



GREENWAY PLAN

Winston-Salem And Forsyth County
2015



City-County
Planning
BOARD
FORSYTH COUNTY
& WINSTON-SALEM,
NORTH CAROLINA

GREENWAY PLAN

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2015

Prepared For The Citizens Of Forsyth County
By The City-County Planning Board



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Table of Contents

I. Executive Summary		Proposed Design and Development Schedule	25
The Greenway Plan.....	1		
Vision and Goals.....	1		
Existing Greenway System.....	1		
Recommendations.....	1		
Implementation.....	1		
II. Introduction			
What are Greenways?	2		
Why a Greenway Plan?.....	3		
The Greenway Planning Process	3		
Trends Influencing Greenway Planning and Development.....	3		
III. Vision, Goals and Objectives			
The Vision	5		
Goals and Objectives	5		
IV. Greenway Planning and Development in Forsyth County			
Existing Greenway System.....	6		
Greenway Planning in Forsyth County.....	7		
Greenway System Components.....	8		
Greenway Corridors.....	8		
Greenway Trails	9		
Greenway Destinations.....	9		
Greenway Connectors	9		
The Expanded Greenway System	10		
V. Greenway Trail Design and Development			
Greenway Trail Design	12		
Priorities for Trail Study, Design and Construction	13		
Brushy Fork Creek	13		
Muddy Creek	13		
The Strollway	14		
Waughtown Connector	14		
Tomahawk Creek, Lewisville.....	14		
Grassy Fork Creek	21		
Piedmont.....	21		
Mill Creek	21		
Salem Lake North.....	22		
Blanket Bottom Creek.....	22		
Tanglewood	22		
Bethabara.....	22		
		VI. Operational Policies and Procedures	
		Management Structure	27
		Financing	27
		Local Public Funding.....	27
		Transportation Funding	28
		Other Funding Sources.....	28
		“Buy A Foot” Programs	29
		Land Acquisition	29
		Management, Maintenance and Security	29
		VII. Citizen Involvement	
		Citizen Based Organizations	30
		Responsibilities of Advisory Body.....	30
		Community Awareness	31
		Adopt-a-Greenway Program	31
		Private Sector Support	31
		VIII. Plan Recommendations	
		Policies and Action Agendas.....	32
		IX. Action Plan	33
		Appendixes:	
		A. Funding Sources for Greenway Trails	37
		B. Land Acquisition Strategies.....	38
		Acknowledgements	39
		Maps	
		Map 1. Forsyth County Greenway Plan	11
		Map 2. Proposed Brushy Fork Creek Trail.....	15
		Map 3. Proposed Muddy Creek Trail.....	16
		Map 4. Proposed Strollway Extension North....	17
		Map 5. Proposed Strollway Extension South....	18
		Map 6. Proposed Waughtown Connector	19
		Map 7. Proposed Tomahawk Creek and Blanket Bottom Creek Trails	20
		Map 8. Proposed Grassy Fork Creek Trail	23
		Map 9. Proposed Mill Creek Trail.....	24
		Tables	
		1. Schedule of Trail Design and Construction...	26
		2. Action Plan.....	34

I. Executive Summary

Forsyth County is becoming increasingly urban with an accompanying loss of open space. By 2015, its current population of 306,067 is projected to increase by 59,000 to 365,000. The County must plan to meet the recreation, conservation and alternative transportation needs of existing and future residents if it is to sustain and enhance the community's quality of life in the long-term.

The Greenway Plan

Greenways are defined as linear open space corridors that can be managed for conservation, recreation and/or transportation. The recently adopted *Legacy Development Guide* identified the need to provide open spaces for conservation, recreation, and communing with nature. It recommended the completion of a comprehensive open space, parks and greenway plan for Forsyth County. This greenway plan is the first phase of implementation of this recommendation. This plan makes recommendations for expansion of the existing greenway system to the year 2015.

Vision and Goals

The vision of citizens of Forsyth County for their community for the year 2015 was articulated in the *Legacy Development Guide*. This vision included the creation of a system of parks, open spaces and natural areas linked together by greenways. This system would provide recreational opportunities for all. Greenways would connect neighborhoods to nearby parks, shopping, schools and other neighborhoods, forming part of the multimodal transportation network.

The goal of the *Greenway Plan* is to improve the quality of life for residents of Forsyth County by expanding coverage of the existing greenway system thus providing recreational opportunities, protection of our natural environment and open space, and opportunities for walking and bicycling to a variety of destinations.

Existing Greenway System

To date, seventeen miles of trails have been built along seven different greenway corridors within the City of Winston-Salem. Attempts have been made to ensure that existing trails connect parks, shopping centers, schools and other facilities, whenever possible. The *Unified Development Ordinances* for Forsyth County and its municipalities require the dedication of forty feet (40') of greenway easements along major creeks and minor streams, tributaries and other linear features which are identified for greenways. The development, management and maintenance of existing greenway trails have largely been undertaken by the City of Winston-Salem.

Recommendations

This Plan proposes to expand the existing greenway system countywide to include:

- ◆ All major rivers and creeks with identified flood zones as Greenway Corridors. Minimum 40-foot easements are to be acquired as development occurs along all these creeks.
- ◆ Greenway Connectors along minor creeks, utility corridors and sidewalks. Minimum 40 foot easements will also be acquired along creeks that are greenway connectors.
- ◆ Greenway Trails and Connectors identified for development over the next 10-15 years.
- ◆ Thirty-four miles of trail are proposed for construction by 2015. The major ones are sections of the Brushy Fork, Muddy Creek, Tomahawk Creek, Grassy Fork Creek, Piedmont Trails, and extension of the Strollway.

Recommendations also include policies and action strategies for development, management and maintenance of the existing and proposed greenway system. The main action strategies include:

- ◆ Develop a greenway land acquisition program based on the proposed ten-year development schedule to identify and prioritize tracts for public acquisition, suggest potential acquisition methods, and devise long-term protection strategies.
- ◆ Provide local public funding for greenway development, management and maintenance.
- ◆ Actively pursue State, federal and private sources of funding for easement acquisition, trail construction and maintenance.
- ◆ Seek intergovernmental and interagency cooperation to implement a countywide, comprehensive greenway system.
- ◆ Assist in the establishment of a citizen-based organization dedicated to greenways.
- ◆ Conduct community and user surveys to determine level of demand, types of users and user satisfaction with facilities.
- ◆ Develop a marketing plan targeted to a variety of audiences, including the general public, potential donors, partners and users.
- ◆ Cooperate with surrounding counties to develop regional greenways.

Implementation

Success in developing an expanded countywide greenway system will depend on the degree to which this Plan's recommendations are implemented. County and municipal agencies dealing with recreation, transportation, utilities, land use planning and financing all have roles to play in ensuring effective implementation of the Plan. The Action Plan identifies those groups which have primary responsibility for initiating and directing the tasks to be completed to ensure ongoing success of the greenway program. It also establishes a timetable for implementation of recommended actions which ensures that even as construction of greenway trails proceeds, a system is being put in place to ensure continued securement of greenway easements, an increase in the rate of trail construction in the long-term, and a more countywide distribution of trails.

II. Introduction

What Are Greenways?

Greenways are defined as linear open space corridors that can be managed for recreation, conservation, and/or transportation. They are corridors of green that can help conserve our natural environment, improve our transportation options, and provide opportunities for healthy outdoor activities and quiet reflection, thus improving our quality of life.

The greenway concept has been around for over one hundred years in a variety of forms. In 1987, The President's Commission on Americans Outdoors focused national attention on greenways and recommended their establishment "to link together the rural and urban spaces in the American landscape." The nationwide popularity of greenways has increased with the loss of farms, wetlands, scenic woodlands and other open spaces in our communities and as the need for a respite from the hectic pace and traffic of urban living grows.

Greenways are usually established along natural corridors such as rivers and creeks or along utility or railroad rights-of-way, scenic roads or other routes. They may take a variety of forms including: riverfront or lakefront walkways, bicycle paths, urban walking trails, hiking trails and wildlife migration corridors. Some greenways are designed to be used for recreation and non-motorized transportation. Others are designed for wildlife, biodiversity and scenic beauty. Some are designed to be multi-use, serving more than one function.

Greenways can provide many ecological, economic, and recreational benefits that are essential to healthy, functioning cities, neighborhoods and landscapes. They can be an amenity in residential neighborhoods, providing recreational opportunities, access to nature, and enhancing the appearance of the community. They can contribute to healthy living by accommodating a wide range of popular recreational activities such as jogging, walking, bicycling, horseback riding and other outdoor activities. The National Center for Chronic Disease Prevention and Health Promotion recommends that communities provide environmental inducements to physical activity such as safe, accessible and attractive trails for walking and bicycling as well as sidewalks.



Conserving wetlands - The Bethabara Trail

A 1998 survey by American LIVES Inc. for the real estate industry revealed that home buyers identified natural open space and walking and biking paths among the top four factors in their home-purchasing decisions. A 1993 survey of new and used home buyers in the Charlotte area found that walking and biking paths were the second most important amenity to buyers.

Greenway trails can also increase the real estate value of adjacent properties. A 1992 National Park Service Study and other studies found that property values either increased or remained constant. A 1998 study of property values along the Mountain Bay Trail in Brown County, Wisconsin shows that lots adjacent to the trail sold faster and for an average of nine percent more than similar property not located next to the trail. Realtors often list proximity to trails when marketing homes and newer housing developments advertise trailside and greenway lots at a premium. According to a 1995 study, *The Effects of Greenways on Property Values and Public Safety*, 73 percent of real estate agents surveyed in Denver, Colorado believed that homes adjacent to trails would be easier to sell.

The potential environmental benefits of greenways are many. They can serve as buffer strips and a river's last line of defense against pollution and runoff. They can protect fragile ecosystems, help to preserve wildlife, assist in erosion and flood control, safeguard watersheds from overdevelopment and preserve scenic beauty. They can provide an environment for nature study, help promote tourism by enhancing an area's unique natural and cultural attractions, and create more places for outdoor recreation.

Unlike traditional parks and recreation areas, greenways have the potential to link our communities and neighborhoods through a network of trails and open spaces connecting a variety of land uses. These linear open spaces can connect points of interest such as parks, natural areas, historic and cultural features, neighborhoods, places of employment, schools and shopping centers, and provide pathways for people commuting by foot or bicycle. Linked greenways and open spaces, therefore, create the network of a comprehensive greenway system which can be designed to achieve multiple objectives.



Jogging on the Salem Creek Greenway Trail

Why a Greenway Plan?

Greenway planning and development in Forsyth County goes back to the 1980s. *Vision 2005, a Comprehensive Plan for Forsyth County, North Carolina*, completed in 1987 by the City-County Planning Board, recognized the role of greenways in improving the quality of life for the citizens of Forsyth County and included a Greenway System Plan as part of the comprehensive plan. The Greenway System Plan identified the major components of a countywide greenway system focused along major streams in the County.

The recently adopted *Legacy Development Guide*, recognized that Forsyth County is becoming increasingly urban, losing much of its farmland, forests, wetlands and other green open spaces to development. The habitat of many of our plant and animal species are being threatened. The *Legacy Development Guide* identified the need to provide open spaces for conservation, recreation, and to commune with nature. It also recognized the need to create a network of bikeways, sidewalks and greenway trails as an integral part of the transportation system providing alternative means of transportation as well as recreation opportunities. *Legacy*, therefore, recommended the completion of a comprehensive open space, parks and greenway plan for Forsyth County.

The *Greenway Plan* is the first phase of implementation of this recommendation. It is intended to make recommendations for expansion of the existing greenway system to the year 2015. It will also identify a number of greenway trails for feasibility study, design and development over the next ten to fifteen years.

The plan should serve as a guide to local governments, nonprofit organizations and private businesses involved in funding and developing community greenways; as a resource for citizens, particularly landowners interested in facilitating expansion of the greenway system; and be used when applying for federal and State funding for greenway trails.

The Greenway Planning Process

The Greenway Plan - Winston-Salem and Forsyth County 2015 is intended to begin implementing a plan of action translating the community's vision for greenways as defined in the *Legacy Development Guide* into reality. Public meetings on the plan were held on October 25 and 30, 2001. Presentations of the plan were made to the Winston-Salem Recreation and Parks Commission and to other organizations including the Be Healthy Coalition and the Bicycle Advisory Committee. The plan was also included in a series of twelve public drop-in meetings held throughout Winston-Salem and Forsyth County on the *Winston-Salem/Forsyth County Urban Area Thoroughfare Plan Update* held in October and November 2001.

A public hearing held January 24, 2002 by the City/County Planning Board revealed widespread support for the plan

which was endorsed by the City/County Planning Board. Public hearings were also held by the Clemmons and Lewisville Planning Boards. The plan adopted by the Village of Clemmons on March 25, 2002; the Town of Lewisville on April 11, 2002; and the City of Winston-Salem on April 15, 2002. The Forsyth County Board of Commissioners adopted the plan on September 23, 2002.

Trends Influencing Greenway Planning and Development

The prevailing statewide interest in greenway and urban trail development is illustrated in the results of the *1998 North Carolina State Trail and Greenway Survey* which showed that:

- ◆ **Over 50 percent of all adult North Carolinians used or wanted to use a trail or greenway during the prior 12 months.**
- ◆ **Nearly 70 percent felt it was important to have trails available in North Carolina.**
- ◆ **Trails and greenways use is expected to grow.**
- ◆ **The willingness to invest in trails is strong.**
- ◆ **Trails and greenways use make a significant contribution to the State's economy.**

The State's "Year 2000 Million Acres Initiative" is a challenge to preserve an additional one million acres of open space over the next 10 years. It proposes employing public/private partnerships to conserve open space for parks, trails, stream buffers and watersheds. Expanding the local greenway system is a step in meeting this challenge.

A countywide Public Parks and Recreation Facilities Survey conducted in June 2002 by the City/County Planning Board revealed that walking/hiking and biking together ranked first among recreational activities most enjoyed by residents and their families and walking/biking trails ranked first among the recreation facilities respondents feel are most urgently needed in the community.

A *Community Parks Needs Assessment Survey* completed by the Town of Kernersville in December 2001 revealed that 83% of residents feel that the town needs walking trails and bicycle paths.

A *1999 Citizen Survey* conducted by the Town of Lewisville asked citizens to rate eighteen parks and recreation activities on a scale ranging from 1 (no need at all) to 5 (serious need). Walking and jogging trails were ranked as the number one need by 75% of respondents, followed by cycling facilities and nature trails

The *Legacy Development Guide's* visioning process revealed the community's interest in developing a countywide network of greenways to be used for outdoor recreation, conservation and alternative modes of transportation. As our communities become more urban, residents will seek out more outdoor space for recreation.

A number of local and national demographic, environmental, social, economic and development trends are likely to influence greenway planning and development in Forsyth County. These include:

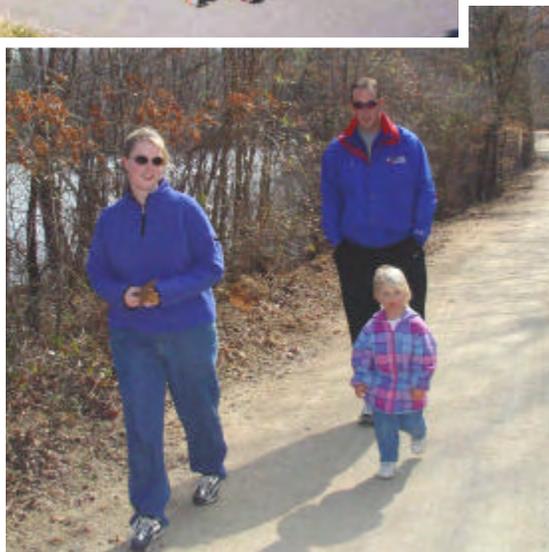
- ◆ A projected population increase in Forsyth County of approximately 59,000 residents by 2015
- ◆ Increasing urbanization of the County and the projected increasing density of urban development
- ◆ The increasing importance being placed on wellness activities, including walking, jogging, biking, skating, etc.
- ◆ The increasing loss of open space
- ◆ Growing recognition of the need to manage disappearing natural resources, reduce air and water pollution, promote environmentally-friendly lifestyles, and increase aesthetic appreciation
- ◆ The desire to pursue alternative transportation options to reduce vehicle trips, traffic congestion and air pollution
- ◆ The desire to make our communities more walkable and livable
- ◆ Increased amount of leisure time due to greater opportunities for part-time employment and longer life expectancies
- ◆ Increasing recognition of the economic value of a community's quality of life and the potential contribution of greenways to that quality of life
- ◆ Collaboration and partnerships between public, private and nonprofit sectors in planning and development of greenways
- ◆ More citizen participation and stakeholder involvement in planning and development of greenways



III. Vision, Goals and Objectives

The Vision

The citizens of Forsyth County articulated their vision for their community for the year 2015 in the community vision statement called "Forsyth County Tomorrow" which forms part of the adopted *Legacy Development Guide*. Their vision for the community included the creation of a system of parks, open spaces and natural areas linked together by greenways providing recreational opportunities for all, and allowing city dwellers to enjoy the countryside and interact with nature. It included neighborhoods which offer choices in the way we get around and where we can travel by bicycle, on foot, or bus. Sidewalks and greenways would connect neighborhoods to nearby parks, shopping, schools and other neighborhoods. Pedestrian and bicycle paths would form part of the comprehensive transportation network. Their vision also included the creation of regional greenway systems.



Goals and Objectives

The *Legacy Development Guide* identifies an overall goal for the development of open space, parks and recreation within Forsyth County based on the citizens' vision for their community. This overall goal is that "Forsyth County residents enjoy an extensive system of parks and preserved natural areas connected by a network of open spaces and greenways."

The *Legacy Development Guide* also identifies the need to develop "a network of greenways providing recreational opportunities, protection of our natural environment and open space, and alternative transportation links between neighborhoods and activity centers." The goal of this Greenway Plan is, therefore, to accomplish this by expanding coverage of the existing greenway system. This overall goal has been further refined into the following objectives:

- ◆ To facilitate the establishment of a countywide greenway system.
- ◆ To identify priorities for greenway trail development.
- ◆ To provide a diverse range of users with opportunities for outdoor recreation, access to nature, educational opportunities and personal fitness such as walking, jogging, biking, skateboarding, hiking, and birding.
- ◆ To design a greenway trail system that includes connections between neighborhoods and parks, schools, institutions, shopping and other points of interest and offer residents safe and inviting routes to walk and bike to these destinations.
- ◆ To establish a greenway system that conserves open space, protects wetlands and floodplain environments, preserves wildlife habitats and protects water quality.
- ◆ To encourage private landowners to conserve open space, donate greenway easements and build greenway trails.
- ◆ To facilitate communitywide public awareness on greenways and encourage community involvement in greenway planning, development, security and maintenance.

IV. Greenway Planning and Development in Forsyth County

Existing Greenway System

To date, seventeen miles of trails have been built along seven different greenway corridors within the City of Winston-Salem. The latest project is the Brushy Fork Trail and construction began in 2001. The existing greenway trails all have different characteristics depending on the types of users and respond to the unique conditions of the areas through which they pass. There are paved and unpaved trails that are designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, bird watchers and those confined to wheelchairs. The Strollway, for example, is a paved, urban trail. Most of the Salem Lake Trail is unpaved. There are also boardwalks and bridges crossing parks, historic sites, wetlands, streams and lakes. The trails are used mainly by pedestrians and bicyclists. However, not all the existing trails are suitable for bicycle use; not all are handicapped accessible. The Bethabara Greenway, for example, has boardwalks and steps.

Attempts have been made to ensure that existing trails connect parks, shopping centers, schools and other facilities whenever possible. For example, the Salem Creek Greenway Trail connects Reynolds Park Golf Course, Winston-Salem State University, Civitan Park, Happy Hills Park, Central Park, Washington Park and the Market Place Shopping Mall. Where greenway trails connect to urban facilities, there is a need to ensure their suitability for bicycling if our greenway trails are to offer a real alternative to automobile use. One of the goals of the *Winston-Salem Forsyth County Pedestrian Plan* presently being completed is to use sidewalks, whenever possible, to connect trails with community facilities and public transportation facilities.

A program for greenway easement acquisition has been developed and is already in operation. The *Unified Development Ordinances* require the dedication of forty feet (40') of greenway easements along major creeks and minor streams, tributaries and other linear features which are identified for greenways or for connections to major greenways. In addition to the 17 miles of trails already developed, there are approximately 12 miles of greenway easements reserved through rezoning and subdivision approvals. Many of these are small and disconnected but are slowly accumulating over time. Approximately 4.5

miles or 37 percent of these easements are associated with suburban subdivisions located along the Muddy Creek.

Some of the recommendations for a greenway system outlined in *Vision 2005* have been implemented. However, implementation has been slowed by limited funding for greenway construction in the 1990's and difficulties in acquiring greenway easements. In fact, greenway trails have been developed at a rate of less than 2 miles per year during the past decade. The *North Carolina Outdoor Recreation Plan 1995-2000*, completed by the North Carolina Department of Environment, Health and Natural Resources, ranked Forsyth County forty-ninth out of one hundred counties in the State with respect to the number of residents per miles of available trails in the county. An increase in the rate of trail development and continuing securement of easements for future development would greatly enhance the community's quality of life in the long-term.



The Strollway - A trail along an abandoned railway line in downtown Winston-Salem



Children skating on the Silas Creek Trail

Greenway Planning in Forsyth County

Greenway planning and development in Forsyth County commenced with a recommendation from the *Forsyth County Growth Strategy* to establish the 4.5-mile Salem Creek Trail as a pilot project for a network of greenways throughout the County. Work on this project began in 1984 and construction was completed in 1989. Planning for a second project, the 2.7-mile Bethabara Trail, soon followed and construction started in 1990. Meanwhile, the 1988 comprehensive plan for Forsyth County, *Vision 2005*, included a plan for a countywide, creek-based greenway system focused on the Muddy Creek, a major north-south creek located in the western part of the County.

Greenway planning for the community is currently the responsibility of the City-County Planning Board. The *Legacy Development Guide* identifies major streams in Forsyth County as potential greenways. A number of additional greenway trails and some new community and neighborhood connectors have also been identified through area and community plans. Other municipalities in the County are becoming increasingly involved in greenway planning and development.

The Kernersville Planning Department proposes in 2003 to work on a bike and pedestrian plan for Kernersville that includes greenway trails. A proposed Piedmont Greenway Trail linking Winston-Salem to Greensboro through Kernersville and the Triad Park could be a significant component of this plan. Consultants engaged by the Piedmont Land Conservancy are expected to complete in 2003 a study of alternative alignments for a regional trail. The results of this study can inform Kernersville's greenway planning process.

The *Lewisville Comprehensive Plan Update 1997* proposed the development of approximately 17.5 miles of greenway trails. These include a proposal to link Joanie Moser Memorial Park to surrounding neighborhoods and centers of commerce. This system could ultimately link Lewisville (by way of Tomahawk Creek) to the proposed Muddy Creek Greenway in Winston-Salem. Another system would link neighborhoods in Lewisville to a proposed park located off Shallowford Road and follow Mill Creek to the existing Old US 421 River Park on the Yadkin River. A third system is a greenway connection from Lewisville along Blanket Bottom Creek to Clemmons and potentially to Tanglewood Park. No Lewisville trails have been developed to date. Detailed studies are required to determine the feasibility of proposed routes.

The *Clemmons Area Development Guide* proposes that Clemmons initiate a greenway program. It proposes investigation of a potential greenway system paralleling sewer lines to utilize sewer easements, where possible. It identifies one potential greenway trail, Tanglewood Trail, which

would run from the Muddy Creek trail to Tanglewood Park. The *Guide* proposes the formation of a study committee to investigate the feasibility of this trail and other potential greenway trails.

A *Bicycle and Pedestrian Facilities Plan* for the town of Rural Hall, adopted in 2001, includes proposals for two main greenway trails. The Grassy Fork Creek Greenway Trail is proposed to follow the Grassy Fork Creek with a connector to Rural Hall's main park, Covington Memorial Community Park. This trail had been proposed in *Vision 2005* and the *Legacy Development Guide*. The other proposed trail, the Forum Trail, will follow a Duke Power utility easement, connect Bethania-Rural Hall Road with Montroyal Road and cross the Forum Parkway. A proposed system of sidewalks will connect these greenway trails to neighborhoods, shopping areas and employment areas.

The *1999 Strategic Plan for the Village of Tobaccoville* proposed that the community seek funding to undertake a study to establish a greenway system in their town. The *1999 Transportation Needs Report* proposed a study to determine the feasibility of constructing a 1.19-mile bike trail from Tobaccoville Park along Rolling Hill Drive and Doral Drive to the city limits of King. The purpose of the trail would be to connect residential development to the village and employment centers thus providing an alternative transportation option. However, the recently adopted *Village of Tobaccoville Development Guidelines 2020* does not identify proposed greenway trails for further study.

Vision 2005 identified Lowery Mill Creek as the potential route for a greenway trail to service Walkertown. The feasibility of building a trail along this route or alternative routes has not been further investigated. To date, easements have not been obtained along this or other creeks in Walkertown for establishment of greenway trails. There is an existing Duke Power utility easement along sections of Lowery Mill Creek. There are also proposals to construct a sewer system to service Walkertown. The feasibility of utilizing sewer and existing Duke Power easements for development of greenway trails to serve Walkertown needs to be further investigated. Securement of joint use easements for both sewer and greenways will facilitate



*Out for a stroll
with Dad.*

trail development. Since sections of Lowery Mill Creek flow through both Walkertown and Forsyth County, completion of a trail will be contingent on the Town of Walkertown and the County obtaining the required easements. The Lowery Mill Creek Trail, if developed, could connect neighborhoods in Walkertown to the proposed Salem Lake North Trail. If a town plan for Walkertown is completed in the next five years, the opportunity should be taken to examine in more detail the issues of easement acquisition, potential trail development along Lowery Mill Creek and Martin Mill Creek, potential connectors to the town center, and crossing the proposed eastern leg of the Beltway to join the proposed Salem Creek North Trail.

At the regional level, as one of the opportunities for attaining the goal of regional cooperation, the *Legacy Development Guide* identifies the development of a system of regional parks, trails, open space and other recreational facilities that would enhance the recreational opportunities and quality of life for residents of the region. It, therefore, recommends among other proposals, the completion of a regional greenway plan of trails linking the region. A Piedmont Greenway Trail - linking the Forsyth County greenway trail system to the trail systems of Greensboro and High Point - will be the major component of a regional system. Work on a feasibility study for this proposed trail is already underway. The possibility also exists of linking the Forsyth County system directly to the High Point system through Kernersville along the West Fork Deep River. The feasibility of a greenway linkage between Forsyth County and its neighbors to the west by way of the Yadkin River is an additional dimension of regional greenway planning that needs to be further explored.



*Birdwatching
along a Greenway trail.*

Greenway System Components

The ultimate goal of long-term greenway planning in Forsyth County is to create a greenway system that provides recreational opportunities for all residents in the County, protects our natural environment and provides alternative transportation links between neighborhoods, businesses, schools, parks and other destinations. This Plan attempts to build upon the successes of past greenway planning experiences, learn from its failures, and take advantage of new opportunities that are becoming available in order to meet identified goals and objectives. It proposes an expanded greenway system and makes recommendations on how to develop and manage it. The components of the greenway system proposed in this plan are greenway corridors, trails, connectors and destinations.

Greenway Corridors

The primary component of the proposed Winston-Salem/Forsyth County Greenway System are **Greenway Corridors**. Greenway Corridors are strips of land that parallel existing stream corridors or follow utility or abandoned rail corridors. They can vary in width relative to the size of the natural water course or utility corridor they follow. Greenway Corridors, such as those along streams, are considered conservation corridors when they serve as biological conduits for wildlife, help protect streams and water quality, or serve other conservation functions. These also often provide opportunities for compatible, resource-based recreational activities such as hiking and bird watching. This Plan recommends that the flood zones along all the major creeks in the County be designated as Greenway Corridors. Greenway trails can be established within these corridors but all Greenway Corridors do not have to accommodate trails. The existing and proposed Greenway System is basically a floodplain-oriented, linear park network where the major Greenway Corridors follow existing major streams and creeks.



*Greenway trail
along a stream corridor.*

In areas where easements along streams are not available for trail development, abandoned rail and utility corridors - which could include water, sewer, electric, gas and fiber optics corridors - should be used, where feasible, to extend the system. Most utilities use linear corridors, but, too often, these corridors are dedicated to one exclusive use. Combining public use and recreation with the utility functions along these corridors can have many advantages. Advantages include: separation of users from traffic and noise; making utility corridors more attractive; using a potentially divisive barrier as a connector; presenting an opportunity for public-private partnerships in providing for recreation; and better use of valuable urban land by combining corridor functions.

Greenway Trails

Greenway Trails are located within Greenway Corridors. The trail type in each case will depend mainly on the physical characteristics of the site, the proposed function and use of the trail, surrounding land use, and costs of trail development. Detailed feasibility studies will include consideration of alternative trail alignments and the most suitable trail types for any proposed Greenway Trail. One Greenway Trail can consist of sections with different trail surfaces, from essentially undeveloped trails to paved pathways, depending on the length of the trail and the characteristics of the land through which the trail passes. The three main types of trail design used by the City of Winston-Salem are: 1) natural, cleared, unpaved trails; 2) improved trails with rock dust or gravel surface; and 3) paved trails. Section V gives more detailed information on the design and development of greenway trails.

To date, trails have been constructed along sewer rights-of-way or easements obtained in floodplains along creeks within the City of Winston-Salem. There has also been some limited use of electric and sewer rights-of-way in the past to construct trails. However, procedures should be established to further facilitate their use throughout the



Greenway trails offer exercise and beauty for the elderly.

County, where appropriate. Detailed area plans and trail design studies may result in the identification of utility corridors with the potential for trail development. A public/private partnership with Duke Power would facilitate the development of utility corridors as part of the Greenway System. Developers should also be encouraged to develop private trails along sewer easements in their developments to connect to existing or proposed greenway trails.

Greenway Destinations

Greenway Destinations are points of interest or activity along a Greenway Trail. They can be neighborhoods, parks, transit stations, shopping areas, schools, colleges, employment areas, historic sites or other areas of interest.



Market Place Mall is a greenway destination on Salem Creek Trail.

Greenway Connectors

Greenway Connectors link major greenway trails to other trails or to destinations. They can be sidewalks or trails along creek tributaries, utility easements, abandoned railway corridors or other linear features. *Vision 2005* identified 22.5 miles of potential connectors along creeks. A number of area plans and studies completed after *Vision 2005* identified possible new trails and connectors including some sidewalk connectors. This plan proposes 2.0 miles of new Greenway Connectors along Duke Power utility easements.

When stream-based routes are not available or practical, paths parallel to roadways can supplement or link the stream-based greenway trails. Acquiring land parallel to existing roadways is difficult and expensive and should be considered only when other options are not available. Construction of new roads, however, presents greater opportunities. Developing paths for bicycles and pedestrians parallel to new roads and linked to greenways, when possible, should be considered as part of the planning for all new road projects.

The identification of additional connectors is likely to occur during the detailed planning of each individual greenway trail or when completing area plans. Additional connector paths to major greenways should be considered based on the desire of neighborhoods to be connected, the existence of sewer or other utility rights-of-way, and other land and/or sidewalk facilities available for connection.

The Expanded Greenway System

It is proposed to expand the Forsyth County Greenway System to include:

◆ **All major rivers and creeks with identified flood zones as Greenway Corridors. Minimum 40-foot easements are to be acquired as development occurs along all these creeks.**

◆ **Greenway Connectors along minor creeks/tributaries, utility corridors and sidewalks. Minimum 40-foot easements will also be acquired along creek connectors.**

◆ **Greenway Trails and Connectors identified for development over the next 10-15 years (Map 1, Table 1). The expanded trail system includes existing greenway trails, greenway trails identified for future study or development in local area and transportation plans, and regional trail proposals.**

Acquisition of 40 foot greenway easements will continue on an ongoing basis during the development process along all creek-based Greenway Corridors and Connectors proposed in this plan

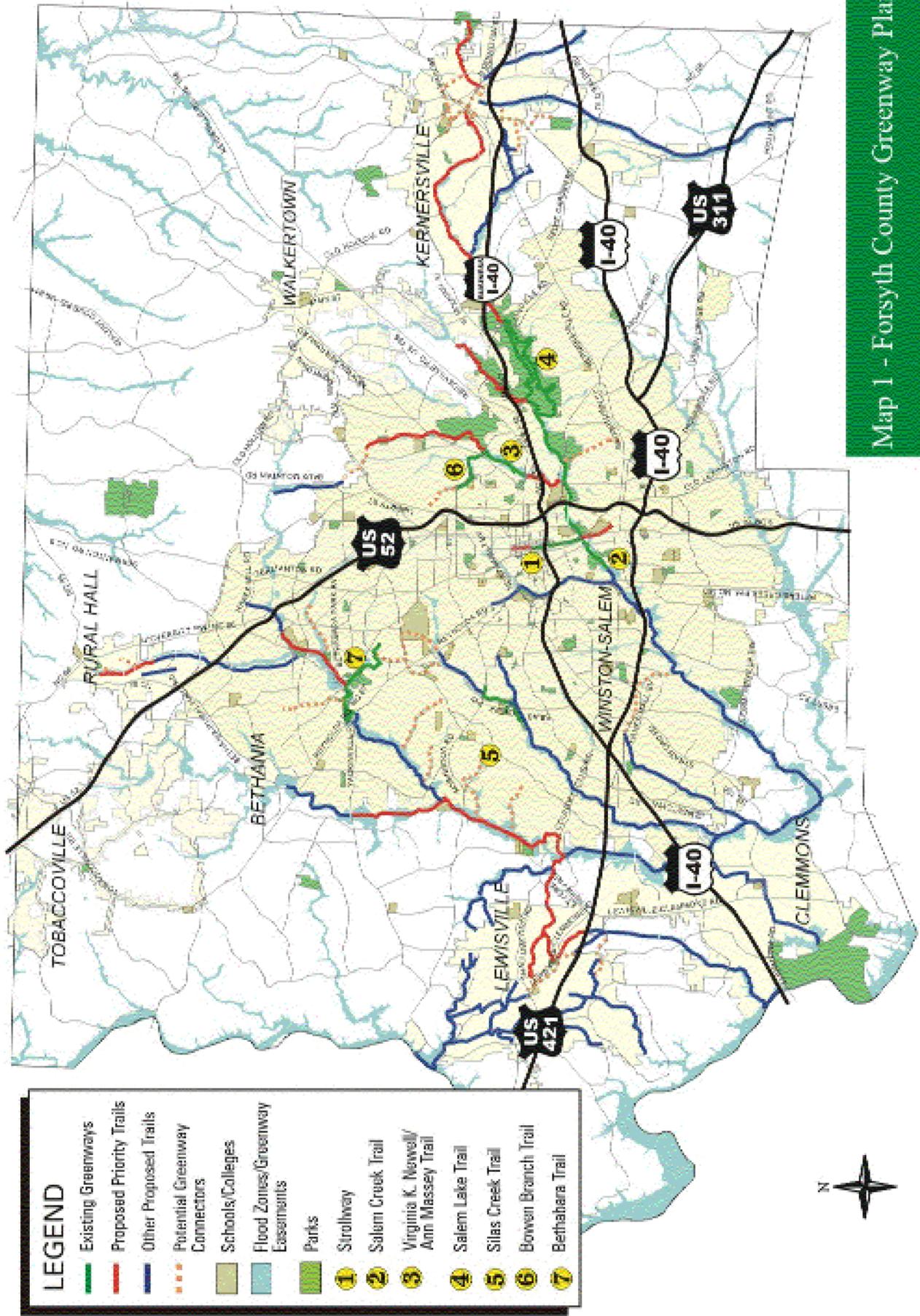


and in future area plans. Easements are to be obtained on both sides of creeks. This would facilitate the long-term development of a system of linear open spaces and greenway trails along creeks. Where Greenway Trails and Connectors are proposed within utility easements or use existing or proposed sidewalks, trail design and construction will be adapted to existing conditions, using available easements and sidewalks as well as other alternatives.

Trails proposed in future adopted area plans will be considered an update of this greenway plan. Additionally, reviews of this plan would allow for further expansion of the system.

Map 1 identifies the main elements of the expanded greenway system which include the existing greenway trails, proposed priority trails 2002-2015, other greenway trails proposed in area plans and other studies for long-term implementation, and potential greenway connectors.





Map 1 - Forsyth County Greenway Plan

LEGEND

- Existing Greenways
- Proposed Priority Trails
- Other Proposed Trails
- - - Potential Greenway Connectors
- Schools/Collages
- Flood Zones/Greenway Easements
- Parks
- 1 Strollway
- 2 Salem Creek Trail
- 3 Virginia K. Newell/Ann Massey Trail
- 4 Salem Lake Trail
- 5 Silas Creek Trail
- 6 Bowen Branch Trail
- 7 Bethahara Trail



V. Greenway Trail Design and Development

Greenway Trail Design

Successful implementation of the Greenway Plan requires recognition of the importance of standards and design in construction and development of each segment of the system. Minimum standards for greenway planning, construction and maintenance are needed to guide the physical development of trails. These may be supplemented on a corridor-by-corridor basis. Greenway Corridors can accommodate a variety of trails including pedestrian, hiking, equestrian, mountain bike and multipurpose trails. There are many types of greenway trails and greenway users.

The first consideration when designing a trail is to determine the range of users to be accommodated. Recent studies indicate that trail users have been expanded to include more families, more middle-aged and elderly, and more people with a variety of disabilities. Trails should be designed to accommodate users typical of the local community. In North Carolina, walking for pleasure was identified as the most popular greenway/trail activity, followed by hiking and bicycling. There is no current data on greenway users in Forsyth County; however, walkers and bicyclists appear to make significant use of existing greenway trails.

Trail users in Forsyth County have traditionally been grouped into pedestrian and nonmotorized vehicular trail users. Pedestrian trail users are walkers, hikers, joggers, runners, persons confined to a wheelchair, bird-watchers, nature lovers and picnickers. They move along greenway trails at a slow pace. Nonmotorized vehicular greenway users are primarily bicyclists and roller skaters. They move along greenway trails at a wide range of speed. Most of our existing greenway trails are multiuser routes with different users traveling at varying speeds along them. Possible conflicts among greenway users on multiuser routes can be avoided with a greenway design that includes an adequate trail width to accommodate different types of users and gradient and sight lines that promote safety. In addition, including road-like signing along greenway trails, developing standards of behavior for users, and using appropriate combinations of enforcement and education will ensure everyone will enjoy the greenway experience.

Another important consideration in trail design is the need to evaluate the landscape to determine the most suitable type of trail for the topography and environment of the site. There are environments in which low-intensity use trails are preferable to high-intensity use trails.

Finally, careful consideration needs to be given to the costs of construction and maintenance. Generally, paved trails are for walking, jogging and bicycling; unpaved trails for mountain biking, hiking, horseback riding; and footpaths for walking through woodlands. Paved trails are more costly to develop than unpaved trails but require less maintenance. The need for bridges, boardwalks and retaining walls add significantly to the cost of a greenway project.

The majority of our existing greenway trails are located mainly along creeks in Winston-Salem and are multiuser paved trails which are urban in character. They vary in width and design elements, such as seating, landscaping, lighting, etc. These are the most expensive types of trails. As the system expands into less urban areas and includes regional trails, we can expect more unpaved trails in areas where lower intensity use may be more appropriate.

The planning of specific greenway trail projects should address as many as possible of the following design issues:

- ◆ **Providing recreational opportunities**
- ◆ **Providing surfaces and widths appropriate to the expected user types, intensity of use and maintenance levels expected**
- ◆ **Locating access points relative to destinations and transportation facilities**
- ◆ **Linking significant origin and destination points such as parks, schools, shopping areas, residential developments**
- ◆ **Protecting and minimizing disturbance to the County's natural environment, cultural and historic resources**
- ◆ **Preserving and enhancing scenic values**
- ◆ **Providing accessibility for residents regardless of ability**
- ◆ **Ensuring safety**
- ◆ **Providing environmental education**

The width of a greenway trail depends on the types of users that will be permitted access to the trail, the potential for conflict among users, environmental sensitivity, and the cost of trail construction. The minimum recommended width for urban trails, where pedestrians and bicycles are allowed, is ten (10') to twelve (12') feet. Existing greenway trails in Winston-Salem are eight feet (8') wide with the exception of the Bowen Branch Trail which is twelve feet (12') wide. The minimum recommended widths for urban trails in Forsyth County are as follows:

User type	Width in Feet
Pedestrian/nonmotorized vehicles	10-12
Pedestrian only (two-way travel)	8

Trails are intended to provide users with access to the unique environments of the community without destroying them. All trails should be designed and constructed to be safe; blend harmoniously with the topography, vegetation and other features of the environment; and offer users a satisfying experience.



A boardwalk on the Bethabara Trail

Priorities for Trail Study, Design and Construction

This plan proposes a ten- to fifteen-year program of trail development. Because of the large number of potential greenway trail projects and limited funding, the following criteria which have been used in the past will continue to be used to set priorities for trail development:

- ◆ **Formal request for greenway trails by neighborhood groups**
- ◆ **Access provided to existing or proposed facilities and points of interest**
- ◆ **Size of the service population and neighborhoods served**
- ◆ **Overall connections provided throughout the County**
- ◆ **Amount of land owned or easements acquired by the City, County or other municipality**
- ◆ **Connections made to completed trails**

Trail development should be based on need and opportunity. User surveys in many communities indicate that recreation trails draw heavily from nearby areas, an important criterion in determining where trails should be located. The availability of land or feasibility of land acquisition will also determine to a significant extent selection of projects for construction. Attempts have been made in this trail development program to identify priority projects in different parts of the County including the older urban areas, newly developing suburban residential areas where easements have been or are likely to be secured, and smaller towns where greenway trail development has not taken place in the past. Some of the projects have been identified in area plans and studies completed after *Vision 2005*. Following is a brief description of the proposed trails identified for more detailed study and/or development during the next 10-15 years.

Brushy Fork Creek Greenway Trail

Located in the eastern part of the City of Winston-Salem, the proposed Brushy Fork Creek Greenway Trail (Map 2) is to be a paved recreation and transportation trail connecting residential neighborhoods, schools and major points of leisure activity within the area. This project, funded to date with North Carolina Department of Transportation Enhancement Funds and local matching City funds, consists of four phases. Phase 1 of this trail, one mile in length, was completed in April 2002 and has been named the Virginia K. Newell/Ann Massey Trail. It extends for one mile along Brushy Fork Branch Creek from Skyland Park to Waterworks Road. A neighborhood connector (a section of the Bowen Branch Trail) has been completed and will link the Bowen Boulevard Park and Fitness Course, Ashley Middle School and surrounding neighborhoods to the Brushy Fork Trail. Consideration is being given at this time to the feasibility of connecting the existing trail to the Salem Creek Trail. When completed the Brushy Fork Trail will serve existing established residential development.

Muddy Creek Greenway Trail

At 14.8 miles, the Muddy Creek Trail (Map 3) is the longest proposed trail in the Greenway System. As the City of Winston-Salem continues to grow westward, much of the vacant land along Muddy Creek is in the process of being developed. New single-family subdivisions, multifamily units and schools have been developed and approximately 4.7 miles of easements have been acquired through their rezoning and subdivision process. Development of sections of the Muddy Creek Greenway Trail which will serve new suburban development is a priority during the next decade of greenway trail development. The first section proposed for trail construction extends from Country Club Road to Jefferson Elementary School just north of Robinhood Road (approximately 3 miles). It will link Meadowlark Elementary and Middle Schools and Jefferson Elementary School to Meadowlark Park and surrounding existing and future development. There are approximately 2 miles of easement available in this stretch of the proposed greenway. It is proposed that this project, a paved greenway trail, be financed within the next 5 years by two-thirds city bonds and, if possible, NCDOT enhancement funds. An additional 2.6-mile section of a proposed greenway trail from Jefferson Elementary School to Yadkinville Road is scheduled for feasibility study after 2005 as one of the bicycle and pedestrian projects of the Transportation Enhancement Program of the North Carolina Department of Transportation. Planning, design, land acquisition and construction of this 2.6-mile section is expected to cost in excess of \$500,000. A privately developed trail in the Summerfield subdivision is located along this section of the proposed greenway trail and is heavily used by the neighborhood. This can be linked to the Muddy Creek Trail if the neighborhood wishes to do so. It is expected that development of other phases of the Muddy Creek Trail will continue beyond this plan period.

The Strollway

The existing Strollway (Maps 4 and 5), the first rail-trail conversion in North Carolina, is a 1.2-mile greenway trail in downtown Winston-Salem which stretches from Fourth Street to Salem Avenue in the vicinity of Old Salem and follows the route of an abandoned rail line. Recent recommendations for the revitalization of downtown Winston-Salem include proposals for the extension of the Strollway approximately 0.4 miles north along Trade Street to Eighth Street.

The Southeast Gateway Plan recommends extension of the strollway approximately 0.6 miles south along an existing rail corridor to link Sunnyside neighborhood, the North Carolina School of the Arts and Old Salem with the Salem Creek Trail and downtown Winston-Salem. It also recommends relocating the section of the Salem Creek Trail on the Salem Avenue sidewalk between Main Street and Broad Street to alongside Salem Creek. This section of the Salem Creek Trail connects the Strollway to Washington Park. Construction of north and south extensions of the Strollway should be completed in the period 2001- 2005 as part of ongoing downtown revitalization efforts and implementation of the Southeast Gateway Plan.

The Waughtown Greenway Connector

This Greenway Connector (Map 6), located in the Waughtown community of Winston-Salem, is proposed to follow the existing Duke Power utility easement from I-40, across Sprague and Waughtown Streets, northwest through the Piedmont Quarry site, to join the Salem Creek Greenway Trail. The master plan for the Piedmont Quarry site proposes that 73 acres, including the quarry, remain in permanent open space with unpaved nature trails throughout which connect to the proposed Waughtown Greenway Connector. The draft *Southeast Winston-Salem Area Plan* identifies this trail as connecting the Waughtown community to the Salem Creek Greenway Trail. It also proposes a second greenway in this area running east-west along the

alignment of an existing railway corridor and linking with the north-south Waughtown Connector. In the longer term beyond the period covered by this Greenway Plan, a new US 311 road connector is planned in this area between Business I-40 and the I-40 Bypass. The proposed new road includes a walking/bicycle trail parallel to the road. Construction of the approximately 1.2-mile section of the Waughtown Connector between Waughtown Road and The Salem Creek Trail will likely be constructed during the period covered by this Plan.

Tomahawk Creek Greenway Trail

The *Lewisville Comprehensive Plan Update 1997* identified a number of creeks for potential greenway trail development (Map 1). The Tomahawk Creek Greenway 1 and the Tomahawk Creek Greenway 2 are the two trails most likely to be developed over this Plan period (Map 7).

Tomahawk Creek Greenway Trail 1: This proposed 3.04-mile greenway trail will extend from Conrad Circle via Saddlebrook Circle and Arbor Run to Lewisville's boundary. There is an existing sewer easement along this section of Tomahawk Creek.

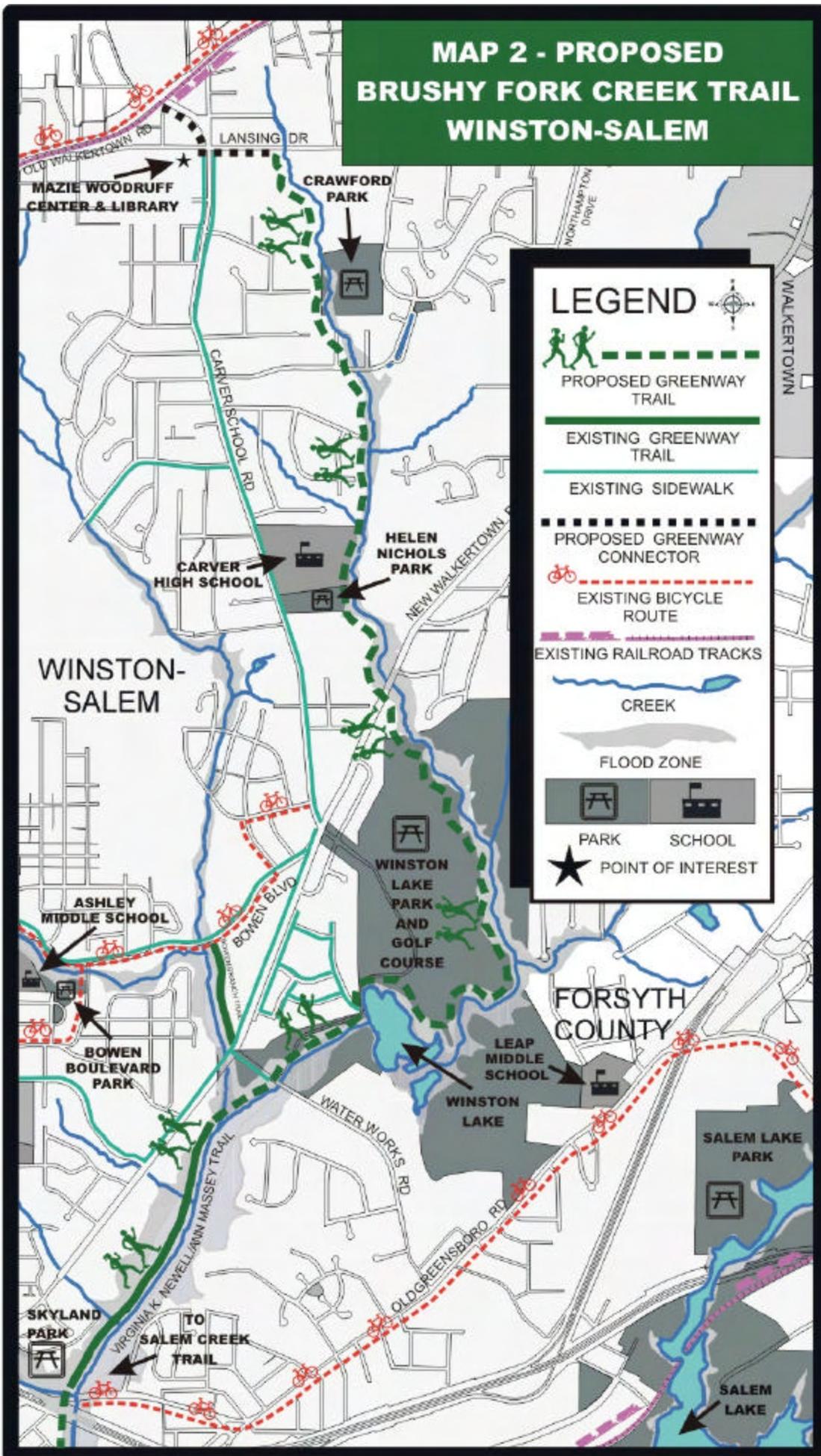
Tomahawk Creek Greenway Trail 2: This 0.65-mile connector will connect Tomahawk Creek Greenway 1 to Lewisville Clemmons Road near Joanie Moser Memorial Park.

The *1999 Transportation Needs Report* proposed studies to determine the feasibility of constructing bicycle and pedestrian trails along these routes. The trails will provide a bicycle and pedestrian link between two centers of commerce in Lewisville as well as to Joanie Moser Memorial Park. The Tomahawk Creek Greenway Trail can ultimately be connected to the proposed Muddy Creek Greenway Trail, thereby linking Lewisville with Winston-Salem. The town of Lewisville proposes examining the feasibility of these proposals.



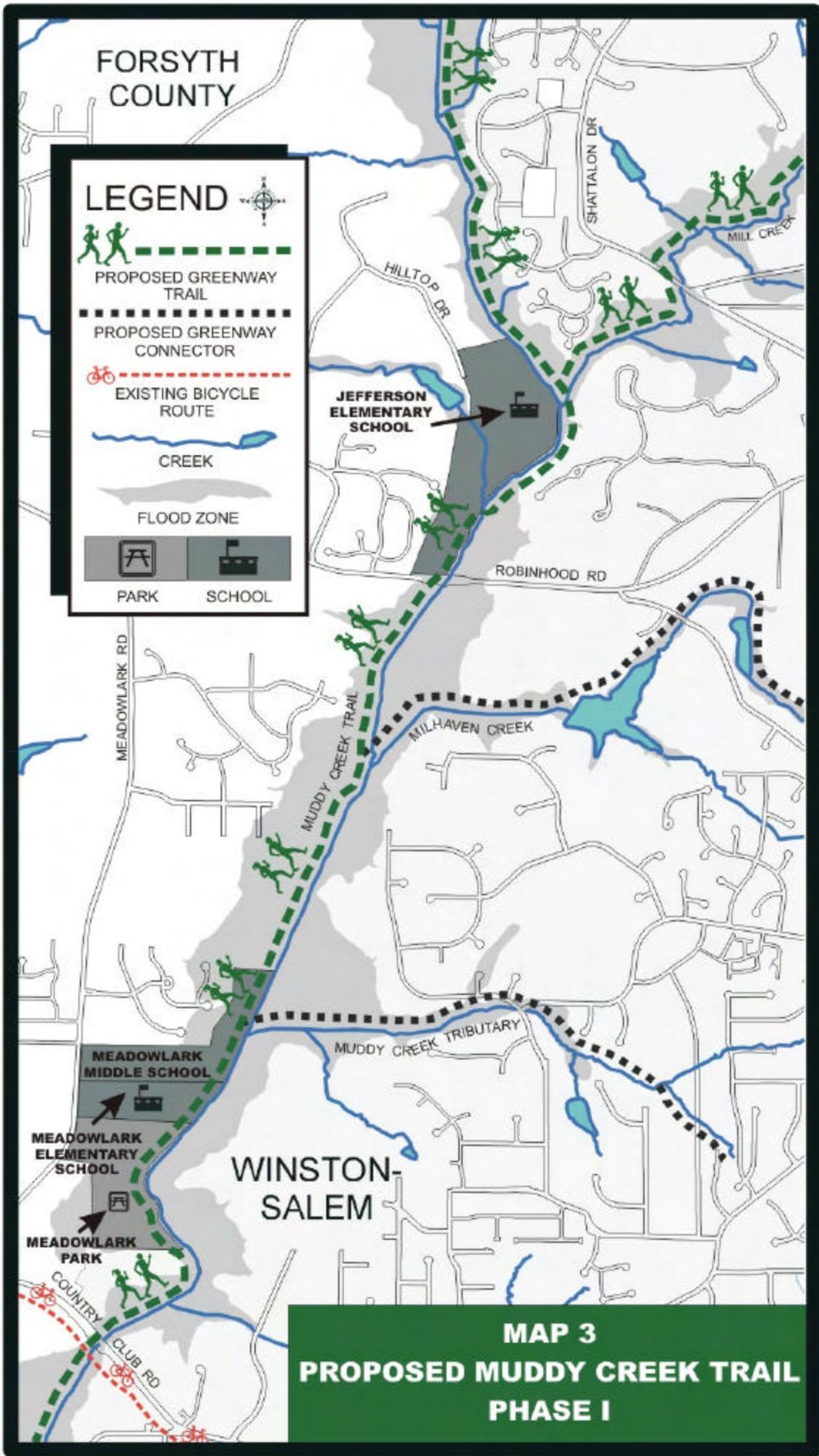
The existing Strollway

MAP 2 - PROPOSED BRUSHY FORK CREEK TRAIL WINSTON-SALEM

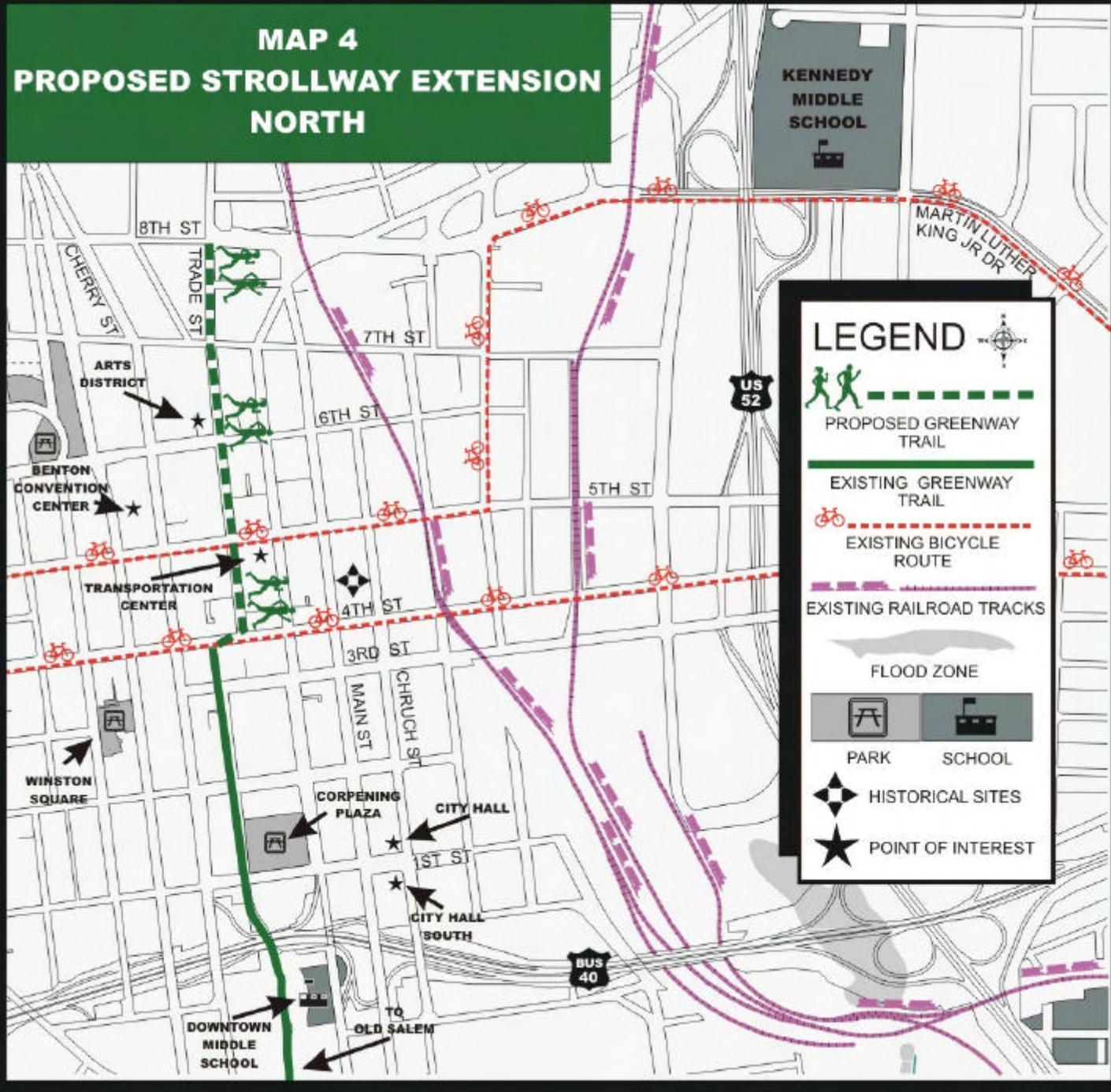


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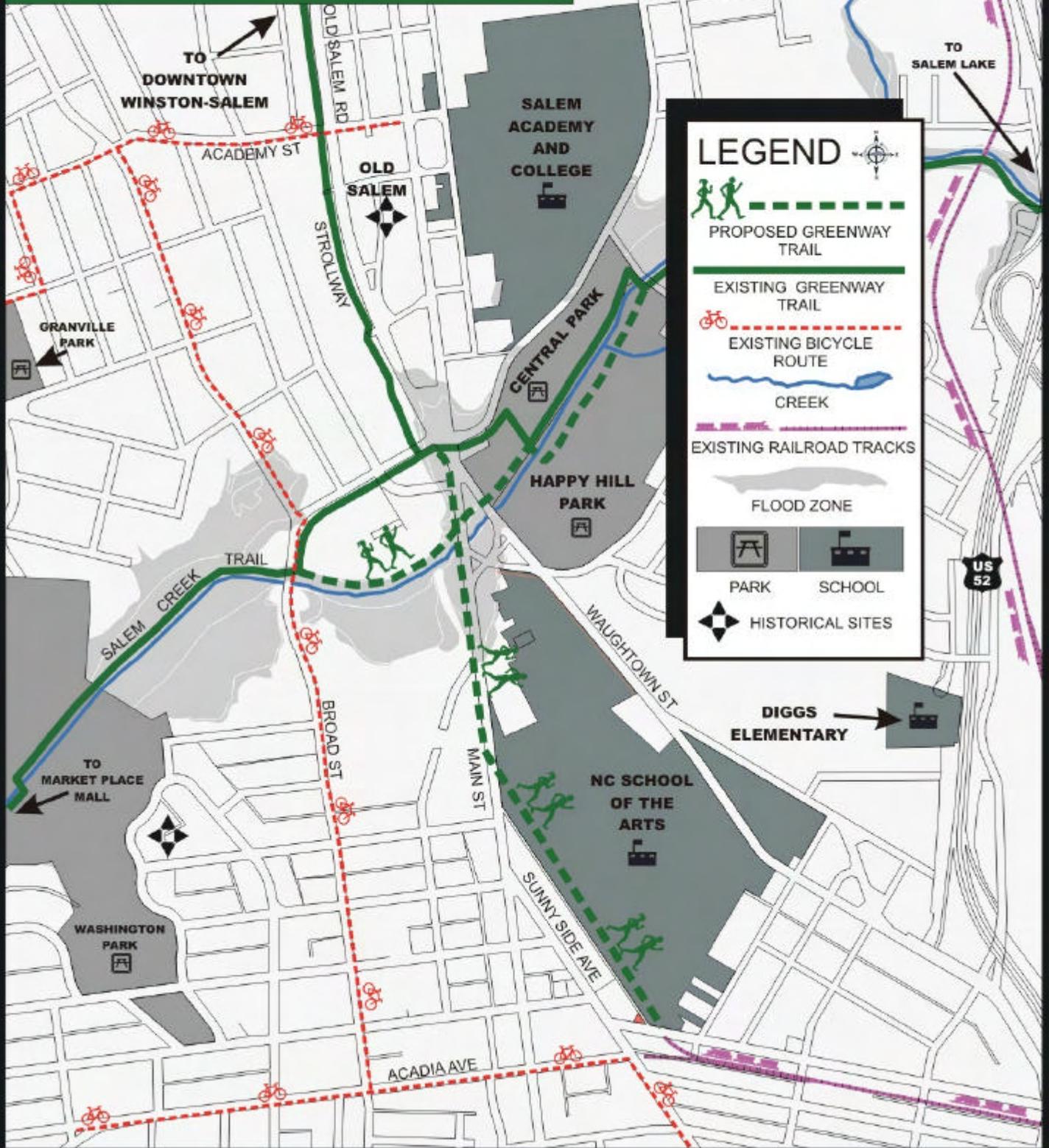
- PROPOSED GREENWAY TRAIL
- EXISTING GREENWAY TRAIL
- EXISTING SIDEWALK
- PROPOSED GREENWAY CONNECTOR
- EXISTING BICYCLE ROUTE
- EXISTING RAILROAD TRACKS
- CREEK
- FLOOD ZONE
- PARK
- SCHOOL
- POINT OF INTEREST



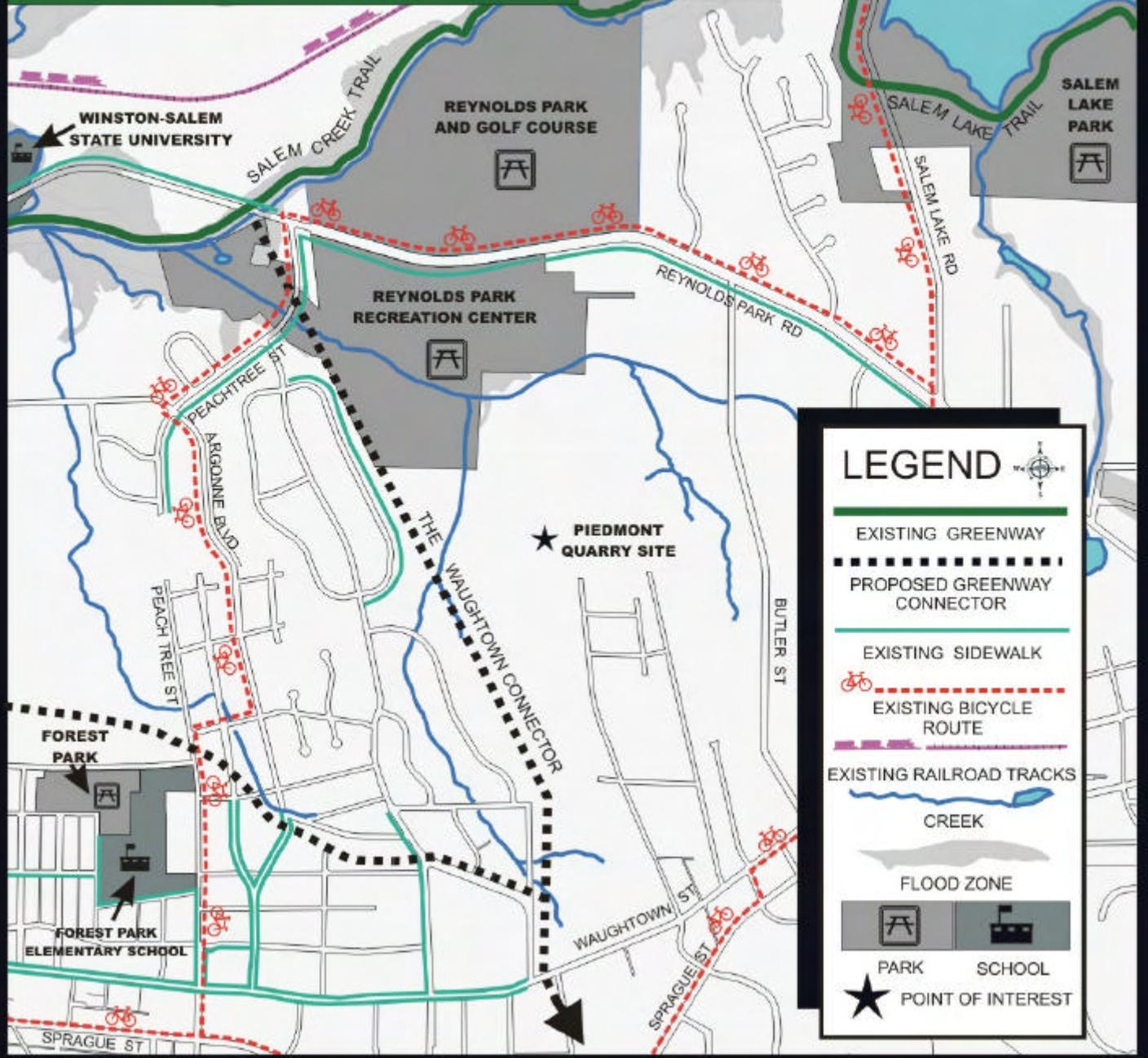
MAP 4 PROPOSED STROLLWAY EXTENSION NORTH



MAP 5 PROPOSED STROLLWAY EXTENSION SOUTH



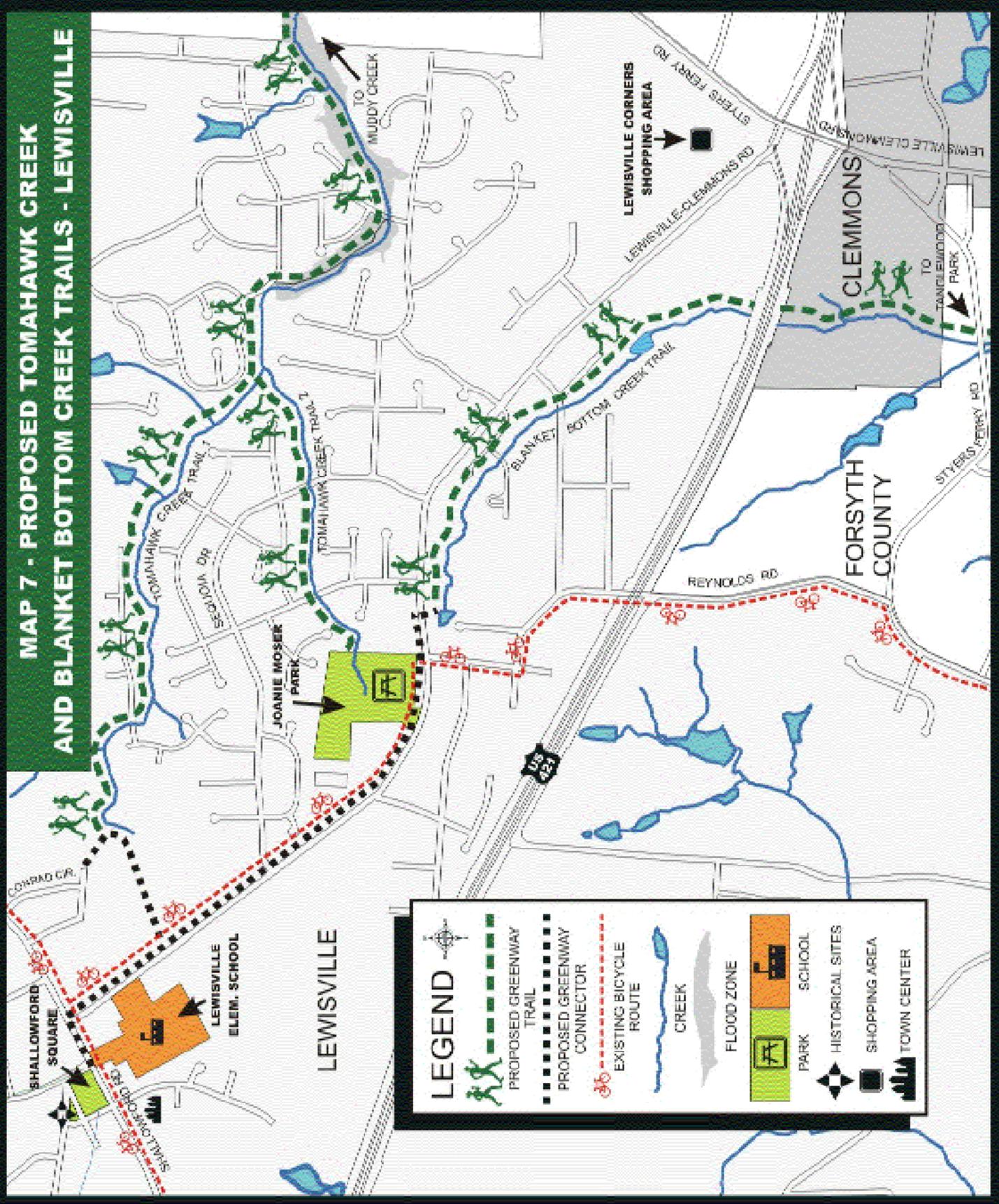
MAP 6 - PROPOSED WAUGHTOWN GREENWAY CONNECTOR WINSTON-SALEM



LEGEND

- EXISTING GREENWAY
- PROPOSED GREENWAY CONNECTOR
- EXISTING SIDEWALK
- EXISTING BICYCLE ROUTE
- EXISTING RAILROAD TRACKS
- CREEK
- FLOOD ZONE
- PARK
- SCHOOL
- POINT OF INTEREST

**MAP 7 - PROPOSED TOMAHAWK CREEK
AND BLANKET BOTTOM CREEK TRAILS - LEWISVILLE**



LEGEND

- PROPOSED GREENWAY TRAIL
- PROPOSED GREENWAY CONNECTOR
- EXISTING BICYCLE ROUTE
- CREEK
- FLOOD ZONE
- PARK
- SCHOOL
- HISTORICAL SITES
- SHOPPING AREA
- TOWN CENTER

Grassy Fork Creek Greenway Trail

This greenway trail (Map 8) was proposed in *Vision 2005* and also in the *Rural Hall Bicycle and Pedestrian Facilities Plan* to follow the Grassy Fork Creek from Summit Street, Rural Hall, and connect to the proposed Mill Creek Greenway Trail. Since Rural Hall has no existing greenway trails, it is proposed that the feasibility of developing an approximately one-mile trail within Rural Hall along the Grassy Fork Creek south of Summit Street be investigated. A short connector trail would link the main trail to the Covington Memorial Community Park. This could be the first phase in developing the Grassy Fork Greenway Trail. This greenway trail may ultimately connect to the proposed Mill Creek Greenway Trail at the Sara Lee Soccer Park depending on the feasibility of overcoming the constraints of crossing the Northern Beltway and US 52. Reclamation of and trail construction on the Hanes Mill Landfill site would also need to be completed. Prospects for development of a greenway trail along the entire Grassy Fork Greenway Corridor are, therefore, long-term.

Piedmont Greenway Trail

One of the major initiatives included in this *Greenway Plan* is the proposal to develop a regional greenway system that links the greenway systems of Greensboro and High Point in neighboring Guilford County with the Forsyth County Greenway System.

A Piedmont Greenway Trail (Map 1) is proposed to link the existing Salem Lake Trail on the eastern side of Winston-Salem to Triad Park. This trail will then connect to the existing Lake Brandt Greenway Trail near Greensboro's northwest city limits. An ongoing consultant's feasibility study of this project is expected to propose the most appropriate

alternatives for the location of a regional trail along this corridor. Implementation of the project will likely take place in phases and could include paved and unpaved sections with sidewalk connectors, where necessary. The ongoing study will identify alternative route alignments, trail types and a proposed schedule for implementation of this project. Since the major section of the proposed greenway corridor within Forsyth County is located within the Town of Kernersville, the Town will need to evaluate the impacts of the alternative routes proposed in selecting a preferred route.

The *Winston-Salem/Forsyth County Urban Area Multimodal Long Range Transportation Plan* includes proposals to study a second regional connector greenway trail between Triad Park and High Point after 2005. This trail will likely follow the West Fork Deep River (Map 1).

Mill Creek Greenway Trail

The Mill Creek Greenway Trail was proposed in *Vision 2005* to extend from Muddy Creek to Walkertown. A section of the existing Bethabara Trail is located along Mill Creek. A one-mile natural, unpaved trail linking Bethabara Park to Hine Park to the northeast is proposed as the next phase of the Mill Creek Trail (Map 9). Further trail extension to the Sara Lee Soccer Park and possibly to the Forsyth County Nature Science Center is proposed by 2010. These proposed extensions could add approximately 2.5 miles to the existing trail and connect Bethabara Park to two parks, North Forsyth High School and the Nature Science Center. Since the proposal is for a natural, unpaved trail, the timing for implementation is constrained by the need to obtain some required easements and not by trail construction costs.



Hiking along the Salem Lake greenway trail

Salem Lake North Greenway Trail

The Salem Lake North Greenway Trail (Map 1) is a proposed extension of the existing 6.5-mile Salem Lake Greenway Trail approximately 3.3 miles northeast along the lake shore to Lowery Creek. City-owned land is available for trail construction. Implementation of the project in the near future is constrained because the proposed trail crosses US 421/Business I-40. There are proposals by the North Carolina Department of Transportation for bridge improvements in this section of the highway in the next decade and designs are expected to incorporate the proposed trail. This trail is, therefore, likely to be constructed after 2005.

Blanket Bottom Creek Greenway Trail

The *Lewisville Comprehensive Plan* proposes the development of a greenway trail connection from Lewisville through Clemmons to Tanglewood Park (Map 1). The approximately 5.7 miles of trail would follow Blanket Bottom Creek (Map 7) for most of its length. The *Winston-Salem/Forsyth County Urban Area Multimodal Long Range Transportation Plan* proposes a study of the feasibility of this greenway link after 2005. The *1999 Transportation Needs Report* proposed completion of a feasibility study to construct 0.68 miles of this greenway trail as a bicycle and pedestrian trail. The *Lewisville Comprehensive Plan Update 1997* proposed a sewer outfall along this section of Blanket Bottom Creek and work has already commenced on this. Development of this section of the trail should, therefore, be considered for implementation during this Plan period

Tanglewood Trail

The *Clemmons Area Development Guide* proposes the development of the Tanglewood Trail (Map 1), approximately 3.6 miles long, which would run from the Muddy Creek to Tanglewood Park, linking several major neighborhoods, Clemmons Elementary School and the Village Center. It is proposed to run alongside a minor creek of the Muddy Creek for about 1.2 miles, as well as follow sidewalks for sections of the remaining length. The feasibility of this trail is likely to be investigated during the period

2001-2005 and construction of sections of the trail, if feasible, could be completed during the next ten years. Another alternative is to consider a trail from the proposed Muddy Creek Trail to Tanglewood Park, a portion of which could be constructed alongside the proposed Idols Road Extension. The feasibility of this should be explored.

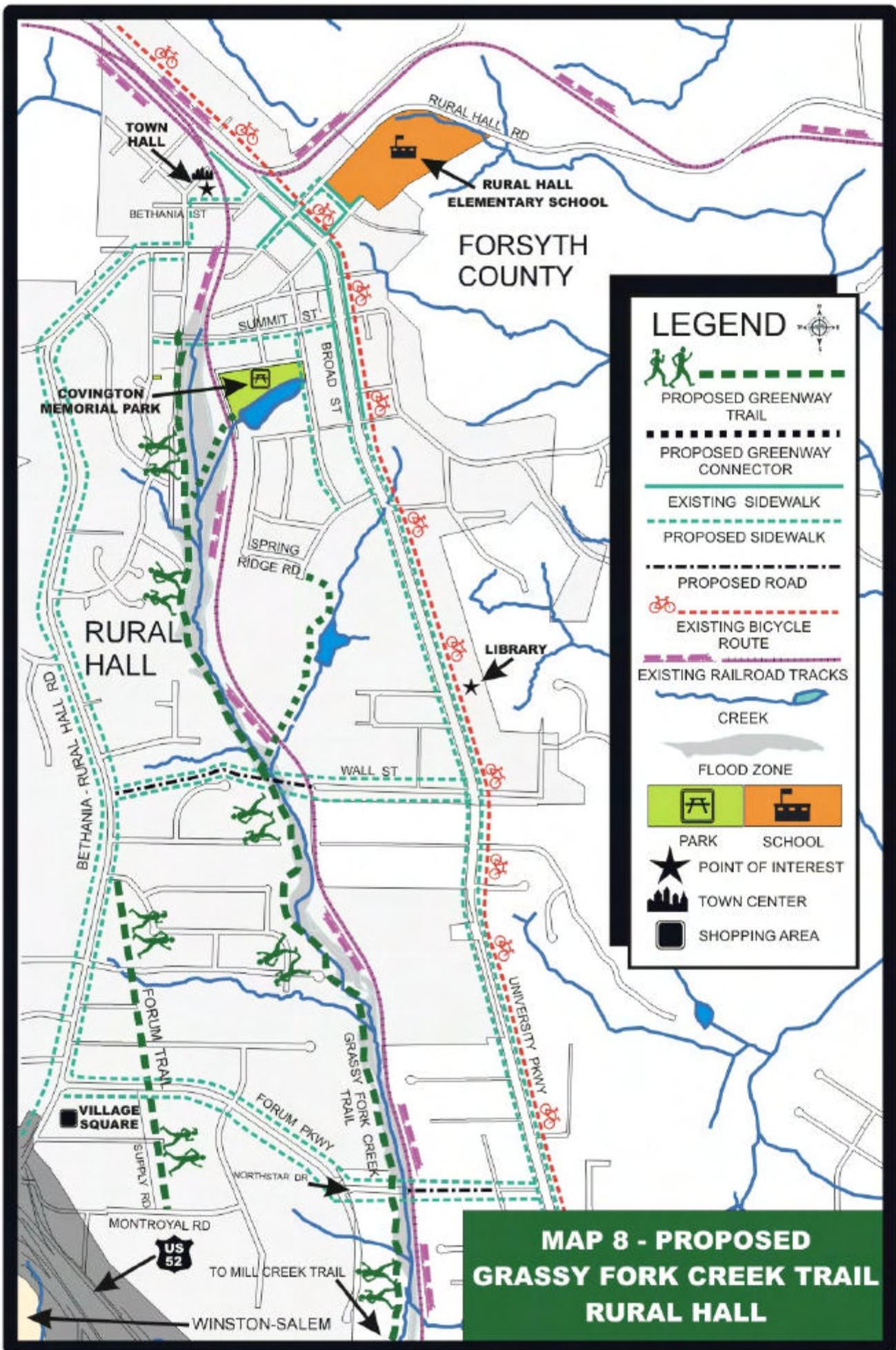
Bethabara Trail

The Bethabara Trail (Map 1), located in northwest Winston-Salem, is a recreational and educational trail providing access to neighborhoods along the route and to the significant historic features and cultural heritage of the Bethabara area. The Bethabara Trail was endorsed by citizens of the area as a component of the August 1985 *Polo-Reynolda Area Plan*. The desire to plan and construct the trail was reinforced by the passage of a bond issue in 1987 from which funds were earmarked for this project.

A Master Plan for The Bethabara Trail, developed in 1988, identified the exact route and location for the trail. Difficulties in obtaining the right of public access in all sections of the urbanized greenway corridor has limited the implementation of the *Master Plan*. To date, 2.7 miles of trails have been built, connecting Reynolda Commons Shopping Center to Historic Bethabara Park and the Crown Oaks Apartments to the southeast. This section includes the recent addition of a wildlife observation boardwalk through Beaver Pond connected by a bridge to the existing trail. The *Master Plan* proposed the extension of the existing trail from the Crown Oaks Apartments to Wake Forest University. The previously proposed alignment is no longer feasible because of the unavailability of easements and proposed alternatives for acquiring easements need to be further investigated. In the long-term, the possibility also exists of connecting existing nature trails in Old Town with the Historic Bethabara Trail system using mainly Duke Power utility rights-of-way. The feasibility of this alternative also needs to be further explored. In the near future, the priority will be to connect Bethabara Trail to Hine Park and the Sara Lee Soccer Park to the northeast by constructing the Mill Creek Trail (Map 9) discussed earlier in this section.



Enjoying the
Bethabara Trail



LEGEND

PROPOSED GREENWAY TRAIL

PROPOSED GREENWAY CONNECTOR

EXISTING SIDEWALK

PROPOSED SIDEWALK

PROPOSED ROAD

EXISTING BICYCLE ROUTE

EXISTING RAILROAD TRACKS

CREEK

FLOOD ZONE

PARK

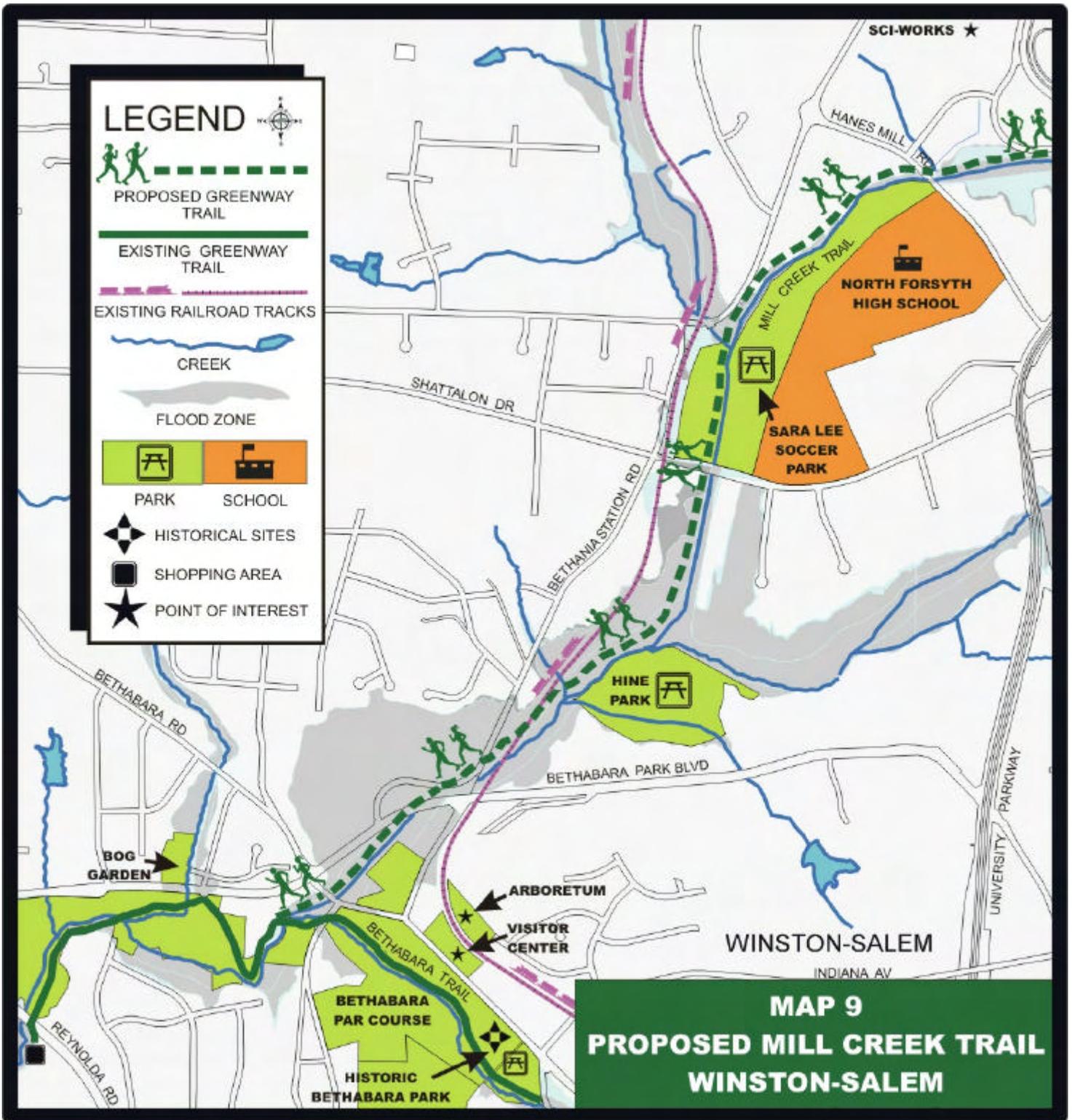
SCHOOL

POINT OF INTEREST

TOWN CENTER

SHOPPING AREA

MAP 8 - PROPOSED GRASSY FORK CREEK TRAIL RURAL HALL



Proposed Design and Development Schedule

Table 1 summarizes the proposed schedule over the next ten years for the completion of feasibility studies and/or trail construction for some of the projects previously identified. This schedule proposes completion of studies on approximately 27 miles of proposed greenway trails and construction of approximately 12 miles of trail between 2001-2005. An additional 13.4 miles of proposed trails are scheduled for study and approximately 22.4 miles are scheduled for construction in the period 2006-2015. Other trails or portions of trails discussed above, for which studies or trail construction are not expected to be completed in the next ten years, have not been included in the schedule though study and work on these may take place by 2015. The major trails proposed for development in the next decade are sections of the Brushy Fork Trail, the Muddy Creek Trail and the Piedmont Trail.

Table 1 also shows estimated costs for feasibility studies and construction for the period 2001-2005. Estimated costs for easement acquisition are not included. Acquisition costs can vary considerably from project to project depending on the number of easements that have been obtained over time along a particular route. Where easements have been obtained through subdivision, rezoning or donation, or where land is publicly owned, land costs will be minimal. In cases where easements must be acquired, land costs can be significant.

Where costs have already been estimated in feasibility studies or by implementing departments or organizations, (e.g., sections of the Brushy Fork and Muddy Creek Trails) the existing estimates have been used. Where there are no existing cost estimates, a range of minimum construction costs for trails is estimated using rates ranging from \$35 a linear foot for unpaved trails to \$75 a linear foot for asphalt trails, based on current local and regional average construction costs. These costs will vary depending on trail surface and the specific conditions along a route such as topography, the presence of wetlands, the need to cross major roads and unusual site conditions. Such conditions may require special treatment or the construction of bridges or boardwalks. The range of costs allows consideration of a variety of trail types for any project. Detailed feasibility studies for each project will be necessary to determine the most appropriate class of trail and, therefore, more accurate trail costs.

Where only feasibility studies are proposed in the schedule, these are estimated at an average cost of \$15,000. Cost estimates are based on current costs, do not factor in inflation, and do not include possible acquisition costs and unforeseen items which can affect costs such as local conditions and changes due to public input. These estimates should therefore only be used as a very preliminary guide and should be followed by updated estimates linked to more detailed feasibility studies.

No estimates are given for studies and construction to be completed during the period 2006-2015 because of the lack of reliability of such estimates and the need to review priorities for greenway trail development at the end of the first five-year period. New cost estimates will be done at that time. Where feasibility studies have been completed, updated cost estimates will be available.



Enjoying fishing - a view from Salem Lake Trail



A refreshing rest after biking on Salem Lake Trail

Table 1. Schedule of Trail Design and Construction 2001-2015

Proposed Greenway Trail	Feasibility Study	Feasibility Cost 2001-2005*	Construction Timetable	Construction Cost 2001-2005*
Muddy Creek (Phase 1) - 3 miles (Country Club Rd to Robinhood Rd - Map 3)	2003-2005	\$15,000	2004-2006	\$1,363,000
Brushy Fork Creek 1.2 miles (Old Greensboro Rd to Salem Creek Trail - Map 1)	2004-2005	-	2005-2006	\$600,000
The Strollway Extension - 1 mile (4th to 8th Streets; Salem Ave to North Carolina School of the Arts - Maps 4 and 5)	2001-2005	\$15,000	2001-2005	\$250,000
The Waughtown Connector - 1.4 miles (Waughtown St to Salem Creek Trail - Map 6)	2001-2005	\$15,000	2001-2005	\$250,000
Tomahawk Creek 2 - 0.65 mile (Tomahawk Creek 1 to Joanie Moser Memorial Park - Map 7)	2001-2005	\$15,000	2001-2005	\$120,120 - \$257,000
Grassy Fork Creek (Phase 1) - 1 mile (Summit St to Wall St - Map 8)	2001-2005	\$15,000	2001-2005	\$184,000 - \$396,000
Piedmont Greenway (Linville Rd to Triad Park - Map 1)	2001-2002	-	2002-2015	-
Mill Creek - 2.5 miles (Bethabara Park to Sara Lee Soccer - Map 9)	2001-2005	\$15,000	2006-2010	-
Salem Lake North - 3.3 miles (Salem Lake Trail to Lowery Creek - Map 1)	2001-2005	\$15,000	2006-2010	-
Blanket Bottom Creek - 0.68 miles (Joanie Moser Memorial Park to Leo's Way - Map 7)	2001-2005	\$15,000	-	-
Muddy Creek (Phase 2) - 2.6 miles (Robinhood Rd to Yadkinville Rd- Map 3)	2006-2010	-	2006-2010	-
Brushy Fork Creek - 2.6 miles (Waterworks Rd to Carver High School - Map 2)	-	-	2006-2010	-
Brushy Fork Creek - 3 miles (Carver High School to Lansing Rd - Map 2)	2004-2006	-	2006-2010	-
Tanglewood Trail - 1.6 miles (Village Center to Tanglewood - Map 1)	2001-2005	\$15,000	2006-2015	-
Tomahawk Creek 1 - 2 miles (Conrad Circle to Lewisville Boundary - Map 7)	2001-2005	\$15,000	2006-2010	-
Tomahawk Creek - 1.2 miles (Lewisville Boundary to Muddy Creek - Map 1)	2006-2010	-	2011-2015	-
Blanket Bottom Creek - 5.7 miles (Lewisville to Tanglewood - Map 1)	2006-2010	-	-	-
West Fork Deep River - 3 miles (Piedmont Greenway to Forsyth County Line - Map 1)	2006-2010	-	-	-

* Includes feasibility and trail construction costs where both are scheduled before 2005. No cost estimates are given where feasibility and/or construction are scheduled after 2005. Estimates are based on current costs and do not factor in inflation.

VI. Operational Policies And Procedures

Management Structure

The development, management and maintenance of existing greenway trails have largely been undertaken by the Winston-Salem Recreation and Parks Department for the Winston-Salem Recreation and Parks Commission. The existing Winston-Salem Recreation and Parks Commission which consists of eleven citizen members appointed by the Mayor and approved by the Board of Aldermen is responsible for setting policy and providing overall direction for the City Recreation and Parks Department. The City's greenways are, therefore, their responsibility.

The County Parks and Recreation Department has not been active in the development of greenways and there is no County Parks and Recreation Commission. The County Parks and Recreation Department reports directly to the County Manager and County Commissioners.

Some municipalities have not to date assumed responsibilities for greenway trail development in their communities. All municipalities need to consider alternatives for participating in successful development of a countywide greenway system.

The *Bethabara Trail Greenway Master Plan*, completed in 1988, proposed the establishment of a Winston-Salem Greenway Commission for the purpose of advising the Board of Aldermen on issues related to the City's greenway program. This was not established. The City Parks and Recreation Commission has responsibility for greenway trail development in Winston-Salem. *Vision 2005* recommended the creation of a citizen-based County Greenway Commission. The proposed Greenway Commission was intended to serve as an advisory board to the elected officials in planning and development of the greenway system and be the liaison to neighborhoods in which greenways are proposed. A County Greenway Commission has not been established. To date, implementation of the existing greenway plan has been mainly the responsibility of the staff of the City of Winston-Salem without the support of a citizens' group looking specifically after greenway interests. The *Legacy Development Guide* recommends that consideration be given to the establishment of a City-County Open Space and Greenway Advisory Committee that would make recommendations for completion and implementation of greenway plans and policies, facilitate land acquisition and increase public awareness of the value of greenways and open spaces.

Financing

Successful implementation of this *Greenway Plan* requires that funding be available for land acquisition, trail construction, and trail management, maintenance and security. Some of the options for land acquisition, such as easement dedication, mitigate the cost of acquiring land. However, it is unlikely that all parcels of land necessary for greenway trail development can be obtained through these methods.

The two basic sources of funds available are public and private funds. In the past, the City of Winston-Salem has provided local public funding for the acquisition, development and management of the existing greenway trails. County funding for greenway development has generally not been available. Existing trails are, therefore, located mainly within the City. In recent years, however, City funding for greenway trail development and management has been limited and there has been little new trail development.

Local Public Funding

It is proposed that greenway trails be developed county-wide in order to serve the needs of residents in all parts of our community. Options that can be used for public financing of greenway trail development are annual general fund allocations, local bond funding, and State and federal funds.

A successful greenway program needs annual fiscal allocations from the County's and municipalities' general funds. In the City of Raleigh, greenways continue to be built and maintained, year after year, due to a dedicated annual funding source. In addition, Raleigh's Real Estate Department has its own line item budget for greenway land acquisition. Funding for greenway development in Forsyth County has not been available on a continuing basis over the past decade. The *Legacy Development Guide* recommends dedicated yearly funding in the County's and municipalities' budgets for open space and greenway development and maintenance.

Greenway trail development can be financed through Capital Improvement Programs (CIPs) which provide a mechanism for Municipal/County officials to plan for greenway trail development and is perhaps one indication of local government commitment to greenways. The Winston-Salem Recreation and Parks Department has included a section of the Muddy Creek Trail, Salem Lake Trail North and the Mill Creek Trail from Historic Bethabara to the Sara Lee Complex in its 2003-2007 Capital Improvement Program (CIP). Other jurisdictions desiring greenway trail development should consider this option.

Bonds can be issued for the financing of land acquisition or trail development. Winston-Salem issued bonds in 1988 for the development of the Bethabara Trail. Unfortunately, greenway trail development was not included in the City's

November 2000 bond referendum. There are proposals to consider two-thirds bond funding for the planning and construction of trails identified in the City's CIP. Two-thirds bonds do not require voter approval. State law allows the issuance of bonds every other year worth two-thirds of the amount of bond debt paid off in a previous year. Consideration should be given to the use of bond funding by the County and other municipalities for greenway trail construction. Many communities across the country have had successful bond referenda for establishment of greenway trails.

Transportation Funding

The purpose of The Transportation Equity Act for the 21st Century (TEA21), formerly The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), is to provide federal funding to create multi-modal transportation systems. Transportation and recreation are not mutually exclusive activities. Surveys have indicated that a significant number of recreational riders would be interested in bicycle commuting if there were enough bike trails and safe lanes on roadways. TEA21 funding has been the single largest source of federal funding for greenways and other bicycle and pedestrian projects in the United States. Greenway and urban trails can benefit from TEA21 funding in the following ways:

- 1. Include greenway trails in transportation planning. Major trail corridors should form an interconnected system of routes for bicycles and pedestrians.**
- 2. Include inter-modal connections. Trails can be a link between homes and transit, and transit can bridge the gaps between trail systems.**
- 3. Consider multi-modal systems. Both road and transit rights-of-way can provide key links in an uninterrupted corridor for trails systems.**
- 4. Have a state corridor preservation plan. Rails-to-trails projects and rail-banking preserve corridors for future transportation options as well as provide for nonmotorized users when not in use for other transportation options.**



Bicycling along a greenway trail

By making greenway trails part of the transportation system, the door is opened to potential funding from a variety of TEA21 programs, such as air quality/congestion mitigation, bridge improvement, and transit systems programs, in addition to the 10% of available funds mandated for transportation enhancement projects. Since 1992, 54% of the \$3.27 billion in federal funding for transportation enhancement projects has been awarded for bicycle, trail and pedestrian projects. The most recent addition to the Greenway System, the Brushy Fork Creek Greenway Trail, will be constructed with TEA21 funding and a local match by the City of Winston-Salem.

The North Carolina Department of Transportation (NCDOT) has recognized the importance of incorporating locally adopted greenway plans into its transportation planning process. Consideration is given to including greenway access as part of highway improvement projects. Where possible within NCDOT's policy, provisions can be made for greenway trail crossings or other greenway elements as part of a highway project.

Other Funding Sources

In addition to local public funding and TEA21 funding, there are a variety of other funding sources for the acquisition, development and management of greenway facilities. To maximize the amount of financial support for any greenway project, local public sector funds should be combined with funds from State, federal, nonprofit or private sector resources. The major additional sources of funding include grant programs and private funds.

Grant programs can be used to complete individual short-term projects but should not be relied upon as a continuous and permanent source of greenway funding. A number of State and federal organizations have grant programs that can be used for greenway development. Most of these require a local match. Many of these grants are typically small and finding and obtaining them requires some ingenuity. Grant funds can also be obtained from private and nonprofit foundations or organizations. See Appendix A for a list of funding sources.

Private contributions can also be obtained from: 1) donations and gifts of money from individuals or corporations; 2) wills, estates or trusts; and 3) in-kind donations of labor, materials and supplies.

A local private greenway advocacy group or greenway commission can create and administer a trust fund for land acquisition and greenway trail development. Money can be contributed to the fund from a variety of sources. This approach has been successfully used by a number of communities.

The Chambers of Commerce, tourism development organizations and other economic development organizations can benefit from sponsoring and promoting greenway trail development, especially in conjunction with the tourism, hotel and convention business. A good greenway system is one indicator of the community's quality of life and a good

selling point for economic developers trying to attract quality businesses to our community or for local businesses trying to attract high income earning employees. Support from the business community, therefore, needs to be pursued more vigorously than has been done in the past. Policies aimed at increasing public awareness and involvement in greenways could also serve to facilitate greater private funding.

"Buy A Foot" Programs

These programs have been successful in raising funds and awareness for greenway trail development in North Carolina. Citizens are encouraged to purchase one linear foot of the trail. The city of High Point had a successful buy a foot program.

Land Acquisition

The majority of land along proposed Greenway Corridors and Connectors is privately owned. Historically, land required for greenways in Forsyth County has been obtained through dedication of easements when land is rezoned or subdivided, or by acquiring the full title to a parcel of land. One of the criteria for determining priorities for greenway trail development is the amount of land owned or easements acquired by local governments along proposed Greenway Corridors or Connectors.

To successfully implement the proposed Forsyth County greenway system, a variety of land acquisition techniques may be required. Such techniques include acquisition through title transfer, tax incentives for donations, and acquisition through the land development process. (See Appendix B for further details on relevant land acquisition techniques.) In areas of existing development, purchased or donated easements may prove the most workable method for assembling land for greenway trail development. In developing areas, the land development process is the most timely and cost-effective method for securing greenway easements.

Management, Maintenance and Security

It is easy to focus attention on the planning, design and development of the greenway trail system and neglect to consider the need for short- and long-term management and maintenance. Management and maintenance require that the community makes a long-term commitment to its greenway program. Greenway trail management and maintenance consist mainly of physical maintenance, enforcement patrol and emergency response, stewardship of natural resources, ensuring user safety, making information available, programming and events support, administration and securing funding. Several of these functions are at present the responsibility of the City Recreation and Parks Commission. Staff at the Recreation and Parks Department of the City of Winston-Salem undertake these tasks for the Commission.

Safety is a concern of residents and trail users. However, research studies in communities with trails show that trails neither increase nor decrease the incidence of crime in adjoining neighborhoods. Incidences of crimes against persons on greenway trails are rare. A 1997 survey conducted by the Rails to Trail Conservancy of 372 trails, covering 7,000 miles and 45 million estimated users throughout the country revealed that only three (3) percent of these trails experienced any type of major crime in 1995 and 1996. The majority of property owners interviewed in a National Park Service study of three main trails in Iowa, Florida and San Francisco reported that living near a trail was better than they expected and that the rate of vandalism, burglary and trespassing had remained the same or decreased since opening of the trails. A study on the Burke-Gilman Trail in Seattle showed that the rate of vandalism and break-ins to adjacent property was well below the neighborhood average. The separation of criminals from a motorized escape vehicle as well as the presence of trail users were primary deterrents. Experiences in Winston-Salem, Charlotte and Raleigh support this view.

At present, Winston-Salem's Police Department has a designated park ranger with responsibility for the safety and security of all the City-owned parks and associated facilities including greenway trails. He receives assistance as necessary from other members of the Police Department. This arrangement has worked satisfactorily in the past. However, as trails are extended beyond the City's limits additional arrangements will have to be made for safety and security, and there will be the need to coordinate with other law enforcement officials or security personnel, as necessary. The role of volunteer trail patrols should be explored as a means of complementing paid security. Good trail design, posted rules and regulations, and keeping trails clean and well maintained are also effective in increasing trail safety.

In the past, funding for greenway construction has often not been followed by adequate funding for management and maintenance. City funding for greenway maintenance is not separate from park maintenance funding. Greenway maintenance, therefore, often has to compete with park maintenance for funds. Funding for the construction, management and maintenance of greenway trails and other open space should be included in the budgets of the City, County and the other municipalities. Additionally, volunteer assistance could serve to reduce the costs of construction, management and maintenance as well as facilitate a sense of public ownership and pride in the community's greenway trails. There is some volunteer assistance in the existing program but additional alternatives for securing volunteer citizen assistance and support in construction, maintenance and security need to be further pursued. Some of these alternatives are discussed further in the following section on citizen involvement.

VII. Citizen Involvement

The long-term success of the greenway program depends on the support of residents of Winston-Salem and Forsyth County, particularly residents of the neighborhoods with potential for trail development. Greenway projects also provide an opportunity to involve many diverse partners. Groups with an interest in historic sites, environmental and wildlife protection, educational opportunities, accessibility for the disabled to trails, as well as developers, could become partners in developing greenway trails. Funding, support and publicity can be greatly broadened by involving partners with a diversity of interests.

There are a variety of methods for securing ongoing participation by citizens in the planning, design, development and maintenance of the greenway system. These include the creation of formal organizations as well as more informal approaches. Greenway advocacy organizations range from a greenway task force of interested citizens or a non-profit organization for greenway development to a greenway advisory committee or commission. Many of these organizations also advocate for other open space in addition to greenways.

Most successful greenway programs are the result of support from a strong citizen based coalition. Several communities in North Carolina have established successful working greenway advisory committees, councils or commissions. Among them are Cary and Chapel Hill Greenway Commissions, Durham Urban Trails and Greenway Commission and the Mecklenburg County Greenway/Trails Advisory Council. A Citizens Task Force appointed to study and define priorities for greenway development has been instrumental in the ongoing success of Chattanooga's greenway program. Other communities, such as Gastonia, are having success with citizen-based nonprofit organizations.

Citizen Based Organizations

The *Legacy Development Guide* proposed the establishment of a City/County Greenway and Open Space Advisory Committee to facilitate implementation of a countywide greenway system. This proposed Committee can take one of a variety of forms including: 1) an advisory committee appointed by the elected bodies with representation from all the municipalities and the County; 2) a subcommittee of the City Recreation and Parks Commission together with citizen representation from the County and other municipalities; or 3) a volunteer organization of citizens from throughout the County.

Whatever the final structure, members should represent a wide variety of interests including environmental conservation, recreation, transportation and tourism and should include representation from groups such as the development community, other business developers, neighborhood

groups, land trusts, health organizations, local governments and citizens. This advisory body would serve as a liaison between citizens, recreation departments, and commissions on greenway and open space issues. It would bring together people from throughout the County to develop a coordinated approach to planning, developing and managing a countywide system of greenways and open spaces. It would work with staff of recreation departments and municipalities to facilitate completion and implementation of countywide greenways/open space policies and projects.

Responsibilities of this advisory body could include:

- ◆ **Advising Recreation Commission members or elected officials of the City of Winston-Salem, the County and other municipalities on the acquisition, development and management of greenways and other open space used for environmental preservation, recreation and transportation**
- ◆ **Assisting in implementation of recommendations of greenway/open space plans and projects**
- ◆ **Identifying specific greenways and types of open spaces to be included in our long-term greenways and open space program**
- ◆ **Suggesting yearly Greenway/Open Space Programs that reflect the desires and concerns of the community**
- ◆ **Building support with citizens and community organizations for greenways and open spaces and seeking their input on design, development and maintenance issues**
- ◆ **Facilitating cooperation among jurisdictions in greenway/open space planning and development**
- ◆ **Recommending standards for design and construction**
- ◆ **Pursuing public/private partnerships for the acquisition of land for greenways and open spaces and for trail development**
- ◆ **Identifying and soliciting resources to accelerate land acquisition and trail development**
- ◆ **Encouraging property owners to donate easements, conserve open spaces and build greenway trails**
- ◆ **Working with neighborhoods on neighborhood greenway projects**
- ◆ **Coordinating activities of volunteers, organizations and businesses in developing and maintaining greenways and open spaces**
- ◆ **Initiating public information programs**
- ◆ **Conducting surveys or holding workshops to obtain citizen input**
- ◆ **Cooperating and coordinating with surrounding counties in establishing regional greenways**

An alternative to appointing a citizen committee or task force is the incorporation of a nonprofit citizens organization dedicated to establishing a countywide system of greenways and open spaces. This organization would consist of volunteer advocates for greenways and open space preservation that would compliment the work of recreation

departments. With respect to greenways, the organization could assist in the identification of greenway projects, educate the community on greenways, assist in raising funds for greenway projects and programs, attend public hearings to support greenways, conduct community support campaigns and muster the support of volunteers to work on greenway volunteer projects.

Connect Gaston is an example of such a group that has been instrumental in building public support and raising funds for the establishment of Gastonia's first greenway trail.



Volunteer at work on a trail.

Community Awareness

In order to achieve widespread support for the greenway program, there is a need to build community awareness of the greenway program and

the wide range of benefits that can be derived from it. Some residents have fears and concerns about greenway trails that center around the issues of privacy, crime, property rights, littering, nuisance, and liability. The fears of these residents concerning potential negative effects of greenway trails in their community need to be allayed. Residents also need to be advised on how they can contribute to the development of the system.

Public information can build public awareness, enthusiasm, and financial and political support, thus increasing the likelihood for successful implementation of the plan. Consideration, therefore, should be given to developing public information programs that use the wide range of media available to provide information and solicit public support. Events, such as greenway walks, can be arranged to acquaint residents with greenway trails as well as our County's natural areas and gain their support for community greenways. Consideration can be given to establishing a "Greenway Day" or "Greenway Week" of special events.

At present, the City of Winston-Salem provides maps of our greenway trails free of charge to the public. Existing public information programs of the City Recreation and Parks Department include information on parks and greenways. However, greenways are not the focus of most of these programs. As the greenway program expands countywide, additional avenues of increasing public information and awareness need to be explored.

It is also critical to have a participatory process when designing and constructing greenway trails. Neighborhood meetings or other forums for discussion must always be part of the process for designing and building greenway trails. Neighborhood Trail Teams consisting of representatives from the neighborhoods impacted by proposed trails

can be established to formalize citizen input into the process. A "friends of the trail" group can be very useful in moving a project forward.

User and residents surveys to determine views of trails should follow the establishment of trails. Surveys throughout the country of residents whose properties abut trails reveal that many trail opponents find that their fears about specific trails did not materialize. Concerns about increased crime, lower property values, privacy and liability claims are not supported by actual experience. Surveys of trail users and residents along trails have not been standard practice in this community. However, a 1999 survey conducted for the Citizen Efficiency Review Committee of the City of Winston-Salem on citizen satisfaction with City services revealed a high level of satisfaction with the existing greenway facilities.

Adopt-a-Greenway Program

A most effective way to encourage long-term support for greenways is to provide opportunities for average citizens to become involved in the greenway program. Adopt-a-Greenway Programs have been successful in providing such opportunities in some communities. These programs allow residents to adopt sections of greenway trails. They monitor the greenway, identify problems and bring them to the attention of responsible staff. They can also organize clean up campaigns and assist in construction and maintenance. Groups which typically participate in such programs include scout troops, neighborhood associations, youth groups, church groups, civic groups, environmental groups, businesses and senior citizen groups.

The City of Winston-Salem currently has an Adopt-a-Park program through which individuals, families or community groups can take responsibility for a park, greenway or other designated green space. Duties include picking up litter, watering plants, planting flowers, etc. Adoptees are asked to clean their park/greenway at least four times a year. Scout troops have also assisted in the development of urban trails in Winston-Salem. There may, however, be a need for an expanded countywide Adopt-a-Greenway program as more greenway trails are developed throughout the County and we seek to develop more public awareness and commitment to greenway trail development and maintenance. The community's greenway program stands to benefit from the contributions that a variety of groups and organizations can make to it.

Private Sector Support

Private enterprise has played and must continue to play a role in developing the community's greenway system. A significant proportion of the land for greenways has been dedicated to the community by property owners and real estate developers. Continued dedications of land by property owners is critical if the system is to be expanded. The potential use of sewer easements has already been discussed in Section IV. In addition to providing land, businesses can also play a more active role than they have in the past by financing the development of trails either on a private basis or with public/private partnerships.

VIII. Plan Recommendations

The recommendations of this plan consist of: (1) a development schedule for feasibility studies and trail construction for the next 10-15 years as detailed in Section V; and (2) policies and associated action agendas that will ensure continuing expansion of the greenway system in the short- and long-term. Following are proposed policies and recommended actions:

Policies and Action Agendas

Policy 1:

Continue to develop a countywide system of greenway trails that link neighborhoods, parks, schools, shopping and employment areas, and activity centers, and which is linked to regional greenways.

Action Agenda

- ◆ **Develop a greenway land acquisition program based on the proposed ten-year development schedule to identify and prioritize tracts for public acquisition, suggest potential acquisition methods and devise long term protection strategies.**
- ◆ **Prepare budget estimates for land acquisition and greenway development for each fiscal year.**
- ◆ **Provide local public funding for greenway development, management and maintenance.**
- ◆ **Periodically conduct a review and update of the *Greenway Plan*.**
- ◆ **Actively pursue State, federal and private sources of funding for easement acquisition, trail construction, and maintenance.**
- ◆ **Promote implementation of the *Greenway Plan*, with the assistance of citizen groups, the development community, environmental, education and open space preservation interests, and the North Carolina Department of Transportation.**
- ◆ **Cooperate with surrounding counties to develop regional greenways.**
- ◆ **Maintain an inventory and map of the greenway system.**

Policy 2:

Utilize the *Greenway Plan* to identify and purchase greenway easements, open space and parkland, and to review public projects, rezoning petitions, and subdivisions.

Action Agenda

- ◆ **Seek intergovernmental cooperation to implement a countywide, comprehensive greenway system.**
- ◆ **Strengthen interagency cooperation in planning and developing the greenway system.**

Policy 3:

Connect new developments to the Greenway System and provide existing neighborhoods with connections, where possible.

Action Agenda

- ◆ **Encourage within private developments, through the rezoning and subdivision process, the construction and maintenance of bikeways and walkways that feed into the countywide greenway trail system.**
- ◆ **Encourage developers and State and local agencies to construct paths, where feasible, for pedestrians and bikes parallel to new roads to function as Greenway Connectors.**
- ◆ **Work with neighborhood associations to encourage and assist existing developments to connect to the greenway trail system where feasible.**

Policy 4:

Continue requiring the dedication of greenway easements along identified potential greenway corridors through the zoning and subdivision process and obtain greenway easements along with sewer easements or multiuse easements, where possible.

Action Agenda

- ◆ **Amend the *Unified Development Ordinances*, as necessary, to secure dedicated easements on all creeks with identified flood zones.**
- ◆ **Establish and maintain a computerized database of all dedicated greenway easements.**
- ◆ **Work with property owners to secure greenway easements within Greenway Corridors and along Greenway Connectors.**
- ◆ **Work with the Utilities Department and developers to identify those areas suitable for joint sewer/greenway easements thus minimizing land acquisition and disruption of the natural environment.**
- ◆ **Develop a mechanism to obtain greenway easements with sewer easements along identified greenway corridors.**

Policy 5:

Where required dedication is not an option, encourage property owners and developers to donate greenway easements where potential Greenway Corridors and Connectors are identified.

Action Agenda

- ◆ **Produce a brochure that provides information to property owners and developers about tax benefits and other benefits of donating greenway easements.**

Policy 6:

Locate, design and maintain greenway trails in a manner which optimizes their accessibility, safety, and usefulness to the populations to be served.

Action Agenda

- ◆ Prepare feasibility studies and master plans prior to developing major greenway trails.
- ◆ Conduct community and user surveys to determine level of demand, types of users and user satisfaction with facilities.
- ◆ Provide convenient, well-marked, well-defined entrance points of access to the greenway system and parking facilities, where necessary, at Greenway Destinations, such as park locations, public facilities, public transit, residential neighborhoods, and private businesses.
- ◆ Provide special opportunities for the physically disadvantaged.
- ◆ Utilize Crime Prevention Through Environmental Design (CPTED) practices for points of access and trail design.

Policy 7:

Actively promote citizen involvement in the community's greenway program.

Action Agenda

- ◆ Assist in the establishment of a countywide citizen-based organization dedicated to greenways and open space.
- ◆ Develop a marketing plan targeted to a variety of audiences, including the general public, and potential donors, partners and users.
- ◆ Utilize the media to inform residents about our community's greenway program and the benefits of greenways to the community.
- ◆ Secure the assistance of greenway users and supporters in planning, constructing, and maintaining greenways by establishing and promoting a countywide Adopt-a-Greenway Program.
- ◆ Organize special events utilizing the community's greenways and encourage residents to use them.
- ◆ Make maps and other information on our greenways widely available to the public through web sites and publications.



Citizens at the opening of the Salem Creek Trail

Policy 8:

Provide for long-term management and maintenance of the Greenway System.

Action Agenda

- ◆ Provide local public funding for greenway management and maintenance in addition to funding for greenway trail development.
- ◆ Secure the assistance of greenway users and supporters in maintaining greenway trails by promoting programs such as the Adopt-a-Greenway Program.

IX. Action Plan

Success in developing a countywide greenway system will depend on the degree to which this Plan's recommendations are implemented. County and municipal departments or committees dealing with recreation, transportation, utilities, land use planning and financing all have roles to play in ensuring effective implementation of the Plan. Planning and development of the proposed Greenway System requires coordination at all these levels of government. It is important, therefore, to secure the support of all the relevant agencies whose contributions are necessary to ensure that recommendations are implemented. Development of the Triad Regional Greenway Trail and other future regional trails will require the cooperation of the elected bodies and the recreation staff of the jurisdictions through which these trails pass.

Table 2 organizes all the action agenda items into seven categories and identifies those groups which have primary responsibility for initiating and directing the tasks to be completed to ensure ongoing success of a countywide greenway program. These actions complement the construction schedule in Table 1 and ensure that even as construction of greenway trails identified in Table 1 proceeds, a system is being put in place to ensure continued securement of greenway easements, increase the rate of trail construction in the long-term, and evenly distribute trails throughout the county.

The periods for feasibility study and construction of priority trails have been identified in Table 1. The period during which other action agenda items are to be initiated are categorized as "ongoing" for those items where some action is already ongoing or where action needs to be taken on a continuing basis; "annually" for action to be taken yearly; "short term" (0-5 years); and "long-term" (5+ years).

Table 2. Greenway System Action Plan

ACTION AGENDA ITEM	RESPONSIBILITY	TIME
<i>Greenway System Expansion</i>		
1. Construct priority trails.	Local Governments; Private Organizations	See Table 1
2. Develop a greenway land acquisition program.	Recreation Departments; Greenway Advisory Committee	Short Term
3. Conduct a five year review and update of the Greenway Plan.	City-County Planning Board; Recreation Departments	5 years
4. Promote implementation of the Greenway Plan.	Recreation Departments; City-County Planning Board; Greenway Advisory Committee	Ongoing
<i>Funding</i>		
		Annually
5. Prepare yearly budget estimates for greenway trail development, management and maintenance.	Recreation Departments Local Governments	Annually
6. Provide local public funding for greenway development, management and maintenance.	Local Governments	Ongoing
7. Actively pursue State, federal and private sources of funding for greenway easement acquisition, trail construction and maintenance.	Local Governments; Greenway Advisory Committee	
<i>Cooperation</i>		
8. Strengthen interagency cooperation in planning and developing the greenway system.	City-County Planning Board; Local Governments; Recreation Departments	Ongoing
9. Seek intergovernmental cooperation to implement a countywide, comprehensive greenway system.	Greenway Advisory Committee; City-County Planning Board	Short Term
10. Cooperate with surrounding counties to develop regional greenways.	Greenway Advisory Committee; Piedmont Land Conservancy; Council of Governments	Ongoing
<i>Greenway Connectors</i>		
11. Encourage the construction of paths for pedestrian and bikes parallel to new roads.	NC Department of Transportation; City Engineering	Ongoing
12. Encourage within private developments, the construction and maintenance of bikeways and walkways that feed into the countywide greenway trail system.	City-County Planning Board	Ongoing
13. Work with neighborhood associations to assist existing developments to connect to the greenway trail system.	Recreation Departments; City-County Planning Board; Greenway Advisory Committee	Ongoing

Table 2. Greenway System Action Plan...continued

ACTION AGENDA ITEM	RESPONSIBILITY	TIME
<i>Greenway Easements</i>		
14. Amend the UDO to secure dedicated easements on all creeks with identified flood zones.	City-County Planning Board	Short Term
15. Establish and maintain a computerized record and map of all dedicated greenway easements.	City-County Planning Board	Short Term
16. Actively work with property owners to secure greenway easements.	Recreation Departments; City-County Planning Board; Greenway Advisory Committee	Ongoing
17. Work with the Utilities Department and developers to identify areas suitable for sewer/greenway easements.	City-County Planning Board	Short Term
18. Develop a mechanism to obtain greenway easements with sewer easements along identified greenway corridors.	City-County Planning Board; Utilities Commission	Long-term
19. Produce a brochure that provides information about the tax and other benefits of donating greenway easements.	Recreation Departments; City-County Planning Board; Marketing and Communications	Short Term
<i>Greenway Design/Mapping</i>		
20. Prepare feasibility studies and master plans prior to developing major greenway trails.	Recreation Departments; Local Governments	Ongoing
21. Provide convenient, well-marked entrance points of access to the greenway system at Greenway Destinations.	Recreation Departments	Ongoing
22. Provide opportunities for the physically disadvantaged	Recreation Departments	Ongoing
23. Utilize Crime Prevention Through Environmental Design (CPTED) practices for points of access and trail design.	Recreation Departments; Police Department	Short Term
24. Maintain an inventory and map of the greenway system.	City-County Planning Board	Ongoing
<i>Citizen Involvement</i>		
25. Assist in the establishment of a citizen-based organization dedicated to greenways.	Local Governments	Short Term
26. Develop a greenway marketing plan.	Recreation Depts; Marketing and Communications; Greenway Advisory Committee	Long-term
27. Utilize the media to inform residents about greenways.	Recreation Depts; Marketing and Communications; Greenway Advisory Committee	Ongoing
28. Establish a countywide Adopt-a-Greenway Program.	Recreation Departments; Greenway Advisory Committee	Long-term

Table 2. Greenway System Action Plan...continued

ACTION AGENDA ITEM	RESPONSIBILITY	TIME
<i>Citizen Involvement (continued)</i>		
29. Organize events utilizing our greenways.	Recreation Departments	Ongoing
30. Make greenway maps and other relevant greenway information widely available.	City-County Planning Board; Recreation Departments; Local Governments; Greenway Advisory Committee	Ongoing
31. Conduct surveys to determine level of demand, types of users and user satisfaction with facilities.	Recreation Departments; Greenway Advisory Committee	Ongoing
<i>Management and Maintenance</i>		
32. Advise elected boards on development and management of the greenway system.	Recreation Departments; Greenway Advisory Committee	Ongoing
33. Provide local funding for management and maintenance.	Local Governments	Annually
34. Secure assistance of users in maintaining trails.	Recreation Departments; Greenway Advisory Committee	Ongoing

Appendix A:

Funding Sources for Greenway Trails

Transportation Equity Act for the 21st Century (TEA 21)

National Recreational Trail Fund Program (NRTFP)

National Scenic Byways Program (NSBP)

Land and Water Conservation Fund (LWCF)

Community Development Block Grant Program (CDBGP)

US Fish and Wildlife Service

USDA Natural Resource Conservation Service (NRCS)

NC Parks and Recreation Trust Fund (PARTF)

NC State Trail Fund (NCSTF)

NC Clean Water Management Trust Fund (CWMTF)

NC Natural Heritage Trust Fund (NHTF)

NC Conservation Tax Credit Program

NC Division of Water Resources - Water Resources Development Fund

Grant funds can also be obtained from private and nonprofit organizations such as The Conservation Fund, the World Wildlife Fund, Eastman Kodak, or State and local conservation groups such as the Piedmont Land Conservancy.

Appendix B:

Land Acquisition Strategies

Acquisition through Title Transfer

A fee-simple acquisition occurs when there is a title transfer. Local governments have traditionally relied on fee-simple acquisition of land for recreation and conservation purposes. When property is acquired in fee-simple, all the rights associated with the property are transferred to the acquiring party. Although fee-simple acquisition gives the new owner the most flexibility with regard to use of the property, unless the land is donated, it is usually the most expensive method of land acquisition. Fee-simple acquisition methods include:

Outright donation. Private landowners can play an important role in greenway development efforts by donating property interests along designated greenway routes. Donation of land is the simplest way to arrange outright transfers of title. Although the donor is not directly compensated for the donation, there can be significant tax benefits when the recipient is a government agency or a private charity with public support. In addition to tax benefits, the financial advantages of property donation include elimination of real estate taxes, possible reduction in income taxes, and reduction in estate taxes.

Donation with life estate. A property owner donates a tract of land and retains use of all or part of the donated land during his/her or other immediate family members' lifetime. If the gift of land qualifies for treatment as a charitable deduction, the donor may take the value of what was actually donated as an income tax deduction.

Sale with a reserved life estate. Property owner sells land to a landholding agency so that owner and family may continue to use the land during his/her or other immediate family members' lifetime.

Fee-simple purchase. Property owner sells property to a government agency or nonprofit organization at a fair market value. Fee-simple purchase of land is not the best method to obtain land for greenway trails because of the limited funds available for land acquisition.

Bargain sale. A property owner sells the property to a government agency or charitable conservation organization for a price less than the fair market value. The property owner can deduct as charitable contribution the difference between the bargain price and the fair market value. The cash benefit of the deduction can help compensate for the monetary loss sustained by selling at less than fair market value.

Option of First Refusal. An agreement can be established with a property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used to protect land in the short term. This can provide an agency with sufficient time to obtain capital to purchase the property.

Tax incentives for Donations

Federal income tax deductions and State of North Carolina tax credits can be obtained by a property owner if the donation of land is made to a governmental body, the land is given "exclusively for conservation purposes" such as greenways, and easements are granted for perpetuity.

Federal income tax. A conservation donation is deductible as a charitable contribution, reducing the donor's taxable income. Property owners may be able to deduct the fair market value of the donated land up to 30% of their adjusted gross income. Any value of the donated property over this limit can be applied for a deduction to income in subsequent years for up to five years.

North Carolina income tax credit. The North Carolina Conservation Tax Credit Program provides credits against individual and corporate income taxes for donations of real property for conservation purposes. The State allows State income tax credits equal to 25% of the fair market value of conservation donations. The donations must be certified by the State as having qualified conservation purposes. The maximum conservation credit allowed is \$25,000 per donation in the tax year with any unused credits carried forward for the next succeeding five years.

Acquisition through the Land Development Process

Full ownership of the land is often not necessary to establish a Greenway System. Many communities are finding increasing success using other than fee-simple acquisition to assemble land for greenways. The zoning and subdivision regulations of the *Unified Development Ordinances* for Forsyth County, City of Winston-Salem, Town of Kernersville, Village of Clemmons and Town of Lewisville require the dedication of a forty (40') foot greenway easement if the tract undergoing development contains a stream designated as a Greenway Corridor.

An easement is a legal mechanism by which a property owner voluntarily sets permanent limitations on the future use of the land. The land remains in private ownership and the owner may sell or lease the land subject to the explicit terms of the easement since neither the title nor the right to possession of the land is given up by the easement agreement. Maintenance and any liability on the dedicated easement is the responsibility of the property owner until the municipality takes full control of the easement to build a greenway trail.

Utility Sharing

Multiple use of existing public property is another method of acquiring land for greenways. Sewer, electric and water utility property and easements have the potential to be used for greenways without negatively impacting the function of the utility line or the safety of the general public.

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