outreach grant allows for the creation of a variety of inter-related programs at UNC, such as an "Archaeology Days" event and an exhibit on North Carolina's first people at local museums, a public television program and teacher education materials. These programs could be emulated in Badin, where it all began.
For more information about Archaeology Days, call 919-733-7450, or visit:
http://www.alcoa.com/yadkin/newsletters/newsletter_oct05.PDF and
http://www.thesnaponline.com/siteSearch/apstorysection/local_story_321115553.html

Historic Architectural Walking Tours
Badin's unique architectural heritage has much to communicate to architectural students and enthusiasts. Its location is convenient to UNC-Charlotte, UNC-Greensboro with its Historic Preservation and Museum Studies graduate program, and the University of North Carolina in Chapel Hill. Tours could encompass the Badin museum complex, particularly the Historic and Quadraplex Museums, and the various historic architectural examples through Town. Aside from the pedestrian activity such events would foster, these walking tours would help draw greater attention to Badin throughout the State as a cultural landmark.

Badin Museum Complex

The Alcoa Loop Group
When the Alcoa Loop Trail is complete (see **Comprehensive System Map**), it will provide an ideal route for all Badin residents to meet, socialize and exercise. As part of initial promotion for the Trail, the "Loop Group" would provide an organized opportunity to gather for a lap around the track. As part of the weekly event, refreshments could be provided by sponsoring area restaurants and served by volunteers. Printed T-shirts or ball caps could also be available to initial participants, along with area retail coupons. The Loop Group could also hold events like Special Olympics and charity relay races, walkathons and

marathons. Proceeds could be directed toward park or trail improvements. Such events would also draw attention to the healthy benefits of walking.

Walk a Kid to School event

On special days each year, "Better Badin", with the help of area restaurants, could provide school children breakfast before leading them on a community group walk to school. 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

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. Special days might be designated, like "Walking Wednesdays", on a weekly or monthly basis to encourage participation. 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, at (888) 274-4459, mllyles@mailaaa.com. Or visit AAA at:

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

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 the County), community colleges, Senior Centers, 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. For more information, call: (704) 986-3790.

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 needing. 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.

Provide Wireless Internet (Wifi) and trail webcam coverage.

Wifi allows people to enjoy a mobile workplace. Anyone working on a laptop computer can choose to work inside or outside, wirelessly, anywhere within the Wifi range. Wireless broadband access can be set up in areas where people are likely to want to gather outside, such as Badin Park and area restaurants. By offering free Internet service, the Town could attract more tourists such as Morrow Mountain State Park visitors. Wireless webcams can also work off of the same system and be incorporated into greenway trails. These "trailcams" would enhance public safety and provide promotion for greater trail use. Additionally, 911 call buttons could also be stationed along various parts of each trail.

3.3 Project Recommendations and Implementation Strategy

Before individual site-specific projects are considered, a broad description of recommended pedestrian initiatives for Badin 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 11: 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 or private land 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:

- **Install directional and warning signage** to reroute vehicular traffic away from critical pedestrian areas such as schools, to relieve vehicular congestion in these areas at peak pedestrian times, and to increase safety where conditions warrant.

- **Improve current crosswalk conditions** by relocating existing facilities as described in the **Individual Project Identification and Priority List,** re-striping faded markings, installing appropriate signage and warning signalization.

- **Construct sidewalks and improve sidewalk conditions** along existing streets in accordance with the Plan's priorities. Improvements may include:

a. Pavement condition and type
b. Path width
c. Lighting
d. Drainage
e. Clearance from obstructions
f. ADA compliance
g. Planter islands
h. Street trees and other landscaping
i. Trash cans, benches, and other "pedestrian furniture"

Long-term Project Types:

- **Construct pedestrian trails and supporting facilities** in acquired easements and right-of-way including proposed public destination points identified in the **Comprehensive System Map** and other desired destinations, such as the Narrows, Palmerville, and the Hardaway site once necessary improvements have been made.

  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 (or 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.

- **Central Business District (CBD) Improvements**
  Renovate downtown Falls Road. (See steps outlined in **Section 11: Falls Road Improvements/charette**).

- **Continue the Town street pattern** in conjunction with new private subdivision development. The tight lattice-work pattern of streets is designed to facilitate 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 a 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.

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 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 to increase connectivity and mix of land uses. The character of Badin to this day remains fairly true to its original compact design, but this condition may drastically change as Alcoa properties become available for redevelopment, or as further development occurs in neighboring parcels. If current Town ordinances are revised according to the **Recommended Policies and Ordinance Modifications** section of this Plan, new streets, trails and associated pedestrian facilities will become available to the Town through the development process, with minimal public expense. 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 street and trail alignments.

- **Establish right-of-way agreements for trails** with Alcoa and the sanitary sewer utility company to share existing utility and stream corridors. Currently, no public greenway/walking paths exist in the Badin area. Private paths exist at the Alcoa Conference Center linking it to its associated parking lot, and within the Badin Inn Golf Resort and Club golf course. There are no provisions in the Town's regulations for greenways, trails or open space. Badin 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.

- **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**

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 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 a 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.

3.4 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. Each of these factors is highly contingent upon the future of Alcoa Badin Works. However, despite the possible range of outcomes with Alcoa, and other 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. Greater pedestrian connectivity
2. Thorough accessibility to all potential user groups
3. Increased community identity, social interaction, and beautification
4. Increased pedestrian safety
5. Decreasing vehicular traffic and congestion that present obstacles to pedestrian use

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

1. Physical/geographic constraints
2. Potential for right-of-way acquisition
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. The projects recommended in this section will require more detailed design and, in many cases, acquisition of rights-of-way or easements. Some projects will also call for additional public input.

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 10 approval. For recommended procedures in acquiring right-of-way/easement, refer to **Project Recommendations and Implementation Strategy, Long-term Project Types** and **Funding Strategies.**

PRIORITY LIST OF BADIN PEDESTRIAN PROJECTS:

A. Badin School One-Way routing: Henderson and Boyden

1.) Determine optimal times for one-way traffic.

2.) For Henderson Street (State Road 1720), mail a written request for a temporary one-way ordinance. Include a brief description of the location. NCDOT will investigate the site and make a determination of appropriate changes. Mail improvement requests to:
NCDOT Assistant Division Traffic Engineer
716 West Main Street, Albemarle, NC 28001

3.) For Boyden Street, acquire and place appropriate signage for temporary one-way street use (according to MUTCD standards as stated above).

B. Boyden Street Crosswalk improvements

1.) Install crosswalk warning signage, signalization and striping.

C. Lagoon Walk (600 LF of sidewalk)

Create the shortest, most direct route around the southern end of Badin Works.

1.) Acquire sufficient width of right-of-way to construct sidewalk adjacent to existing industrial facilities to connect Wood Street sidewalk to Hwy. 740 sidewalk.

D. Nantahala signalized crosswalk on NC 740

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

2.) Relocate existing crosswalk on Hwy. 740, with its associated signage, signalization and striping to the intersection of Nantahala Street.

3.) Incorporate Fire Department call answering warning into signalization so that crosswalk signal can be used to warn and halt traffic during emergency action.

4.) Provide golf-cart crossing warning signage at crosswalk.

E. Nantahala sidewalk extension (500 LF of sidewalk)

1.) Identify parcel owners along south side of Nantahala Street from Tallassee Street to NC 740.

2.) Acquire sufficient width of right-of-way to construct sidewalk and planter strip.

3.) Extend existing Nantahala sidewalk to NC 740.

4.) Create planter strip between new sidewalk and back of curb.

5.) Plant selected street trees along length.

6.) Provide street lighting.

7.) Install warning signage at curve bend (near Tallassee intersection) to protect pedestrians.

F. Falls Road & Roosevelt Street business districts charette

The following steps are recommended for developing an overall master plan for Badin's Central Business District and Roosevelt Street Business District (CBDs). The master plan should include individual projects for implementation.

1.) Review current plans for development and improvements within the CBDs 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 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, Alcoa, 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.
    - Ensure consistent quality and style of improvements over both the Falls Road and Roosevelt Street CBDs.
    - 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 a comprehensive list of related issues, including:
    - Adjacent land uses
    - Physical connections to Badin Park
    - Acquisition of the Alcoa Conference Center property
    - Architectural overlay districting
    - Potential for roundabout placement at Boyden/Walnut/Pine intersection
    - Street alignments
    - Signage
    - Streetscape design

    Streetscape design elements should include:
    - Setbacks
    - Sidewalk and planting strip widths
    - Street median
    - Decorative lighting
    - Awnings
    - Façade elements
    - Pavement materials
    - Street trees and other landscaping
    - On-street parking
    - Outdoor seating
    - Trashcans
    - Fountains
    - Banners
    - Pavement types

- Crosswalks
- 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.

G. West Badin Sidewalks

Provide a more consistent sidewalk system throughout West Badin. Projects include:

1.) **Mayo Street** - from existing Mayo Street sidewalk to Dewey Street (200 LF).
2.) **Roosevelt Street** – east side from existing Lee Street sidewalk to St. Luke Church property (1750 LF).
3.) **Thomas Street** – north side from Roosevelt Street to Lincoln Street (500 LF)
4.) **Jackson Street** - east side from Roosevelt Street to Wood Street (1050 LF).
5.) **Wood Street** – north side from Lee Street to Grant Street (190 LF).
6.) **Dewey and Lincoln Streets** – south and east sides along West Badin Community Park (1850 LF).

All projects shall include planter strip between new sidewalk and back of curb where appropriate, with street trees and street lighting. Roosevelt Street project contingent upon **Falls Road & Roosevelt Street charette**. Mayo Street and Dewey and Lincoln Street projects shall be contingent upon **West Badin Community Park and School Plan**.

H. Badin Lake Boardwalk (1850 LF of boardwalk)

1.) Develop plan for Boardwalk to extend from proposed **Badin Park** boat landing area along the Lake shore to the Picnic and Swimming Access Area. Refer to **Comprehensive System Map** for approximate alignment.
2.) Adopt design for the Boardwalk. Phase project as necessary.
3.) Negotiate right-of-way purchase or permanent easement with Alcoa, binding on future land transactions in perpetuity.
4.) Construct Boardwalk along length.
5.) Plant selected trees along length.
6.) Provide decorative lighting, seating, trashcans and other appropriate amenities conducive to fishing and other Boardwalk usage.
7.) Install appropriate signage.

I. Alcoa Loop Trail - North Segment (6,600 LF of trail)

1.) Develop plan for multi-purpose Trail to run from existing sidewalk along NC 740 at Falls Road intersection around north end of Alcoa Badin Works property to proposed **Roosevelt Street Sidewalk**. Trail alignment shall roughly follow existing fence line along northwest quarter of Badin Works Property. Refer to **Comprehensive System Map** for approximate alignment. Determine right-of-way width required for specific trail type, planter strip between trail and street, and necessary grading.
2.) Adopt alignment for the Trail.

3.) Negotiate right-of-way purchase or permanent trail easement with Alcoa, binding on future land transactions in perpetuity.
4.) Develop construction details for Trail including pavement materials, etc.
5.) Construct Trail along length.
6.) Create planter strip between new trail and edge of street.
7.) Plant selected street trees along length.
8.) Provide street lighting.
9.) Install appropriate signage.
10.) Determine and install appropriate furniture (benches, trashcans).

J. North Badin Works signalized crosswalk on NC 740 at north end of Badin Works (near Norfolk Southern RR Crossing)

1.) Contact NCDOT Division 10 and request crosswalk signalization, signage and striping to be added to intersection. Division 10 representatives will investigate the site, assess needs for improvements and render a decision.
2.) Install crosswalk on Hwy. 740, with appropriate signage, signalization and striping at the intersection of Falls Road.
3.) Incorporate Fire Department call answering warning into signalization so that crosswalk signal can be used to warn and halt traffic during emergency action.
4.) Provide golf-cart crossing warning signage at crosswalk.
5.) Provide pedestrian improvements to connect to proposed **Badin Works Loop Trail - North Segment**.

K. Falls Road signalized crosswalk on NC 740

1.) Make all improvements contingent upon and in accordance with **Falls Road improvements/charette**.
2.) Follow procedure described in **North Badin Works Signalized Crosswalk** project.

L. Alcoa Loop Trail - South Segment (3400 LF of trail)

1.) Complete a 10,000 LF trail encircling the Alcoa Badin Works plant property. Develop plan for South Segment to extend from west end of the proposed **Alcoa Loop Trail - North Segment** along the northeast side of the proposed Roosevelt **Street Sidewalk**, then adjacent to the east side of the existing Lee Street sidewalk, then along the north side of the existing Wood Street sidewalk, and finally along the west side of the existing NC 740 sidewalk for a continuous length until it meets the eastern end of the **Alcoa Loop Trail - North Segment**. Refer to **Comprehensive System Map** for approximate alignment. Determine right-of-way width required for specific trail type and necessary grading.
2.) Adopt alignment for the Trail.
3.) Negotiate right-of-way purchase or permanent trail easement with Alcoa, binding on future land transactions in perpetuity.
4.) Construct Trail along length. Trail materials and methods shall match those of north segment to create a continuous unified loop around Alcoa Badin Works property.
5.) Plant selected street trees along length.
6.) Provide street lighting.
7.) Install appropriate signage.

8.) Install appropriate furniture (benches, trashcans).

M. Cheoah trail (4100 LF of trail)

1.) Identify parcel owners along south side of Cheoah Street from Tallassee Street to Henderson Street, and parcels between Dogwood Street and Hwy. 740.
2.) Acquire sufficient width of right-of-way to construct trail (and planter strip along Cheoah Street).
3.) Construct trail along length. Provide a planter strip between new trail and edge of Cheoah Street.
4.) Continue trail along eastern edge of existing park to connect to Nantahala Street proposed sidewalk.
5.) Plant selected landscaping along length.
6.) Provide path lighting and trailheads.

N. West Badin Community Park and School redevelopment plan/charette

1.) Review any current plans for development and improvements within the Park area and School in light of the goals and strategies expressed in the Pedestrian Plan.
2.) Work with an experienced urban design consultant to insure that plans are developed according to a clearly expressed vision for the Town, with facilitated community involvement, addressing the multi-faceted needs of residents as well as local businesses, in a context sensitive manner.
3.) Assemble a stakeholder group that fully represents the members of all community interests groups, including the PNC, school officials, local business owners, informed citizens, elected officials, and others.
4.) 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 community parks to use as models.
    - Develop and implement the plan of action, which should include clearly defined short-term and long-term goals.
5.) Begin seeking out immediate sources of funding for design and other initial costs. Tap into potential contributions from various stakeholders.
6.) Stage a design charette to explore school needs, recreational needs, community needs, surrounding land uses, and streetscape design. Park design elements should include recreational facilities, sidewalk and planting strip widths, lighting, trees, benches, trashcans, fountains, pavement types, crosswalks, and other pedestrian amenities.
7.) Prepare a master plan for park improvements integrated with proposed improvements for school.
8.) Invite public review of the park and school master plan.
9.) Make necessary revisions to the plan and implement it.

O. Badin Lake Trail System (20,720 total LF/4 miles of trails)

The Badin Lake Trail System consists of seven trails segments (labeled 1-7 on the **Comprehensive System Map**).

1.) **Badin Lake Trail** – from northeast end of proposed Badin Park to Thorpe's Neck (5280 LF/1 mile).
2.) **Hogpen Trail** – from Thorpe's Neck at terminus of Badin Lake Trail, to parking at Falls Road east of Stanly Street (4680 LF).
3.) **Badin Inn Trail** – from parking lot at terminus of Hogpen Trail to Spruce Street near intersection of Maple Street (1860 LF).
4.) **Brick Dump Trail** – from northeast end of proposed Badin Park to Hogpen Trail along abandoned rail bed (4500 LF).
5.) **Elm Trail** – from Elm Street terminus to Badin Lake Inlet, with spur trail connection to Brick Dump Trail and Badin Lake Trail (2600 LF).
6.) **Ash Trail** – from Ash Street terminus to Hogpen Trail (1000 LF).
7.) **Cherry Trail** – from Cherry Street terminus to Hogpen Trail (800 LF).

P. Nantahala Street sidewalk widening (850 LF of sidewalk improvement)

1.) Identify parcel owners along south side of Nantahala Street from Badin School property to Tallassee Street.
2.) Acquire sufficient width of right-of-way to widen existing sidewalk to a continuous 4' travel width free of obstruction (e.g. utility poles).
3.) Construct improvement along length. Replace existing sidewalk where necessary.

Q. Falls Road Traffic Circle

1.) Make all improvements contingent upon and in accordance with **Falls Road improvements/charette**.
2.) Contact a qualified engineering transportation consultant to assess engineering feasibility of traffic circle retrofit to the intersection of Falls Road, Boyden, Walnut and Pine Streets.
3.) Design of the traffic circle should take into account the considerations and design standards described in FHWA R&T Product Distribution Center report: http://www.tfhrc.gov/safety/00068.htm
4.) Proposed traffic circle should be of sufficient diameter to completely divert oncoming traffic into a right-turn only, counter-clockwise circulating pattern (rather than just an obstacle in the road that drivers can physically circumvent in either direction).
5.) Proposed traffic circle should feature a raised pavement zone to allow large vehicles to negotiate turning radius.
6.) Traffic circle center should feature a prominent Badin landmark and attractive landscaping.

R. Falls Road/Roosevelt Street Connection (1600 LF of street and associated facilities)

1.) Develop schematic alignment plan for street continuation of Falls Road to Roosevelt Street.
2.) Submit resolution to Town Planning Board and Town Council for approval of the plan.
3.) Place the approved plan on public record to be recognized in Badin's subsequent land use plans and respected by future development.

4.) Submit the schematic alignment plan to NCDOT Planning Branch with the request to amend the current Albemarle/Badin Comprehensive Transportation Plan (CTP) and add the project to the development of the next CTP.

S. Badin Elementary School sidewalk (south side of Boyden and Valley) (950 LF of sidewalk)

1.) Identify parcel owners along east side of Boyden Street from Kirk Street to Henderson Street, and along the west side of Henderson Street from existing sidewalk south of Cheoah Street to Boyden Street.
2.) Follow procedure described in **Thomas Street Sidewalk** project.

T. Little Mountain Creek Trail (6200 LF of trail)

1.) Contingent upon redevelopment of property south and west of Sherman Street, Jackson Street and Grant Street, and north and east of Little Mountain Creek, secure right of way for trail to connect west end of Sherman Street sidewalk, south to Creek and then east to south end of Jackson and Grant Street sidewalks. (3000 LF).
2.) Acquire additional right of way along Little Mountain Creek and north to Grant Street to create loop (2200 LF).
3.) Contingent upon redevelopment of property west of current Town limits, acquire additional right of way along Little Mountain Creek westward to Mercedes Street and existing pond by Fort Ridge Subdivision (1000 LF).
4.) As redevelopment occurs, construct trail along lengths.
5.) Provide path lighting and trailheads.

3.5 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 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 may 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. 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.

3.6 Recommended Evaluation Process

As the Badin 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, property sales and redevelopment, 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 (PNC) should meet periodically 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 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.

PART 4: FUNDING

4.1 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

Surface Material	Costs Per Mile	Longevity
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
Polyurethane track	$108,000*	13-15 years

*plus $70,000 to re-spray after 6 years

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.
Rubberized running track	**8 ft**. wide path	= $20/LF.

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

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

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

4.2 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 qualities of the Town may have more to do with guiding its 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 guiding and 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 ordinances 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

Federal Funding Sources

Certain Federal-aid transportation funding sources may be used for building, or improving accessible pedestrian facilities through the rural planning organization (RPO) process. Badin is a member of the Rocky River RPO. 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
- 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:
Leza Wright Mundt, AICP
Safe Routes to School Coordinator
Division of Bicycle and Pedestrian Transportation
1552 Mail Service Center
Raleigh, NC, 27699
Email: lwmundt@dot.state.nc.us
Phone: 919.807.0774
Fax: 919.807.076

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/busp/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 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.ne.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 10 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 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 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 limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

Local Budget Recommendations

In order for the Town 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.

For additional information about funding sources and procedures, see the Plan Appendices
A.4 - How-to Build a Sidewalk (and other pedestrian facilities) and
A.5 - The Bicycle and Pedestrian TIP Process

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

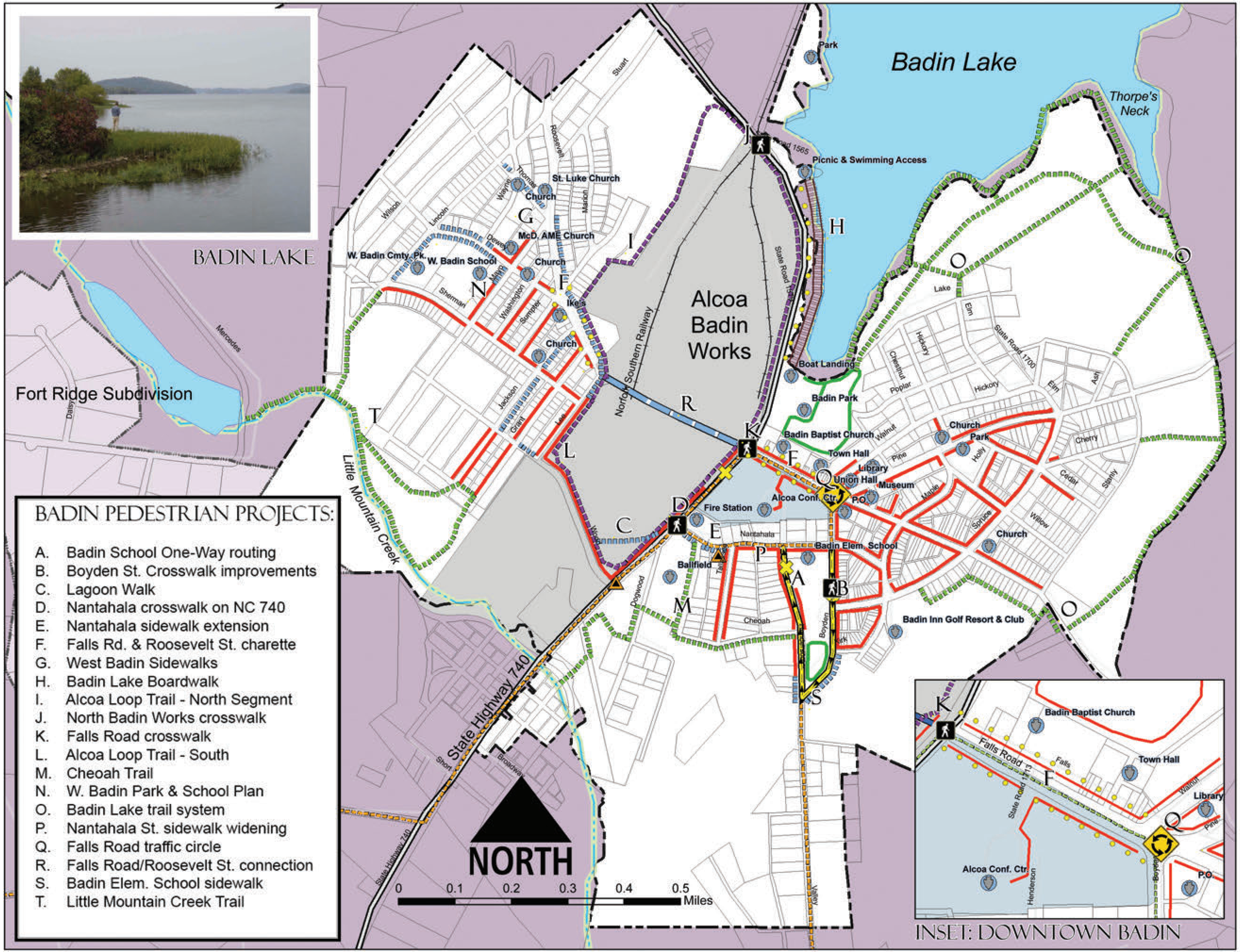
Federal Funding Sources
http://www.pagreenways.org/funding-federal.htm

4.3 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.



BADIN LAKE
Badin Lake
Thorpe's Neck
Fort Ridge Subdivision
Alcoa Badin Works
Norfolk Southern Railway
State Highway 740
Little Mountain Creek
Park
Picnic & Swimming Access
St. Luke Church
Church
McD. AME Church
W. Badin Cmty. Pk.
W. Badin School
Ike's
Boat Landing
Badin Park
Badin Baptist Church
Town Hall
Library
Union Hall
Museum
Alcoa Conf. Ctr.
P.O.
Fire Station
Ballfield
Badin Elem. School
Badin Inn Golf Resort & Club
BADIN PEDESTRIAN PROJECTS:
A. Badin School One-Way routing
B. Boyden St. Crosswalk improvements
C. Lagoon Walk
D. Nantahala crosswalk on NC 740
E. Nantahala sidewalk extension
F. Falls Rd. & Roosevelt St. charette
G. West Badin Sidewalks
H. Badin Lake Boardwalk
I. Alcoa Loop Trail - North Segment
J. North Badin Works crosswalk
K. Falls Road crosswalk
L. Alcoa Loop Trail - South
M. Cheoah Trail
N. W. Badin Park & School Plan
O. Badin Lake trail system
P. Nantahala St. sidewalk widening
Q. Falls Road traffic circle
R. Falls Road/Roosevelt St. connection
S. Badin Elem. School sidewalk
T. Little Mountain Creek Trail
NORTH
0 0.1 0.2 0.3 0.4 0.5 Miles
INSET: DOWNTOWN BADIN
Falls Road

TOWN of BADIN NORTH CAROLINA Est. 1913 Inc. 1990

BADIN
PEDESTRIAN PLAN

Proposed Projects

- A Projects
- Street w/ sidewalks
- Sidewalk
- Trail
- Alcoa Loop Trail
- Boardwalk
- Signalized crosswalk
- Traffic Circle
- Warning signal
- Decorative streetlights

Existing Conditions

- Destinations
- Sidewalks
- Trails
- Crosswalks
- Co. Bikeroute
- State Highway
- Rail
- Streams
- Lake
- Corporate Limits
- Stanly County

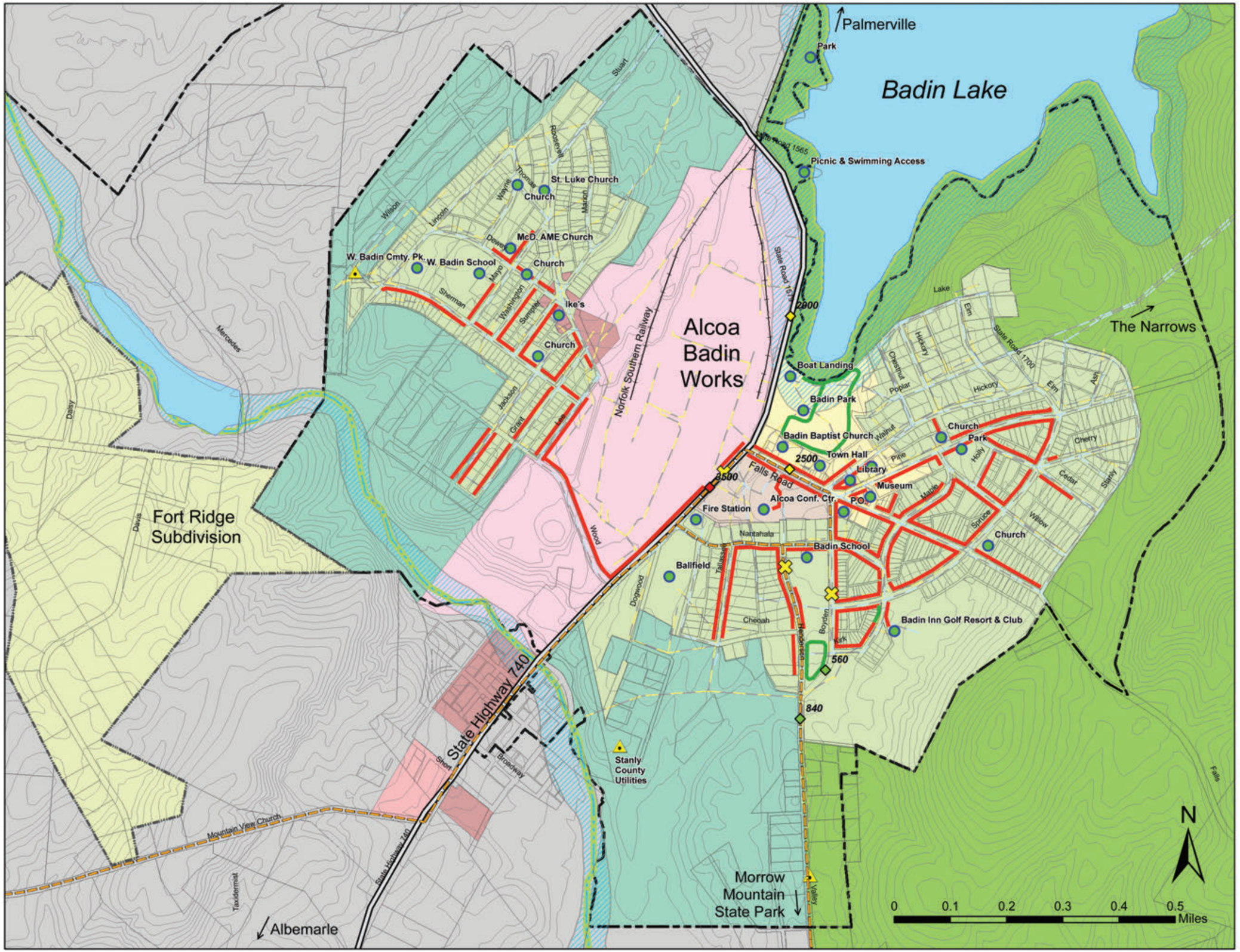
Alcoa

- Badin Works
- Conference Center

COMPREHENSIVE SYSTEM PLAN

Centralina Council of Governments

November 27, 2007



BADIN
PEDESTRIAN PLAN

Existing Conditions

- Destinations
- Sidewalks
- Trails
- Crosswalks
- County Bike Rt.
- State Hwy.
- Rail
- Water Lines
- Sewer Lines
- Pump Stations
- Streams
- Lakes
- Floodzones
- Corporate Limits

Zoning

- C-B
- G-B
- H-B
- M-1
- M-2
- R-10
- R-20
- R-A
- RA County

Traffic (ADT*)

- 560 - 840
- 841 - 2900
- 2901 - 3500

*Average Daily Trips

Centralina Council of Governments

EXISTING CONDITIONS MAP

October 29, 2007

BADIN

PEDESTRIAN PLAN

Appendices:

A.1 Maps
- ALCOA/APGI properties

A.2 Facility Standards and Guidelines

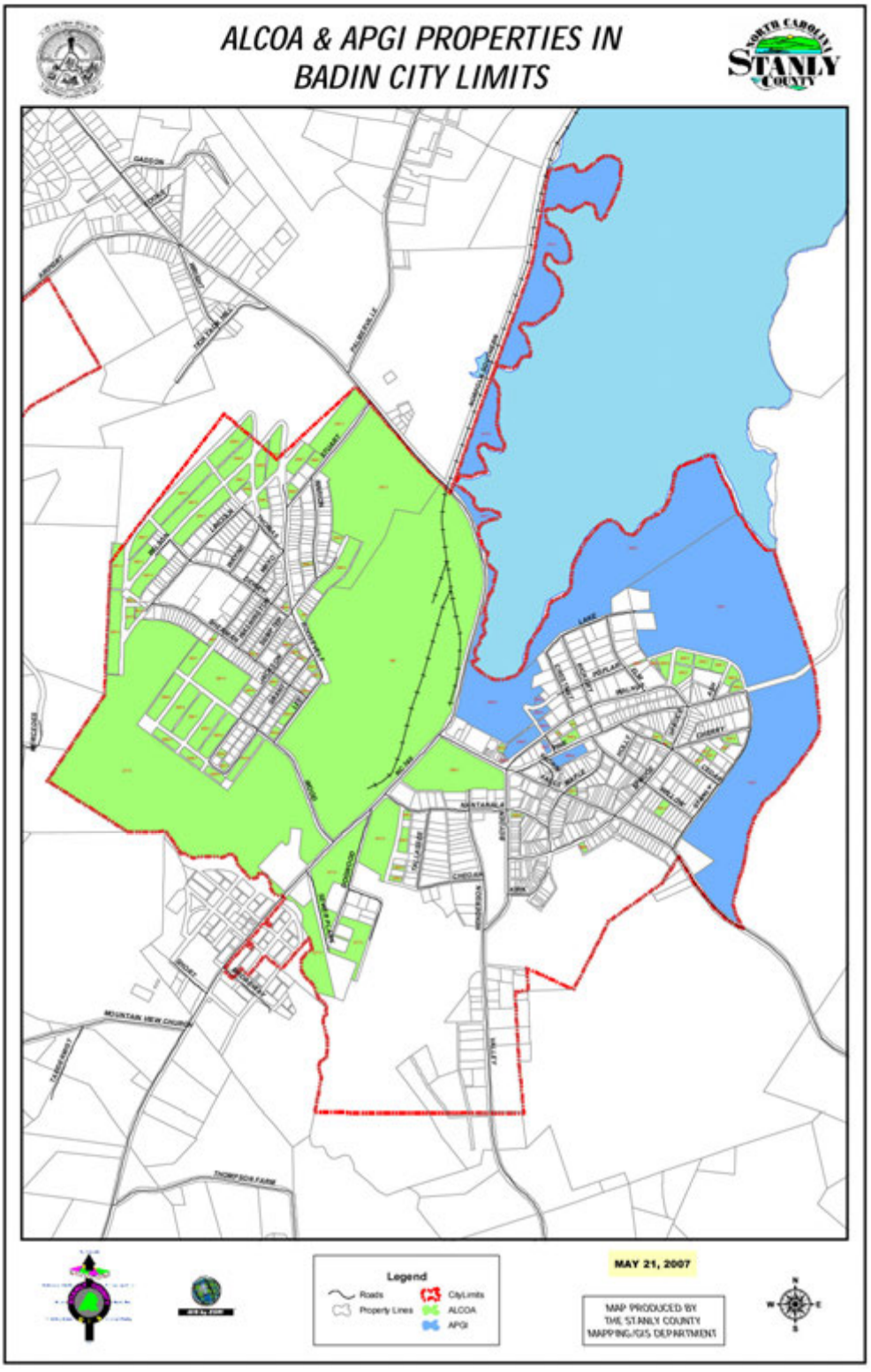
A.3 Articles
- The 13 points of pedestrian-oriented development
- Some Benefits of Greenways
- Planning on Walking?

A.4 How to Build a Sidewalk
A STEP-BY-STEP GUIDELINE FOR
BUILDING PEDESTRIAN IMPROVEMENTS

A.5 References

A.1 Maps

ALCOA AND APGI PROPERTY HOLDINGS IN BADIN



A.2 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 10. Contact the Division 10 Engineer before considering implementation of any improvements in the NCDOT right-of-way.

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.

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.

- **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 developing a Town of Badin Tree Ordinance to provide direction for tree installation and maintenance. For more information about 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/ANLAStandard2004.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.

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

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.

- Motion activated warning systems should be considered where trails intersect roads. When triggered by path activity, these devices flash warning beacons to signal approaching motorists of path users near the intersection. The system also flashes beacons to pathway users warning them to stop. Active warning systems are more effective than 24-hour flashes that motorists come to ignore over time. Such devices can be equipped with trail counters to provide data of trail use.

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 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.

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.

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.
- Orient seating toward sidewalks 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.
- When selecting seating design, consider utility, maintenance and aesthetic concerns. Reinforce community identity by matching existing styles where possible and consider inclusion of local emblems.
- 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.
- 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).

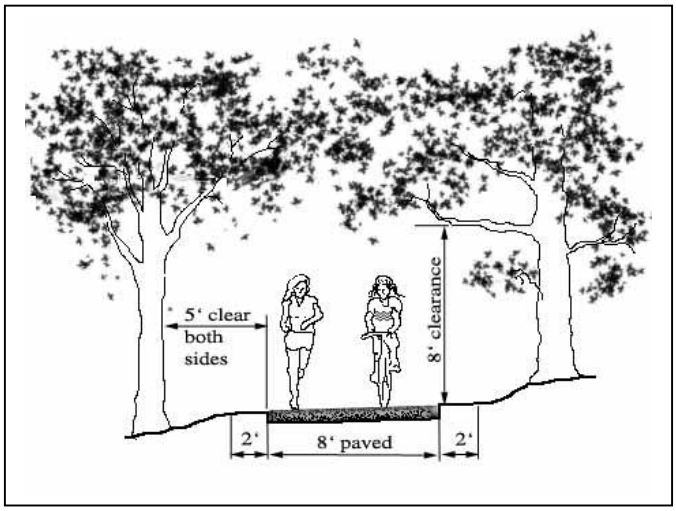
Water features

- 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

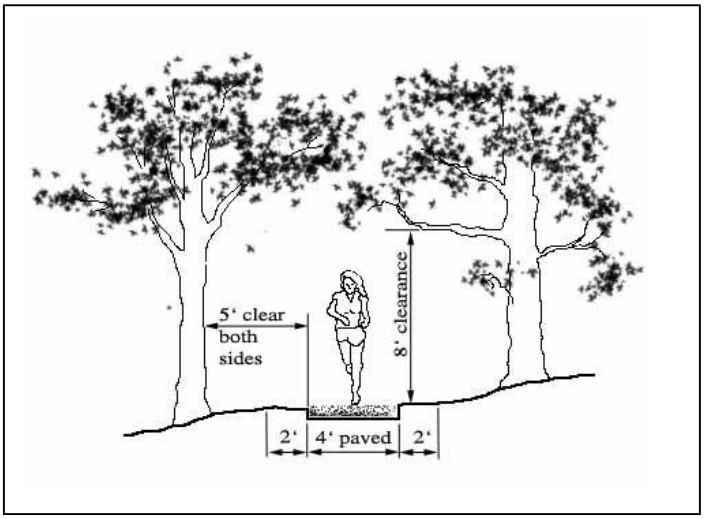
Trail types

1.) **Recommended Standard Trail** – Trails are intended to be accessible to multiple user types, including pedestrians, bicyclists, and skateboarders. In order to accommodate multiple users, width of pavement should be maintained at 8 ft., with 2 ft. graded shoulders. Deviations in this width should be avoided. If obstructions exist within the preferred alignment that cannot be removed, negotiate around those obstructions with the slightest and otherwise best realignment of the trail to avoid them. Maximum slope shall not exceed 8%. Maintain a vertical clearance minimum of 8 feet and a horizontal clearance of 5 feet from the edge of path.



Loop Trail section

2.) **Recommended Standard for Footpaths** – For trails through environmentally sensitive areas, such as wetland areas and shore banks, a 4-foot wide soft surface may be preferable with 2-foot graded shoulders. Maintain a vertical clearance minimum of 8 feet and a 5-foot 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.



Standard Foot Path section

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, roller-bladers, 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
- **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 when they are used in conjunction with 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.
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

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:

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 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 maybe 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.

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).

Standards & Guidelines 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

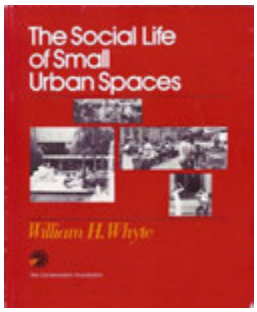
Cary Parks, Recreation and Cultural Resources Facilities Master Plan
http://www.townofcary.org/depts/prdept/greenwayreco.pdf

Walkinginfo.org

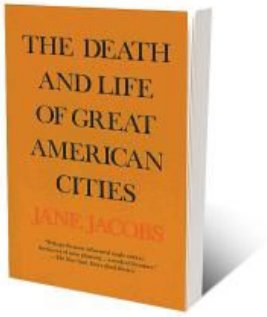
Trafficcalming.org

Sustainable Environment for Quality of Life - SEQL.org

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



The Death and Life of Great American Cities – Jacobs, Jane, 1961



A.3 Articles

THE 13 POINTS OF PEDESTRIAN-ORIENTED DEVELOPMENT

Duany Plater-Zyberk & Company

1. The neighborhood has a discernible center. This is often a square or a green and sometimes a busy or memorable street corner. A transit stop would be located at this center.

2. Most of the dwellings are within a five-minute walk of the center, an average of roughly 2,000 feet.

3. There are a variety of dwelling types - usually houses, rowhouses and apartments - so that younger and older people, singles and families, the poor and the wealthy may find places to live.

4. At the edge of the neighborhood, there are shops and offices of sufficiently varied types to supply the weekly needs of a household. (Collective neighborhood edges form a town center.)

5. An elementary school is close enough so that most children can walk from their home.

6. There are small playgrounds accessible to every dwelling - not more than a tenth of a mile away.

7. Streets within the neighborhood form a "connected network, which disperses traffic by providing a variety of pedestrian and vehicular routes to any destination.

8. The streets are relatively narrow and shaded by rows of trees. This slows traffic, creating an environment suitable for pedestrians and bicycles.

9. Buildings in the neighborhood center are placed close to the street, creating a well-defined outdoor room.

10. Parking lots and garage doors rarely front the street. Parking is relegated to the rear of buildings, usually accessed by alleys.

11. Certain prominent sites at the termination of street vistas or in the neighborhood center are reserved for civic buildings. These provide sites for community meetings, education, and religious or cultural activities.

12. The neighborhood is organized to be self-governing. A formal association debates and decides matters of maintenance, security, and physical change. Taxation is the responsibility of the larger community.

13. For single-family homes: A small ancillary building is permitted within the backyard of each house. It may be used as a rental unit or place to work (e.g., office or craft workshop).

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

- **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#economic prosperity

PLANNING ON WALKING?

http://www.planetizen.com/node/22955<http://www.planetizen.com/node/22955>

20 February 2007 - 9:00am
Author: Wayne Senville
With positive effects on public health, safety, and environmental quality -- walkability has become the new buzzword in planning.

Atlanta Journal-Constitution, "Demand for Walkable Communities Unmet," Jan. 19, 2007: "A report scheduled to be released in conjunction with a panel discussion of Georgia planners and health experts has expanded findings on the benefits of pedestrian-friendly neighborhoods...[the study says] there is a significant, unmet demand for developments that make it easier to walk from place to place."

As editor of the Planning Commissioners Journal <http://www.plannersweb.com/> ("PCJ"), I try to keep up with news on what's happening around the country, and what topics planners are dealing with. The Atlanta Journal-Constitution article cited above is typical of what we're seeing nationwide: a rapidly growing interest in "walkable communities."

A confluence of trends seems to be behind this. For one, there's been growing interest in the health implications of sprawl. From a relatively limited concern, this has exploded into coverage in major national publications and has led to a growing body of research.

The focus of the Winter 2006 issue of the Journal of the American Planning Association ("JAPA"), for example, is on connections between health and planning. Inside that issue, you'll find a detailed analysis of the correlation between health and walkable communities. The researchers found that "individuals who live in counties that are more walkable and have lower rates of crime tend to walk more and to have lower body mass indices." (See "Active Community Environment and Health: The Relationship of Walkable and Safe Communities to Individual Health.")

In the same issue of the JAPA, there's also an article Many Pathways from Land Use to Health <http://www.planning.org/japa/pdf/JAPAFrank06.pdf>, examining the link between walkability and air quality. The researchers asked if more walkable environments led to reduced auto use and, in turn, better air quality. Using a "walkability index" that factored in things like net residential density and street connectivity, they found that more walkable neighborhoods yield at least some improvements in air quality (also pointing out that "greater improvements in walkability should lead to larger effects").

Consider also the rapidly growing "safe routes to school" movement, which seeks to get more kids walking to school -- in large part for the health benefits, but also as a way of promoting neighborhood schools in places where walking to school is still possible (we've reported on "school sprawl" <http://www.plannersweb.com/wfiles/w165.html> in the PCJ, and know that in many places walking to school is simply an impossibility).

Advocating for the opposite end of the age spectrum, AARP has started a major "livable communities" initiative. In Burlington, Vermont, one of the pilot communities in this

project, seniors have taken neighborhood walks, where they've evaluated the condition of sidewalks, crosswalks, and signal timing -- with the aim of enabling more seniors to be able to walk from where they live to nearby stores and community services.

Cities where you wouldn't expect it are also focusing on pedestrians. In Kansas City, Missouri, one of the nation's most auto-oriented places, the City has adopted a Walkability Plan <http://www.kcmo.org/planning.nsf/plnpres/walkability?opendocument>, with innovative strategies for promoting more walkable neighborhoods. Kansas City now requires neighborhood walkability audits as a prerequisite to receipt of certain capital improvement funds. The city's development review process also takes into account not just traffic, but pedestrian impacts. PCJ offers a summary of what Kansas City is up to. <http://www.plannersweb.com/Kansas_City_walkable.pdf>

Here's one more force behind the interest in walkable communities: the New Urbanism movement. Those of you familiar with New Urbanism -- which has taken off as an approach to urban design and planning in recent years -- know that it has as a core value a commitment to developing walkable communities. Consider just two of the guiding principles in the Charter <http://209.31.179.62/charter> of the Congress of the New Urbanism (new urbanism's guiding body).

a.) Many activities of daily living should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.

b.) Concentrations of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them. Also connected to the heightened interest in walkable communities is the voice of hundreds of Main Street organizations and downtown business groups. They are seeing how their efforts tie in nicely to promoting walkability. And, of course, there are few places more conducive to walking than downtown main streets.

But even in newer suburbs, town center developments are proliferating -- and are being promoted in terms of their walkability, not just their auto accessibility.

In the current issue of our publication, the PCJ, transportation planner Hannah Twaddell points to many of the developments I've just noted (see excerpts from Let's Plan on Walking <http://www.plannersweb.com/wfiles/w258.html>). But she also highlights another important ingredient in the brewing interest in walkable communities -- economic value:

"One of the keys to regional and local prosperity is the ability to attract and retain high-skilled people. ... Many people can, and do, choose where they want to live based on factors beyond their ability to make a living. "Quality of life" has become the coin of the realm. The economic value of a community's attractiveness as a place to live, work, and play is becoming widely recognized by business leaders, local officials, and planners. This has led many cities to focus on ... a built environment that encourages a vibrant street life -- elements that require a welcoming, walkable environment for people of all ages."

Twaddell goes on to note, "Walkability isn't just for cities and suburbs. The economic health and livability of small towns and villages depends upon it, too. Participants in surveys and focus groups conducted for a recent national study on integrating land use and transportation in rural communities repeatedly emphasized the need to invest in sidewalks, crossings, and street amenities in order to take advantage of the compact, connected design they already enjoy."

And before I close, it's interesting to note that even the National Highway Traffic Safety Administration is promoting walkability, witness its Partnership for a Walkable America <http://www.nhtsa.dot.gov/people/outreach/safesobr/12qp/walkable.html>. As the NHTSA puts it, "Our nation has simply become 'unwalkable' despite the fact that everyone is a pedestrian!" The NHTSA's objectives: "to make walking in America safer by reducing motor vehicle-related deaths and injuries; to provide information about how to achieve walkable communities; and to encourage walking as one of the easiest ways for Americans to improve their health and lower health care costs."

So what's the bottom line? It seems that walkability is in. It's hard to argue with benefits that range from health, to air quality, to quality of life, to economic value, to safety (and I probably left something out!). What we seem to be witnessing, dare I say, is a walkability movement.

But I'm curious to hear your take on this. Is walkability of growing importance in your city or town? And, if so, what do you think is behind the interest?

Wayne Senville is publisher and editor of the Planning Commissioners Journal (since founding the PCJ in 1991). He served as a member of the Burlington, Vermont, Planning Commission from 1990-1999, including three years' service as Chair. Senville was also honored by the Northern New England Chapter of the American Planning Association, and the Vermont Planners Association, as Citizen Planner of the Year in 1999. Between 1988 and 1991, Senville was Director of Local & Regional Planning Assistance for the Vermont Dept. of Housing & Community Affairs.

Resource: A great resource for anyone interested in this topic is the Walkable Communities web site <http://www.walkable.org/>, put together by Dan Burden.

A.4 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

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.

NCARPO
North Carolina Association of Rural Planning Organizations

The **North Carolina Association of Rural Planning Organizations** has a website that answers a plethora of transportation questions, including how to fund projects. The following is an excerpt from their page on constructing sidewalks.

Constructing a sidewalk sometimes involves a variety of players, from the NCDOT and municipalities, to private property owners and utility departments. A range of federal and state and local funding sources are available to assist in the development and construction of these non-motorized improvements; however local financial participation is often required, in the form of matching funds, right-of-way acquisition or in-kind services.

Below are some of the resources available to assist in the construction of sidewalks. Please contact the NCDOT early in the process if the sidewalk you would like built is along a state-owned road.

On-Road Pedestrian Facilities

Federal

- Enhancement Funds
- Congestion Mitigation and Air Quality Funds (in qualifying areas)
- Earmarks (contact local legislator)
- Safe Routes to Schools (within 2 miles of an elementary or middle school)

State

- Independent Projects through the Surface Transportation Program Evaluation Criteria
- Incidental Projects (in conjunction with road maintenance or widening projects)
- Governor's Highway Safety Program
- Board Member Discretionary Funds (via Division Office)

Local

- Community Foundations
- Tourism Authority
- Health Foundations/Hospitals
- Powell Bill

To view more, see http://www.nctransportationanswers.org/Construct%20Sidewalks.htm

For further information about funding projects, see Part 4 of the Pedestrian Plan.

A.5 The Bicycle and Pedestrian TIP Process

North Carolina Department of Transportation
Division of Bicycle and Pedestrian Transportation

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

Transportation projects in North Carolina progress through a standard process of planning, design and construction. Improvements for bicycling and walking may be included in the Transportation Improvement Program (TIP) as part of the construction of a highway project or, where no highway project is programmed, as an independent project. Bicycle and pedestrian projects follow essentially the same TIP process as do highway projects.

The Division of Bicycle and Pedestrian Transportation (DBPT) works with localities to create a four-year schedule of projects using the locality's priority listing of needs along with the adopted project selection criteria. The DBPT compiles candidate bicycle projects to be considered for inclusion in the TIP from the following sources:

- The prioritized Local Transportation Improvement Program (LTIP) lists produced by the 17 Metropolitan Planning Organizations (MPOs), which have been derived from separate lists produced by communities comprising the MPO.

- Project requests that are made at the biennial TIP meetings or through written requests within 30 days of the meetings from the state's small urban areas, counties, public and private entities, and citizens.

- Internal DBPT assessment of statewide bicycle and pedestrian project needs.

All project requests are documented and distinguished as independent or incidental (part of a highway project). Independent project requests are evaluated by DBPT using project selection criteria. A prioritized list of these projects is presented to the North Carolina Bicycle Committee. The Committee reviews the list, makes revisions and recommendations, and adopts a four-year schedule of projects. The adopted schedule is sent to the North Carolina Board of Transportation for approval and inclusion in the state's TIP.

Inclusion of a bicycle or pedestrian project in the TIP does **not** guarantee that it will be implemented; rather, it means that it will receive further study and will be implemented if feasible. Incidental projects are considered in conjunction with the planning study for the given highway or bridge project and implemented, if feasible.

For independent construction projects, DBPT conducts a detailed feasibility study, including cost estimates. If the project is determined to be feasible, DBPT prepares a more detailed planning study, which is reviewed and approved by the Bicycle and Pedestrian Task Force before being submitted to the Board of Transportation for funding authorization. Once the funding is authorized, project design and development begins.

List of Bicycle and Pedestrian TIP Projects

Visit the web addresses listed below to access the lists of independent and incidental projects currently in the TIP, which are listed by division, county and locality. To search these Acrobat PDF files, click on the binocular icon in the navigation toolbar at the top of the Acrobat window and type in a key word.

http://www.ncdot.org/transit/bicycle/funding/BPindependentTIP.pdf
http://www.ncdot.org/transit/bicycle/funding/BPincidentalTIP.pdf

The Transportation Improvement Program Process: From Need to Bicycle Improvement

The Transportation Improvement Program (TIP) is the process through which local areas and citizens are asked to present their transportation needs to state government. Bicycle facility and safety needs are an important part of this process. Every other year, a series of TIP meetings is scheduled around the state. Following the conclusion of these meetings, all requests are evaluated. Bicycle improvement requests, which meet project selection criteria, are then scheduled into a four-year program as part of the state's long-term transportation program.

Incidental projects — those where the bicycle request is an incidental feature of a planned highway improvement — are built with a mixture of state and federal funds as part of overall highway improvement. Independent bicycle projects — those which are separate from any other scheduled highway improvement — are paid for from funds allocated for that purpose by the North Carolina Board of Transportation.

Examples of bicycle projects already underway include signed bike routes, greenway/multi-use paths, roadways with widened outside lanes, widened paved shoulders, bicycle parking, replacement of hazardous drainage grates, mapping and signing projects, and producing bicycle route maps.

Steps in the Process

1. **Recognizing a need for a bicycle improvement project.** Somewhere in a local area there may be unsafe or difficult riding conditions for bicyclists that highlight a need for bicycle transportation improvements. Such improvements may be an on-road improvement such as wide paved shoulders, an off-road bike path, bicycle parking, or printed materials such as maps or safety brochures.

2. **The need is presented to the North Carolina Department of Transportation.** If it is a citizen or private group such as a local bicycle club, there are several ways to present the need to transportation officials. First, a citizen or local club may present their request to appropriate local government officials—aldermen, town council members, county commissioners, local planning boards, Transportation Advisory Committees, or other group appropriate to that local area. These agencies may or may not choose to include the request in their transportation improvement plan to be presented to NC Department of Transportation at the biennial Transportation Improvement Program (TIP) meeting.

If an official of an agency desires to make a request at a division TIP meeting but is unable to attend on the date of the meeting, a written request may be submitted within 30 days of the scheduled TIP meeting. The request should be addressed to the Secretary of the North Carolina Department of Transportation. All requests will receive the same degree of consideration.

3. **All bicycle requests are documented.** Following the public TIP meetings, requests for bicycle transportation improvement projects will be organized and documented by the NCDOT Division of Bicycle and Pedestrian Transportation.

4. **Some bicycle improvement projects are selected for construction.** The Division of Bicycle and Pedestrian Transportation first evaluates and prioritizes all requests; then a summary of the project requests is presented to the NCDOT Bicycle Committee for its review. The Committee then forwards recommendations on the scheduling of some of the requested projects to the North Carolina Board of Transportation, which makes the final decision on projects to be included in the Transportation Improvement Program. Inclusion in the TIP Plan **does not in any way** guarantee that a requested project will be implemented. Rather, it means that the project will receive further study and will be implemented if feasible.

5. **Projects listed in the TIP fall into two categories.** Bicycle and pedestrian projects that can be incorporated into a planned and scheduled highway improvement are categorized as ***incidental*** projects. The bicycle or pedestrian element will be considered during the planning and design phases of the total project. Incidental projects are built with a combination of state and federal funds in the same manner as the larger highway project is constructed. Projects not incorporated into a planned and scheduled highway improvement are categorized as ***independent*** projects. These projects are constructed using 80% federal and 20% state money.

6. **Finally, some TIP projects are implemented.** In the case of a scheduled incidental bicycle improvement, inclusion in the TIP means that the project will be considered in conjunction with the planning and environmental studies for the given highway project. If the bicycle component is judged to be feasible, it will be scheduled for construction.

   Following inclusion in the TIP, each independent project will undergo a detailed planning study that includes the evaluation of the feasibility of the project as well as the actual project cost. Upon completion and acceptance by the NCDOT, the planning study will be submitted to the North Carolina Board of Transportation for final approval and funding. A project must successfully pass through each of these levels in order to be implemented. ***During any of the above phases of project development, it may be necessary to alter or eliminate a proposed improvement due to regulatory or design constraints or because of unanticipated costs.***

7. **TIP bicycle projects may take many forms.** A number of bicycle improvement projects involve construction of on-road or off-road facilities: wide paved shoulders (4-ft. minimum width); specially striped lanes for

bicycles (minimum 4-foot width); wide outside lanes (14-ft. minimum width) which permit a safer mix of bicycles and motor vehicles); greenway-type bicycle paths; railroad crossing improvements for bicycle safety; and the addition of bicycle-safe bridge railings. The Projects section of this website provides more information.

However, not all eligible bicycle improvements require a construction project. The following are examples of other acceptable projects: signing bicycle routes; producing maps and safety brochures for cyclists in local areas; replacing unsafe drainage grates; making spot improvements such as paving potholes or hazard marking of dangerous roadway features; and providing bicycle safety education materials for local areas.

TIP Project Selection Criteria

The following list of selection criteria is intended to provide guidance to individuals and localities that wish to request projects. It is important to note that:

a. Many worthwhile projects will fulfill only a few of the following conditions. Nevertheless, localities are encouraged to submit all needed projects, since cost constraints and regulations may change, allowing the scheduling of previously unfeasible projects.

b. Detailed project justification based on the factors listed below is not required at the time the request is submitted. DBPT staff will contact you during a follow-up period to obtain any additional information needed.

The Criteria:

1. **Right-of-way.** Complete information regarding the right-of-way situation should be provided. Due to the limited size of our annual budget, projects requiring that NCDOT acquire right-of-way are unlikely to be scheduled.

2. **Design standards.** Projects must substantially conform to state and federally adopted bicycle design guidelines, as described in the North Carolina Bicycle Facilities Planning and Design Guidelines (1994) and the AASHTO Guide for Development of New Bicycle Facilities (1999). The "sidewalk bikepath" that is constructed adjacent to the roadway for two-way bicycle traffic runs counter to these guidelines and is discouraged.

3. **Project purpose.** Each project must serve a primarily bicycle transportation purpose, as opposed to a recreation purpose.

4. **Preliminary project approval.** All necessary permits and approval must be obtained for any project involving a public jurisdiction (including approval of Metropolitan Planning Organizations (MPOs) and inclusion in the local TIP, lease agreements, construction and encroaching permits, etc.)

5. **Local area involvement.** Project requests are viewed within the overall picture of bicycling in an area. Evidence of local concern and involvement via other bicycle projects or activities lends support to each specific bicycle request. Local participation (via a dollar share or design services) is viewed as one measure of a local area's commitment to an improved bicycle environment.

6. **Inclusion in transportation or bicycle planning process.** Evidence that a specific bicycle request is an element of a comprehensive transportation or bicycle planning process provides critical support for a project.

7. **Project need.** Priority will be given to those projects where the greatest need can be demonstrated. Crash data, potential safety problems, and information regarding current or potential users of the facility can all provide project justification.

8. **Boardwalks.** Multi-use pathways that are intended to accommodate bicycles should not be designed with significant sections of boardwalk, or other such surfaces, which may be unsuitable for bicycle transportation purposes.

A.6 References:

- **Badin: A Town at the Narrows - An Historical and Architectural Survey**
  3rd Edition by Brent D. Glass and Pat Dickinson
  Stanly County Historic Preservation Commission, 2001

- **BADIN – Drawing from the Past to Plan for the Future**
  An Inventory of Historic, Natural and Cultural Resources
  UNC Charlotte Urban Institute, 2005

- **The Badin Villager**
  A Publication of *Visit Badin*, February 2007, vol. 1 no. 2

- **Alcoa Badin Works**
  http://www.alcoa.com/locations/alcoa_location/en/home.asp?code=406

- **Town of Badin Bulletin**
  http://www.badin.org/news.htm

- **Badin Historic Museum News**
  http://www.badinmuseum.com/news.htm

- **UNC Morehead Planetarium and Science Center**
  http://www.moreheadplanetarium.org/index.cfm?fuseaction=news_item&id=300

- **The Stanly News and Press**
  http://www.thesnaponline.com/siteSearch/apstorysection/local_story_321115553.html

Listed below are some additional references 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/Streetscapes.htm

- Connectivity for Multi-Modal Transit
  http://www.seql.org/Connectivity.htm

- Greenways and Open Space
  http://www.seql.org/GreenwaysandOpenSpace.htm

- Efficient parking Strategies
  http://www.seql.org/EfficientParkingStrategies.htm

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

BADIN PEDESTRIAN PLAN

~ RECOMMENDED ORDINANCE MODIFICATIONS ~

Issues affecting walkability	Current Zoning Ordinance	Concern With Current Regulations	Revision Recommended
1. **Street connectivity**	The Zoning Ordinance provides no guidance or restrictions on street connectivity.	Though the Town's existing street pattern exhibits excellent connectivity, there is no mandate or guideline for continuing this level of connectivity for future development in Badin's regulations. Future subdivisions (particularly ones in previously undeveloped areas, or "greenfields") are not required to have connections with streets in adjoining lots. Greater street connectivity permits increased 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**	The Zoning Ordinance places no restrictions on cul-de-sacs.	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 Chapter 5, Section 5.26** 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**	The Zoning Ordinance places no restrictions on block length.	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 Chapter 5, Section 5.26** to allow blocks in new development to be no greater than 800 feet in length.
4. **Sidewalks: location, condition, connections**	The Zoning Ordinance does not mandate sidewalks and provides no guidance as to sidewalk standards.	No comprehensive plan is referenced to guide sidewalk-related decisions. To promote pedestrian-friendly developments, sidewalks should be required in new subdivisions according to a Town-wide pedestrian plan. Furthermore, all sidewalks should meet all applicable ADA standards.	**1. Amend Chapter 5, Section 5.26** 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 740).
5. **Greenways, Trails & Open Space**	The Zoning Ordinance makes 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 Chapter 5, Section 5.26** 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 Zoning Ordinance	Concern With Current Regulations	Revision Recommended
6. **Street Trees**	The Zoning Ordinance provides no guidance or ruling with respect to street trees, nor imposes any landscaping requirements for new developments.	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.	Develop and adopt landscaping requirements, or a Tree Ordinance, as part of the current Zoning Ordinance. The revised Ordinance should classify trees in categories such as evergreen or decidous, and large maturing or small maturing, for reference in landscape plans particularly that require street trees and buffer trees, and include tree spacing standards based on maturing size category. It may also include additional tree descriptors such as growth rate, shape, fall color, drought toleration, etc. Consider further development of the Tree Ordinance to provide additional guidelines for land development within the Town.
7. **Crosswalks**	The Zoning Ordinance provides no guidance or stipulations for crosswalks.	While there are some crosswalks found in Badin, their numbers are inadequate for current or projected pedestrian needs. Some do not adequate warning or signage, signalization or striping. Properly designed crosswalks not only facilitate safer street crossing opportunities for pedestrians, they also offer a secondary pedestrian benefit of calming traffic.	**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. **2. Amend Chapter 5, Section 5.26** 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. **3. Amend the Zoning Ordinance** 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.
8. **Off-street Parking Require-ments**	**Sections 7.1** & **7.1.12 Table 2** sets minimum off-street parking requirements by use irrespective of zoning districts. **Section 7.1.6** requires that each pkg. space "contain a rectangular area at least twenty (19) feet long and ten (10) feet wide" The Ordinance sets no maximum pkg. requirements. **Section 7.1** grants the C-B Zoning District exemption from providing additional pkg. spaces for enlargement, alteration or expansion. **7.1.2 B** grants the Zoning Administrator power to exempt requirement for additional pkg. spaces for a change of use if that change requires fewer than 5 new spaces.	**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. **2.** In an effort to reduce the "sea of asphalt" phenomenon created by excessive requirements of previous codes (before their detrimental social, environmental and econiominc effects were popularly understood), current trends tend to lower the number of required parking spaces for retail uses and to reduce the required area of each space.	**1. Waive the requirements for off-street parking in the C-B and G-B districts.** 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.) **2. Reduce the number of off-street parkings required** to reduce the neagtive impacts of excessive impervious area. Many ordinances now have a 1 space/300 sq. ft. gfa parking standard. **3. Reduce required parking space dimensions** to a minimum of 18' long and 9' wide (162 sf area) **4. Reclassify additional zones** as exempt from providing additional parking spaces for enlargement, alteration or expansion: Zone M-1, M-2, G-B. **5. Grant Zoning Administrator greater power** to grant exemptions from additional parking requirements.

Issues affecting walkability	Current Zoning Ordinance	Concern With Current Regulations	Revision Recommended
9. **Building Setbacks**	**Section 4.3** lists only minimum front yard setbacks. No maximum front yard setbacks are required.	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.	**Eliminate the off-street parking requirements in the C-B and G-B districts and establish "build-to" lines or maximum front yard setbacks**, or establish guidelines as to how much of the required off-street parking shall be allowed to be placed in the front yard.
10. **Mixed Land Uses**	Mixed use opportunities are limited in Badin. Zoning regulations do not allow for the development of residential uses in non-residential districts. Thus, 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 encourages or 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.	Re-examine the table of permitted uses contained in Badin's Zoning Ordinance. Simple changes that could be made include: **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.