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Memo

To: Ann Ayers, AICP
Town of Wake Forest

From: Jennifer Lewis, EI
The Louis Berger Group, Inc.

CC: Scott Lane, AICP
The Louis Berger Group, Inc.

Date: January 29, 2007

Re: Town of Wake Forest Bicycle Plan Working Paper No. 1

1. Introduction

This Working Paper No. 1 has been prepared as part of the plan preparation process for the Town of Wake Forest Bicycle Plan. The purpose of this paper is to provide an assessment of the existing bicycle facilities and related facilities, plans, and policies in order to build a foundation for recommendations to be contained in the Town's Comprehensive Bicycle Plan. In Working Paper No. 2, recommendations for future projects, policy changes, and programs will be made based on the assessment contained in this Working Paper No. 1. Working Paper No. 1 will also serve as the basis for the first four chapters of the Bicycle Plan.

The contents of this paper are organized to address all of the characteristics of the Town which may affect bicycling and bicycle planning in Wake Forest, including the Town's existing plans, existing demographic and physical conditions, and existing bicycle-related policies. The Paper is organized as follows:

1. **Goals:** A discussion of the goals of the Bicycle Plan, as identified by the Stakeholder Committee
2. **Plan Review:** A review of the existing plans for the Town of Wake Forest which may contain project, program, or policy recommendations that could affect bicycling in the Town. The plans which are reviewed are (in chronological order):
 - ◆ Open Space and Greenway Plan (2002)
 - ◆ NC 98 Master Plan (2003)
 - ◆ Wake Forest Transportation Plan (2003)
 - ◆ Renaissance Plan for the Heart of Wake Forest (2005)
 - ◆ Master Parks and Recreation Plan (2005)
 - ◆ Pedestrian Plan (2006)
3. **Existing Conditions Analysis:** This section contains an analysis of the Town's existing physical facilities, crash statistics, population demographics, and needs as identified by the public involvement process.
4. **Current Policy Discussion.** A discussion of the current policies and ordinances in the Town of Wake Forest which effect bicycling, including bicycle facility construction requirements and bicycle use restrictions.

2. Goals

The goals for the Town of Wake Forest Bicycle Plan were generated by the participants in the November 20, 2006 Stakeholder Committee meeting. As a segue into developing their goals, participants were asked to discuss why they are participating in the Stakeholder Committee and what they hope for the future of Wake Forest as a result of the Bicycle Plan.

Most stakeholders put a strong emphasis on providing safe and comfortable on-road and off-road facilities for families with children to ride on. Stakeholders also felt it is important to provide facilities that children could ride on to travel from one destination to another, such as from school to home or from home to a shopping area or the library. Many stakeholders would like to see the day when parents are comfortable allowing their children to bicycle or walk to school.

Stakeholders agreed that another component of making Wake Forest safe for children and cyclists of all skill levels was the need to foster an attitude of acceptance of cyclists as valid and legal users of the road. The stakeholders would like to see programs designed to educate motorists about safe driving with cyclists and to encourage respectful behavior.

The Stakeholders also felt a major emphasis should be placed on providing regional connections – in particular to Raleigh and other parts of the Triangle. There was discussion of creating a rail-trail or some sort of other off-road long-distance bicycle facility, in order to allow for extended rides with limited bicycle/automobile interaction.

The following items are the goals which were developed for the Wake Forest Bicycle Plan as a result of input from Stakeholders and staff. These goals are not presented in order of importance.

1. Regional Connections. The plan should identify both on-road and off-road bike routes that provide family-friendly, regional connections between Wake Forest and the rest of the Triangle area, especially Raleigh. Routes should also incorporate access to nearby facilities and attractions, such as the future City of Raleigh Horseshoe Farm Park located to the south of town and Falls Lake Park to the west of town. Regional connections should also tie into Raleigh's greenway system.

2. Safety for all skills and purposes. Emphasis should be placed on ensuring the safety for users of all skill levels on Wake Forest's existing and proposed bicycle facilities. "Family-friendly" bicycle facilities should be provided which make it safe and comfortable for families and children to ride together to access a variety of places in Wake Forest. Programs should be developed which educate both young and adult cyclists, motorists, and police about a cyclist's legal rights to the road and safe cycling skills. When this goal is achieved, Wake Forest will have created an environment in which children can travel safely and independently to locations such as the library, schools, parks, and shopping destinations.

The **Stakeholder Committee** is a group of people who have a direct interest in, and an ability to implement, recommendations for improving the cycling environment of Wake Forest. This Committee met to help steer key decisions of the Bicycle Plan.

Ann Ayers	W.F. Planning Department
Lisa Potts	Planning/Greenways Committee
Holly Spring	Engineering
Susan Simpson	W.F. Parks & Recreation
Chip Russell	W.F. Planning Department
Mike Barton	Mike Barton
Lee Godfrey/Jeff Leonard	W.F. Police Department
Daryl Cady	Business Owner
David Jerose	W.F. Recreation Advisory Board
Keith Shackelford	Citizen
Barney Baxter	Business Owner/Cycling Enthusiast
Steven Stoller	W.F. Planning Board
Seth Bible	SEBTS
Mike Deem	Citizen
Stephen Barrington	W.F. Commissioners
Karen Stanley	Physical Activity & Nutrition Branch
Kurt Massey	Bicycle Club

WAKE FOREST BICYCLE PLAN STEERING COMMITTEE

3. An attitude of acceptance. The recommendations of the Bicycle Plan should help to foster a community of respectful cyclists and motorists who understand and obey the laws pertaining to cyclists and appropriate cyclist behavior on the road. Policies and programs should be established to educate drivers and cyclists both and enforce those laws relating to both motorists and cyclists which make a safe and supportive atmosphere for cycling and driving in town. Examples include providing “Share the Road” signage, creating an educational brochure, and requiring bicycle driving education as part of the DMV’s Driver’s License exam.

4. Improvements to existing facilities. Existing facilities within Wake Forest, such as roadways and greenways, should be repaired and/or upgraded as necessary to accommodate cyclists through resurfacing, restriping, adding bike lanes, and widening lane widths. Accordingly, the Town should coordinate with NCDOT on future road improvements and also plan for bicycle facilities on any future road construction. The Town should also consider developing designated bike routes through town with an accompanying map and signage.

5. Construction/new projects. Recommendations within the Bicycle Plan should include creating new on-road and off-road facilities, such as greenways, bike lanes, a rail-trail, and even a mountain biking facility. These new facilities should be well-connected with existing facilities, and provide access to major destinations.

3. Plan Review

The following paragraphs provide a brief summary of the plans which contain information that may affect cycling in Wake Forest. These Plans are as follows:

- ◆ Open Space and Greenway Plan (2002)
- ◆ NC 98 Master Plan (2003)
- ◆ Wake Forest Transportation Plan (2003)
- ◆ Renaissance Plan for the Heart of Wake Forest (2005)
- ◆ Master Parks and Recreation Plan (2005)
- ◆ Pedestrian Plan (2006)

The summaries are designed to focus on the key points in the plans that relate to cycling. While these may not be the major points of the plans themselves, they are the points which should be taken into consideration in the Bicycle Plan.

Open Space and Greenway Plan (2002)

The Wake Forest *Open Space and Greenways Plan*, prepared to be consistent with the *Wake County Consolidated Open Space Plan* (March 2003, revised September 2006), presents a set of future actions for Wake Forest which will help the Town to create a strong greenway and open space system. The *Open Space and Greenways Plan* has three principal goals: (1) identify parcels and corridors of land that are in need of protection and conservation measures; (2) establish a comprehensive approach that will link greenspace lands and corridors to residential, commercial, institutional and central business areas of the community; and (3) to define a concise set of strategies for protecting and conserving these corridors and at the same time developing public use facilities that would provide residents with access to these lands and corridors. Through an in-depth public involvement process, a set of both open space- and greenways-related recommendations were developed to help the town achieve its goals. The greenways recommendations are to be implemented in two phases:

- ◆ **Phase One** focuses on two primary axes. The first focus is on the Smith Creek corridor that runs north-and-south. A greenway should be developed along this location. The second axis is the east/west corridor that follows Wait Avenue and Durham Road for connections downtown and the shopping center to the west of US 1/Capital Boulevard. This location will be primarily on-road bicycle and pedestrian facilities.
- ◆ **Phase Two** expands the greenway system to other parts of the Wake Forest Community. Recommended locations for greenways include the north/south corridor along Richland Creek and another east/west corridor along Purnell Road. This phase will allow for an extension of the

system eastward to possibly connect with Rolesville. In this phase, the system will begin to function as part of the regional, Wake County system.

In addition to identifying future open space and greenway locations, the *Open Space and Greenways Plan* provides recommended design standards for greenways, trails, and bicycle facilities.

NC 98 Master Plan (2003)

Wake Forest's *NC 98 Bypass Master Plan Report* (August 2003) focuses on the NC 98 Bypass, an east-west route that circumvents Wake Forest to the south of downtown. The Bypass' limits are from Thompson Mill Road in the west to Jones Dairy Road in the east. The Master Plan Report, prepared by the landscape architecture and planning firm Mark Robinson & Associates, has four major goals, one of which is: "To create an east-west pedestrian and bike route on each side of the corridor, with connections across the highway to trail and sidewalk networks north and south of the corridor." The *NC 98 Bypass Master Plan* recognizes the dual nature of the bypass as both an opportunity to develop east-west pedestrian and bicycle connections within Wake Forest, and also as a potential barrier to pedestrian and bicycle travel north-south across the corridor. To address this, the *NC 98 Bypass Master Plan* contains an entire section entitled "Pedestrian and Bicycle Circulation" which addresses a variety of bicycle and pedestrian items along the route. This section also includes recommendations for future bicycle and pedestrian facilities and their design which are itemized as follows:

- ◆ Paved trail should be provided along each side of the bypass
- ◆ Grade-separated pedestrian crossing over the railroad should be considered since the roadway bridge does not include sidewalks
- ◆ Greenway trail along NC 98 west of Falls of Neuse Road/NC 98 Business to connect to the Falls Lake area and neighborhoods to the west
- ◆ Multi-use trail along NC 98 Business from Falls of Neuse intersection, continuing past Crenshaw Manor and transitioning to sidewalks in the shopping center area
- ◆ Trail connection to Richland Creek greenway from the southeastern corner of Crenshaw Manor and the adjacent commercial area, via a pedestrian underpass under the Bypass just west of US 1
- ◆ Trail along the south side of the bypass between Falls of Neuse Road/Business 98 and the Western Richland Creek trail connection
- ◆ Pedestrian underpasses next to stream crossings at Smith Creek, Dunn Creek (Between Jones Dairy Road and Franklin Street), the stream west of Siena Drive, and the stream just west of US 1
- ◆ A trail crossing under the highway bridge for Richland Creek
- ◆ Trail under the 98 Bypass bridge located between the railroad right-of-way and the bridge abutment

The NC 98 Plan also provided some over-arching design recommendations for construction along the bypass. These were:

- ◆ Consider grade-separated pedestrian crossings at major road intersections and/or main greenway trail connections
- ◆ Provide pedestrian underpasses on each side of the railroad under the new highway bridge, if they can be accommodated between the railroad right-of-way and the bridge abutments
- ◆ Allow pedestrian crossings of NC 98 bypass only at signalized intersections and, most safely, at grade-separated crossings
- ◆ Incorporate on-grade pedestrian crossings into all the signalized intersections, with provisions for pedestrians to stop safely in the median
- ◆ Include provision in signal lights for protected pedestrian crossing times, with signage requiring traffic turning right on red to give way to pedestrians
- ◆ Create frequent connections from the trail alongside NC 98 Bypass to the sidewalk systems in the adjacent neighborhoods, to the Town's Richland Creek Greenway system as a whole, and to the Neuse River Greenway

Wake Forest Transportation Plan (2003)

The *2003 Wake Forest Transportation Plan* is an update to the Town's *1986 Comprehensive Transportation Plan*. According to the *Transportation Plan*, "the Wake Forest Transportation Plan identifies specific and general transportation system improvement recommendations and strategies to help accommodate growth in travel demand, while supporting a diversified transportation system that considers not only the automobile, but also the cyclist, the pedestrian, and the transit patron." Although the *Transportation Plan* has a strong emphasis on roadway and intersection improvements for vehicles, it also contains a discussion of other transportation modes. Of the *Transportation Plan's* eleven objectives, one of them is to: "create interconnected bicycle and pedestrian networks."

The Plan contains several major elements, including a discussion of existing conditions, future conditions, recommendations and an implementation plan. In addition to these elements, "Chapter 5: Pedestrian and Bicycle Element" specifically addresses bicycle-related recommendations. In Chapter 5, the *Transportation Plan* recommends three steps to provide and improve the pedestrian and bicycle environment:

1. Integrate land use and transportation to create communities and neighborhoods that are designed for walking and cycling
2. Adopt pedestrian- and bicycle-friendly development standards, policies, and guidelines
3. Have a proactive attitude toward change

It also contains a listing of planned bicycle facilities and notes the presence of the Mountains-to-Sea Trail, which runs through Wake Forest for a short section along Purnell Road.

In its chapter on Implementation, the *Transportation Plan* designates states that the Town should undertake in the long-term:

- ◆ prioritize and design non-roadway related sidewalk, pathway, greenway, and bikeway improvements that are not dependent on roadway improvement projects; and
- ◆ work with Wake County Schools to provide good non-vehicular connections to new school properties.

Renaissance Plan for the Heart of Wake Forest (2005)

The *Renaissance Plan for the Heart of Wake Forest* is described in its opening paragraphs as "the culmination of an intensive community input process designed to provide a foundation for revitalization efforts for the historic downtown core, as well as the future development of areas surrounding the historic Central Business district." *The Renaissance Plan* has two goals: (1) to provide policy and programmatic recommendations for the revitalization of and the encouragement of reinvestment into the historic downtown; and (2) to propose a number of realistic development opportunities specifically targeted throughout the heart of the Wake Forest community. *The Renaissance Plan* identifies three districts within the Heart of Wake Forest: the Arts & Entertainment district, the Town Center South district, and the Campus district. Each district received specific recommendations. Additional recommendations were also made in the sections titled "Transportation & Circulation" and "Parking".

The major recommendations from the Renaissance Plan mostly include approaches to promoting future development and improving existing development in the Downtown area. Some of the recommendations, however, relate directly to transportation and are pertinent to the Bicycle Plan. The Plan contained recommendations for the following improvements that relate directly or indirectly to the cycling environment:

- ◆ Medians
 - Construct a median to prevent left turns from southbound Front Street to eastbound East Roosevelt Avenue
 - Install a 20' planted median along South Franklin Street
- ◆ Intersection Improvements

- Consider modification or removal of the traffic signal at the East Roosevelt Street/Front Street intersection
- Construct a mountable directional island on East Roosevelt Avenue to direct all westbound traffic to make a right-turn
- ◆ Re-striping
 - Re-stripe Elm Street to provide an exclusive right-turn lane and exclusive left-turn lane
 - Re-stripe southbound Main Street to provide an exclusive left-turn lane and an exclusive through lane
- ◆ Re-alignments and Extensions
 - Bend northbound South Franklin Street to tie into East Holding Avenue
 - Create a "T" intersection at southbound South Franklin Street and East Holding Avenue
 - Extend Taylor Street to South Brooks Street within the Campus district
 - Connect South Brooks Street across the existing Wake Forest Plaza site
- ◆ Parking:
 - Provide additional on-street, unrestricted parallel parking along both sides of South Brooks Street between East Owen and Elm Avenue

The Renaissance Plan also made other recommendations that were not directed at specific roadways. One such recommendation was to improve signage and wayfinding (particularly in the Arts & Entertainment District). Wayfinding can be used beyond the Downtown area to assist greenway users and cyclists to follow designated routes. Visitors using bicycles can use these signs as directions for major attractions. Recommendations were also made relating to the potential for a connection with the future Triangle Transit Authority's Regional Rail system and a high speed rail stop between Washington, DC and Charlotte. The Bicycle Plan should add to these recommendations that additional considerations should be made for providing bicycle racks and parking as well as bicycle access. In general, the Bicycle Plan should recommend that any improvements as a result of the recommendations made in the *Renaissance Plan* should also accommodate bicyclists.

The Bicycle Plan should make recommendations to ensure that bicycles are accommodated in each of the transportation-related recommendations listed in the *Renaissance Plan*. For intersection improvements, this may mean a requirement for bicycle-sensitive signals or additional striping to indicate a continuation of a bicycle lane. For street re-stripings, the Bicycle Plan should recommend the Town provide bicycle lanes or "sharrows" in addition to signage to alert motorists to the presence of cyclists. When providing on-street parking, special consideration should be given to appropriate parking space widths and striping treatments. On-street parking can often be a useful traffic calming approach which can reduce car speeds and thereby provide the added benefit of making a street safer for cyclists, but it can also result in more risk for a cyclist to be "doored" by inattentive drivers in parked cars. Similarly, medians can also be useful for traffic calming and reducing motorists' speeds, but they can also result in a narrowed travel-way which can create more threatening situations for cyclists by forcing them into the road with motorists. Any re-alignments and extensions would also be an opportune time for the Town to consider providing bicycle accommodations on streets, in particular streets like Franklin Street which have plenty of width to include a bicycle lane or sharrow.

Master Parks and Recreation Plan (2005)

The *Wake Forest Master Parks and Recreation Plan Update* was created in response to the need to develop more parks and recreation facilities in order to adequately serve the growing population of the Town. According to the *Parks and Recreation Plan's* Chapter 1, "The purpose of the *Parks and Recreation Master Plan Update* is to review, refresh, and expand the framework for Town leaders and the Parks and Recreation staff to use as they chart the course for programming, maintenance, and development of the park system of the next 10 years." The Parks and Recreation Plan is intended to serve as a step back to assess progress made and determine needs; an opportunity to inject public input into the process of programming a parks system; and a foundation for budget projects and grant applications. Within the document is an overview of existing facilities, an analysis of future demand and a set of goals, objectives,

and recommendations which are designed to help the Town develop a park system to adequately meet the needs of the community. The Parks and Recreation Plan references the Open Space and Greenway Plan (2003) as the main source for guidance on future greenways, which would have the main impact on bicycle facilities.

Town of Wake Forest Pedestrian Plan (2006)

It is important to examine the Wake Forest Pedestrian Plan for the purposes of this Bicycle Plan because pedestrian improvements often go hand-in-hand with bicycle improvements. Frequently, the changes that make a roadway more pedestrian-friendly can also make it more bicycle-friendly. Traffic calming efforts to make roadways safer for pedestrians by reducing traffic speeds also make roadways safer for cyclists. In fact, many traffic calming approaches are actually improvements for cyclists, such as bike lanes and reduced speeds. Greenways and multi-use paths, both of which are often recommended for pedestrians, can also be used by cyclists. By identifying the top priority projects of the Pedestrian Plan, the Bicycle Plan can make recommendations that coincide with these projects so as to conserve resources and reduce overall construction time.

According to the Introduction, “the purpose of the Town of Wake Forest Pedestrian Plan is to make an accessible, safe, convenient, interconnected, and functional pedestrian transportation system, ultimately contributing to a higher quality living environment.” The Plan is organized into the following six elements:

1. *Pedestrian corridors*: Identify important pedestrian connections within the Town.
2. *Improvement projects*: Prioritize levels of improvements to the existing facilities based on community developed criteria: safety, connectivity, accessibility, proximity to key destinations, access to natural areas, and regional connections.
3. *Design guidelines*: Provide design guidelines for future development and for retrofitting existing facilities and provide costs associated with both.
4. *Policy recommendations*: Recommend changes in policy for future development.
5. *Funding recommendations*: Quantify cost associated with desired facilities, alternative funding sources, and provide recommendations.
6. *Marketing*: Provide marketing strategies to promote the use of the pedestrian system.

Similar to the outline of the Bicycle Plan, the Pedestrian Plan addresses existing conditions, plans, and programs, and makes program, policy, and implementation recommendations. In Chapter 7: Implementation, the Pedestrian Plan identifies its “top twenty” pedestrian projects. The Bicycle Plan should coordinate with these “top twenty” projects when prioritizing top bicycle corridor projects. In the appendices, the Pedestrian Plan provides recommendations for future pedestrian corridor improvements, cost estimates, and funding sources.

4. Existing Conditions Analysis

The following paragraphs discuss Wake Forest’s existing conditions and how they impact the recommendations made later in this Bicycle Plan. Existing conditions include the following built-environment facilities, demographic characteristics of the Town of Wake Forest’s population, and the needs as defined by the Town through a survey and public involvement effort:

- ◆ Built Environment Facilities:
 - Roads (existing and proposed)
 - On-road Bicycle Facilities (existing and proposed)
 - Greenways, Parks, and other Recreational Facilities (existing and proposed)
 - Sidewalks (existing and proposed)
 - Schools and Activity Centers
- ◆ Recent Crash Record
- ◆ Demographic Characteristics

- Population Size
- Age
- Race
- Income
- Education
- Commute to Work Travel Time
- Commute to Work Mode

- ◆ Existing Needs
 - Stakeholder Input
 - Survey Results to date

It is important to identify the Town's existing conditions, and planned future facilities, in order to make recommendations that are applicable to the Town's current issues and to anticipate future needs.

4.1. Built Environment Facilities

4.1.1. Roads

According to state law, every road in North Carolina is considered a bicycle facility, excepting those roads specifically identified as closed or controlled access. Thus, in Wake Forest, cyclists should be expected on nearly every road; however, some roads are more suitable for cyclists than others. In order to identify which roads are more suitable, it is first important to understand the conditions on the road and their purpose. A road's classification generally indicates the volume of traffic on the road, the road's cross-section, the agency responsible for its maintenance, and its general purpose. The *Wake Forest Comprehensive Transportation Plan* (January, 2003) provides a discussion and classification of all existing roadways, as well as recommendations for future roadway projects. Roads are classified by the following categories:

Classification	Definition	Roads in Wake Forest
Major Regional Access Corridor	Roads that provide regional access from Wake Forest to other locations in the region and may serve to connect one location in the region to another by passing through Wake Forest.	<ul style="list-style-type: none"> • Capital Boulevard (US 1) • NC 98 (Durham Road/Wait Avenue) • US 401 (Louisburg Road)
Major Thoroughfares	Streets that serve medium to long distance travel and connect minor thoroughfares and collector streets to freeway and other higher type roadway facilities.	<ul style="list-style-type: none"> • Averette Road (goes to Rolesville) • Burlington Mills Road • Forestville Road/Heritage Lake Road • Franklin Street • Harris Road • Jenkins Road • Jones Dairy Road • Ligon Mill Road • NC 96 (Zebulon Road) (goes to Zebulon) • NC 98 (Durham Road/Wait Avenue) (goes to Durham) • Oak Grove Church Road/East Juniper Avenue • Purnell Road • Rogers Road • Stadium Drive • US 1A (South Main Street/North Main Street) • West Oak Avenue
Minor Thoroughfares	Roads that primarily serve a local travel purpose and often connect to other minor thoroughfares as well as major thoroughfares.	<ul style="list-style-type: none"> • North and South White Streets • North Allen Road • Elm Avenue • East Holding Avenue

Figure 4-1 shows existing and proposed roads in Wake Forest by classification. The Transportation Plan also identifies several roads which have high traffic volumes. It is important to note roads with high traffic volumes because traffic volume is often one factor which affects the suitability of a road for cyclists. The higher the traffic volume on a road, the less comfortable cyclists become. The following roads with high traffic volumes may be less suitable for cycling by those with low or moderate experience maneuvering a bicycle in heavy traffic:

- ◆ Capital Boulevard (US 1)
- ◆ Durham Road (NC 98)
- ◆ Stadium Drive
- ◆ South Main Street (US 1A)
- ◆ Burlington Mills Road

In addition to the Transportation Plan, Wake Forest's Open Space and Greenways Plan also discusses key roadway conditions. This Plan identifies the following locations as scenic corridors: Highway 98, US Highway 1/Capital Boulevard, and Highway 98 Bypass. It was indicated in this Plan that the scenic views should be protected and enhanced along these routes. Although these roads may be scenic for motorists, they may not be suitable for cyclists due to their high volume of traffic.

The **Design Cyclist** is the person or group for whom one is considering when thinking of providing new or improved bicycling facilities. Different levels of cyclist may be use or feel safer on different kinds of facilities or in different conditions. One way of

Fast commuter - confident in most on-road situations, and will use a route with significant traffic volumes if it is more direct than a quieter route;

Other utility cyclist - may seek some segregation at busy junctions and on links carrying high-speed traffic;

Inexperienced utility, commuter and leisure cyclist - may be willing to sacrifice directness in terms of both distance and time, for a route with less traffic and more places to stop and rest. May travel more slowly than regular cyclists;

Child - may require segregated, direct routes from residential areas to schools, even where an on-road solution is available. Design needs to take account of personal security issues. Child cyclists should be anticipated in all residential areas and on most leisure cycling routes;

Users of specialized equipment - includes disabled people using hand-cranked machines and users of trailers, trailer-cycles, tandems and tricycles. This group requires wide facilities free of sharp bends and an absence of pinch-points or any other features which force cyclists to dismount. (source: [UK Government, 2004, p.10](#))

CONCEPT: DESIGN CYCLIST

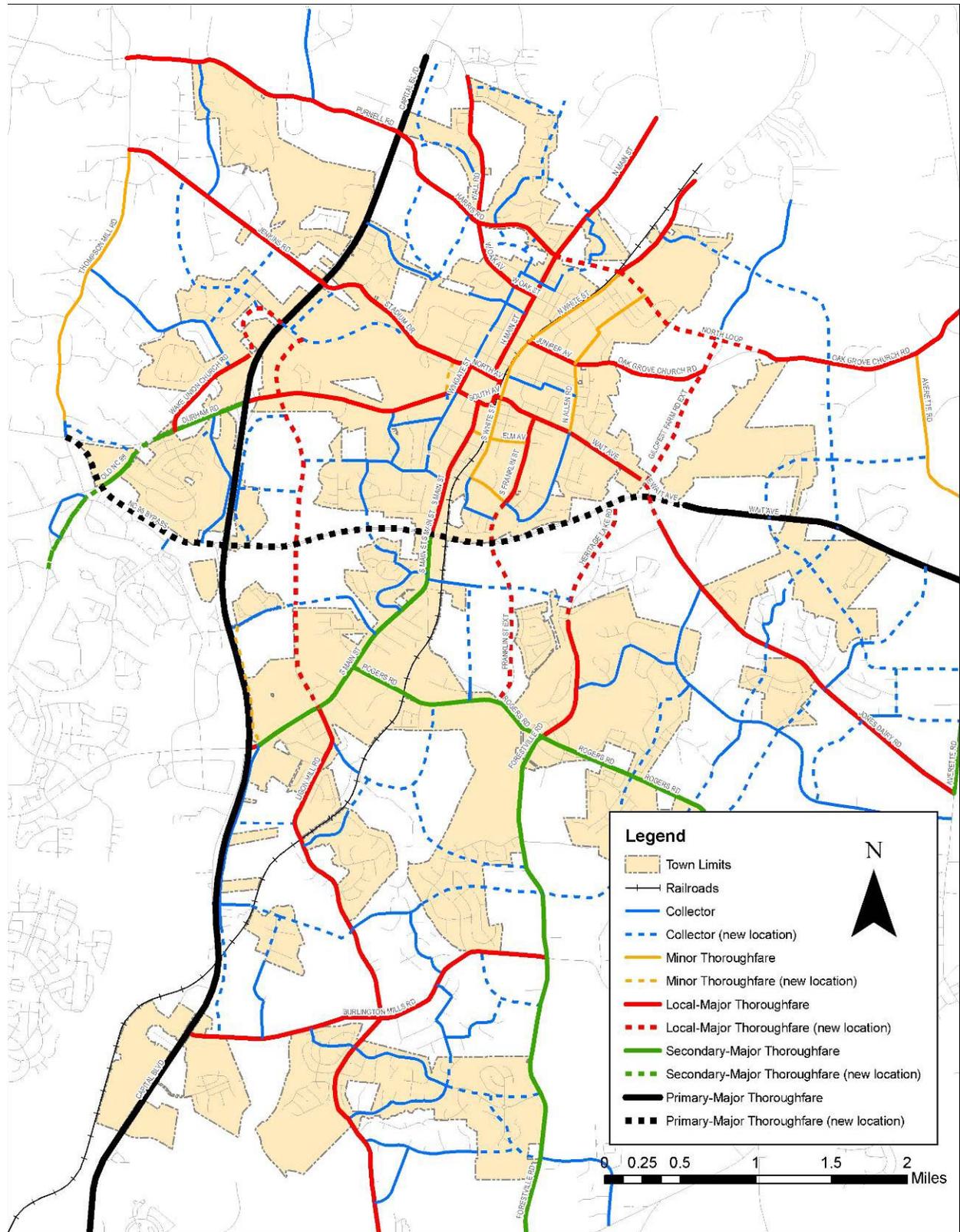


Figure 4-1. Existing and proposed roads in Wake Forest by classification.

4.1.2. On-Road Bicycle Facilities

Currently, Wake Forest does not have any on-road bicycle facilities; however, the *Wake Forest Transportation Plan* provides recommendations for future bicycle facilities. Bicycle facilities in the Transportation Plan are categorized as follows:

Shared Lane (also, "Wide Outside Lane" or "Wide Curb Lane"):	Extra width in the outermost travel lane on either single- or multi-lane roadways to accommodate cyclists. Typically, 14 feet on multi-lane roadway and 15 feet on single-lane roadway.
Striped Lanes:	An exclusive lane, minimum of four feet wide, adjacent to outermost travel lane. Generally includes frequent signs and stenciled pavement markings.
Multi-Use Paths (one side of street):	Typically a 10 foot wide asphalt path parallel to the street that is shared by pedestrians and cyclists. Usually these paths are set back from the curb by a planted verge area that is a minimum of feet in width.
Signed Routes:	Created in cases where no room or need exists to create additional space for cyclists. Often lead through "quieter" streets a city, using neighborhood streets where traffic speeds and volumes are low.

Figure 4-2 and Table 4-1 show a listing of the planned bicycle facilities in the *Transportation Plan*. It is important to note planned on-road bicycle facilities in order to reinforce existing proposed projects and also to recommend projects adjacent projects. As of January 2007, the Transportation Plan does not indicate any planned striped lanes.

Table 4-1. Planned bicycle facilities in the *Wake Forest Transportation Plan* (2003).

Corridor	End Points	
Durham Road (NC 98)	Hampton Way Drive	US 1
Durham Road (NC 98)	US 1	Tyler Run Drive
Franklin Street	Wait Avenue	Holding Avenue
Franklin Street Extension	Holding Avenue	Rogers Road
Harris Road (and extension)/North Loop	Capital Boulevard (US 1)	East Wait Avenue (NC 98)
Heritage Lake Road (and extension)/Forestville Road	East Wait Avenue (NC 98)	Louisburg Road (US 401)
Jenkins Road	Horse Creek Greenway	Capital Boulevard (US 1)
Jones Dairy Road	NC 98 Bypass	Averette Road
Juniper Avenue	North White Street	Planned Smith Creek Greenway
Ligon Mill Road	South Main Street	Burlington Mills Road
Ligon Mill Road	Burlington Mills Road	Louisburg Road (US 401)
Ligon Mill Road Extension	Durham Road (NC 98)	South Main Street
North Main Street	Harris Road	North Avenue
North White Street	Wake/Franklin County Line	Spring Street
Purnell Road	Horse Creek Greenway	Capital Boulevard
Rogers Road	South Main Street	Forestville Road
Rogers Road	Forestville Road	Louisburg Route (US 401)
Seminary Loop		
South Main Street	South Avenue	Holding Avenue
South Main Street	Holding Avenue	Planned NC 98 Bypass
South Main Street	Planned NC 98 Bypass	Capital Boulevard
Stadium drive	Capital Boulevard (US 1)	Wingate Street
Wait Avenue/Roosevelt Avenue	White Street	Planned North Loop
Wait Avenue	Planned North Loop	Zebulon Road (NC 96)

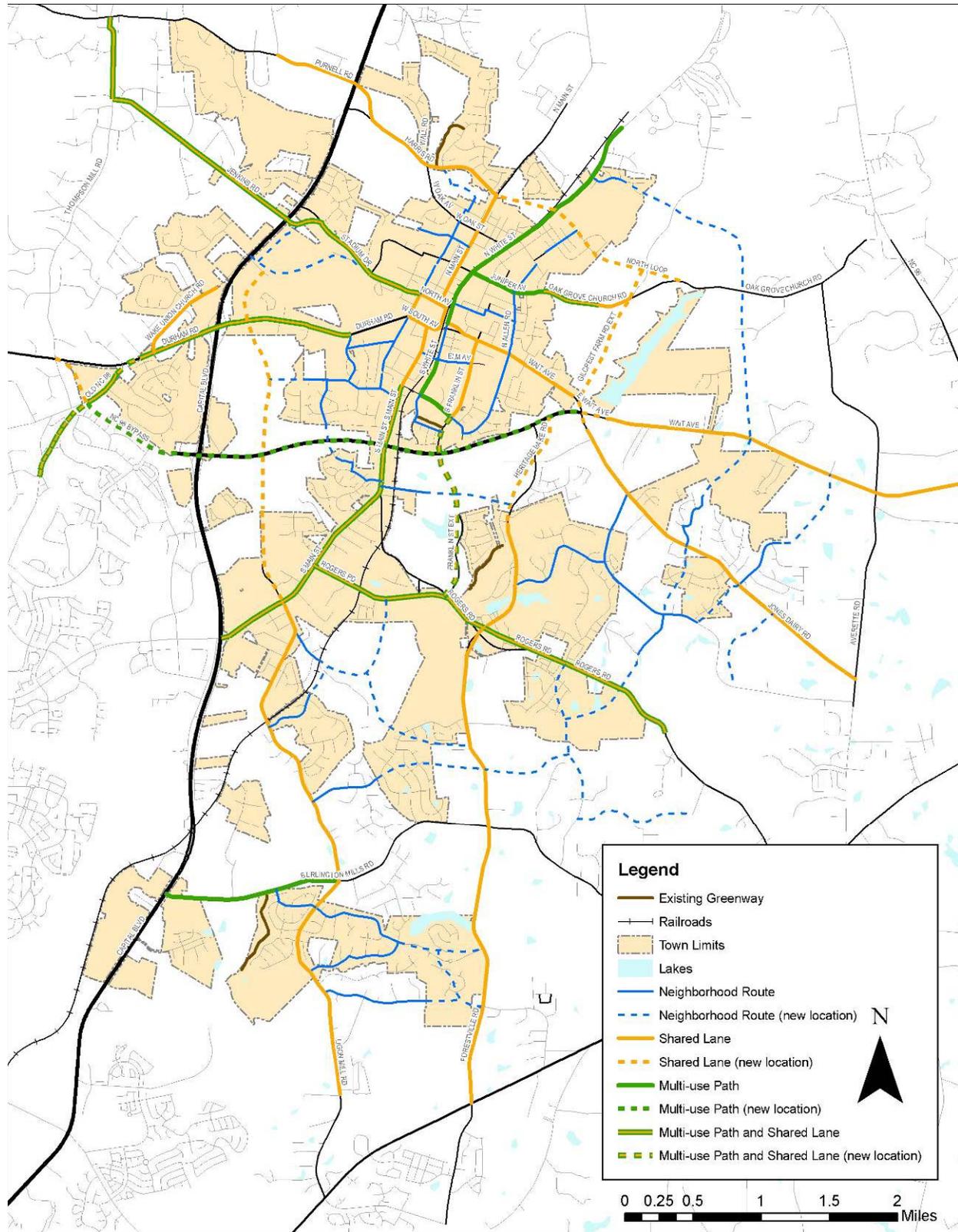


Figure 4-2. Map of the locations for the planned bicycle facilities in the *Wake Forest Transportation Plan (2003)*.

4.1.3. Greenways

Greenways, or off-road paths, are in general one of the most popular types of cycling facilities because of their separation from traffic and often scenic routes. In the past, greenways have been used primarily as recreational facilities, but they have increasingly become major transportation routes for bicycle commuters. As of January 2007, the Town of Wake Forest has a very limited system of existing paved greenways, but big plans for expansion. The *Wake Forest Open Space and Greenways Plan* (2003) proposes the following locations as priority areas for greenways (in order of highest to lowest priority):

- ◆ **Smith Creek** (major north-south greenway corridor): This corridor is under considerable development pressures. Some trails have already been built. There is a new school coming on-line nearby and the potential for connection to downtown trails. This corridor has the greatest potential to be used as an alternate transportation route.
- ◆ **Richland Creek** (north-south): This corridor flanks downtown to the west. As of the time of the Open Space and Greenways Plan, it was considered the most suitable for immediate greenway construction; however, the development pressure along Smith Creek made it a second-highest priority.
- ◆ **Horse Creek**: This corridor is the most ecologically healthy and should therefore have minimal trail development in order to protect its current pristine condition. There are also limitations in route contiguity due to the presence of the Wake Forest Golf Club.
- ◆ **Tom's Creek**: As of the writing of the Open Space and Greenways Plan, Tom's Creek was a registered 303(d) stream, indicating considerable ecological deterioration along this corridor. A greenway developed along this creek would serve to connect Wake Forest to Rolesville, thus contributing to a county-wide effort to link Wake County communities through greenways. The presence of wetlands and Brown's Lake give the potential for creating a wildlife refuge/attraction, but there is limited support from the surrounding neighborhoods for a greenway facility.
- ◆ **Sanford Creek**: This corridor is the eastern-most potential corridor, and would serve to provide connections between the Smith Creek corridor and Rolesville. The Sanford Creek corridor has already experienced significant ecological impact due to residential development.

Figure 4-3 shows a map of existing greenway facilities and the general location for each of the planned greenways.

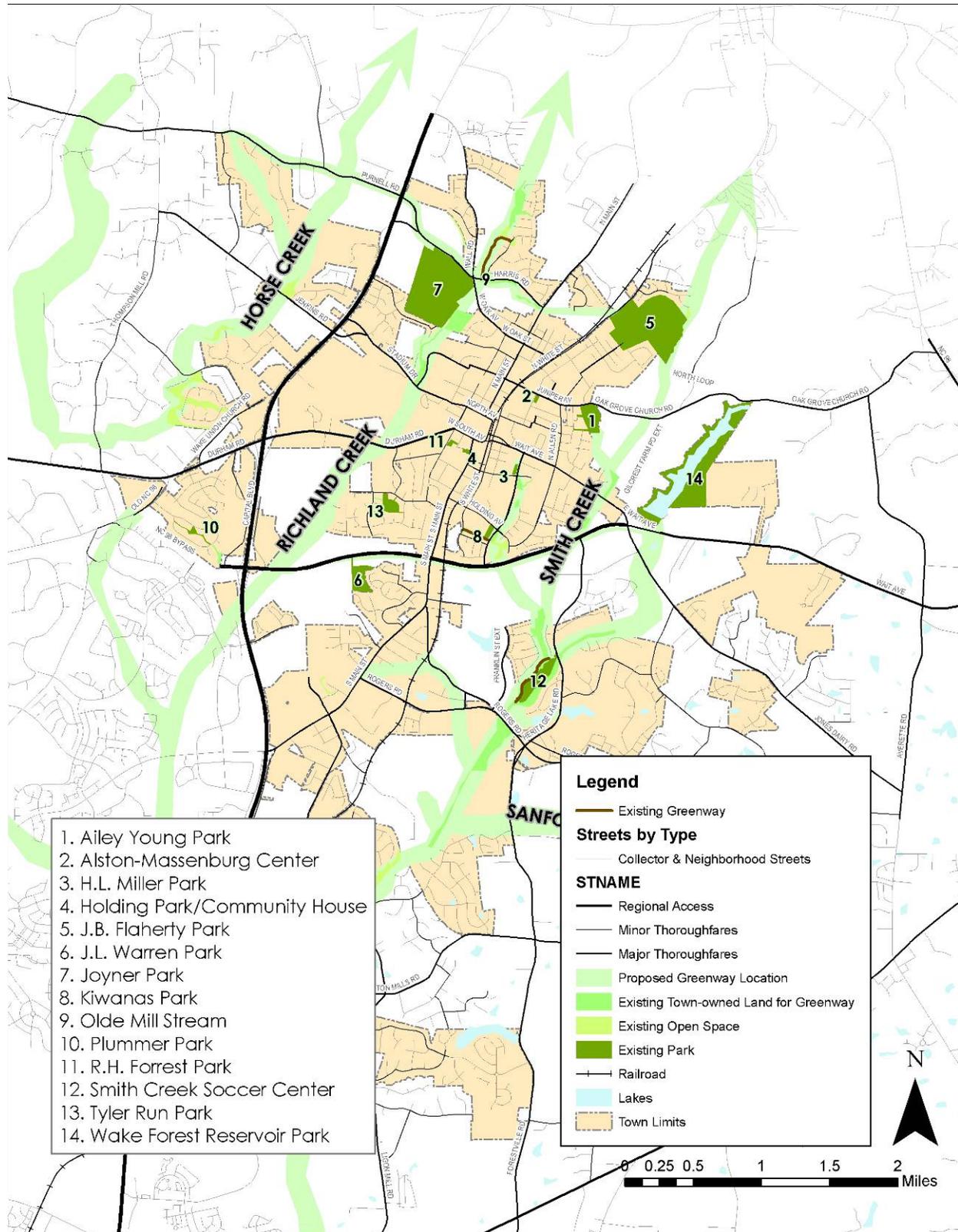


Figure 4-3. Map of existing greenway facilities and proposed greenway corridors in the *Wake Forest Open Space and Greenways Plan*.

4.1.4. Sidewalks

It is important to consider the locations of sidewalks when making recommendations for future bicycle routes because sidewalks can often help to identify areas that may be more bicycle-friendly, or provide insight into destinations that are popular for non-motorists. In addition, future sidewalk projects can be implemented in conjunction with bicycle projects to maximize efficient use of resources and minimize construction time. As stated previously, many pedestrian projects and traffic calming efforts also result in benefits for cyclists. In fact, some traffic calming treatments are bicycle improvements, such as bike lanes and signage. As in many towns and cities, town ordinance prohibits bicycles on sidewalks or pedestrian paths in the Town of Wake Forest. However, many towns and cities do allow cycling on multi-use trail facilities, or extra-wide sidewalks which can accommodate both pedestrians and cyclists safely. Although the Town does not have any multi-use trails at this time, they may consider implementing them in the future.

Figure 4-4 shows a map of existing sidewalk and priority pedestrian corridors for the Town. Future priority pedestrian corridors locations are listed in Table 4-2. The Town may wish to include bicycle facilities when sidewalk upgrades are made at these locations.

Table 4-2. Priority pedestrian corridors as listed in the *Town of Wake Forest Pedestrian Plan*, January 2007.

Corridor	End Points	
North Main Street	North Avenue	Harris Road
Durham Road	Capital Blvd (US 1)	North Wingate Street
North White Street	Roosevelt Road	Flaherty Park
North Avenue	Start	End
Roosevelt Road	Front Street	Wait Avenue
Rogers Road	Forestville Road	South Main Street
South Main Street	South Avenue	Holding Avenue
E. Cedar Avenue	North Main Street	Railroad Tracks
North Franklin Street	NC 98 Bypass	Wait Avenue
Front Street	Start	End
Heritage Lake Road	Rogers Road	Heritage Heights
South Avenue	Start	End
South Wingate Street	Holding Avenue	Stadium Drive
Spring Street	North White Street	Taylor Street
Wait Avenue	Allen Road	Roosevelt Avenue
Rogers Road	W.F. Extra-Territorial Jurisdiction	Forestville Road
Stadium Drive	North Wingate Street	Capital Blvd.
North Wingate Street	Stadium Drive	Chestnut Street
Rock Spring Road	Stadium Drive	Juniper Avenue
South Main Street	Holding Avenue	Rogers Road

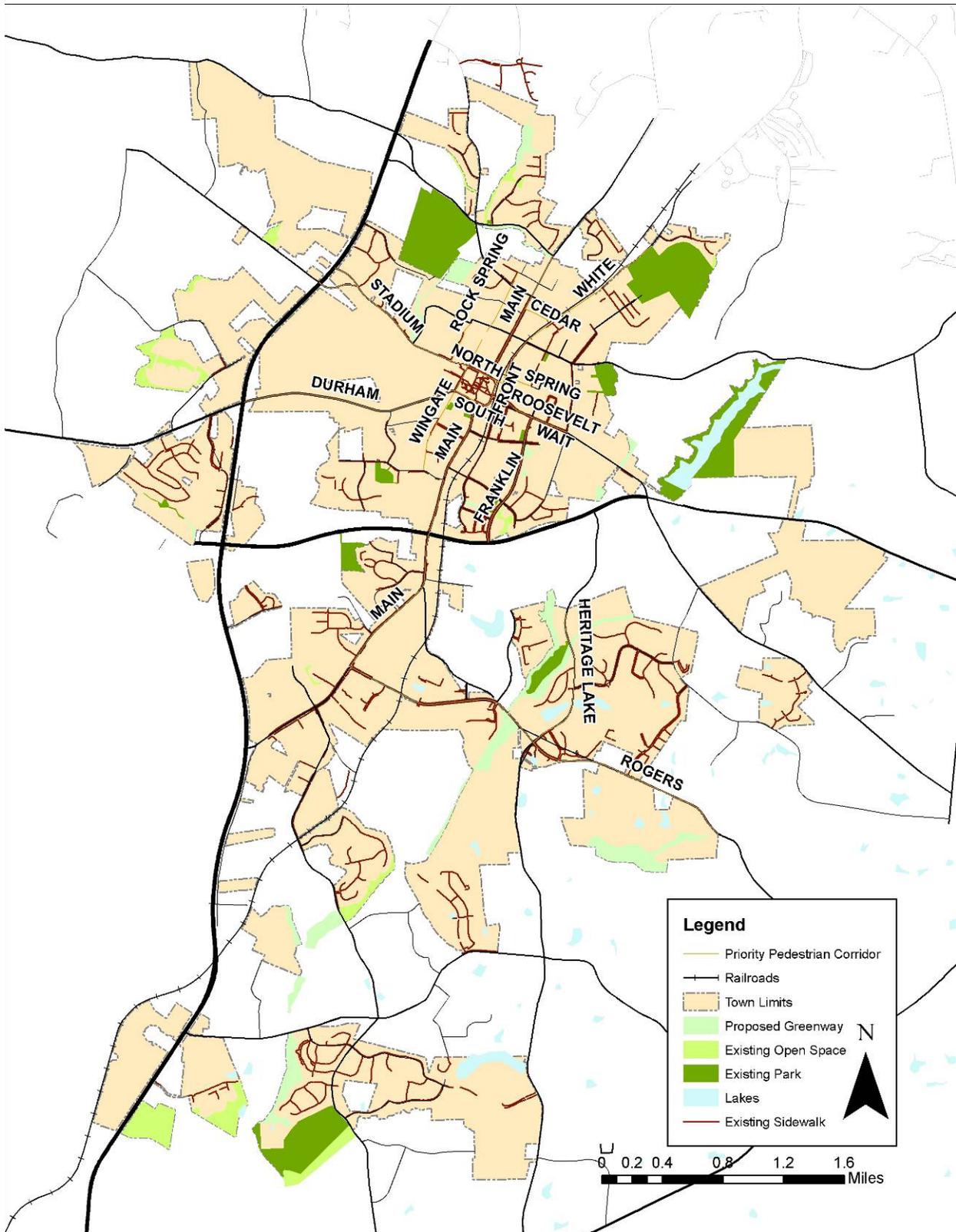


Figure 4-4. Map of existing sidewalks and priority pedestrian corridors in the *Wake Forest Pedestrian Plan* as of January 2007.

4.1.5. Schools and Activity Centers

It is important to inventory at schools and activity centers when preparing a bicycle plan because these are destinations that will attract people to them. Improvements should be made to the routes to these destinations in order to make it more convenient and safer for people to choose to bicycle rather than drive to their destinations. Elementary and middle schools are the types of schools that are most often identified as potential destinations for cyclists, but high schools and higher education centers should also be considered because the potential cyclists to these destinations are more likely to be of an age that is more appropriate for traveling independently by bicycle. Activity centers are locations such as shopping centers, strip malls, downtown commercial areas, and libraries as identified in the Town of Wake Forest's Geographic Information System data (January 2007). Schools and popular activity centers in Wake Forest are listed in Table 4-3. Figure 4-5 and Figure 4-6 show maps of the schools and activity centers that have been identified in Wake Forest and will be considered in this pedestrian plan.

Table 4-3. Schools and Activity Centers in Wake Forest as of January 2007.

Schools	
<i>Elementary Schools</i>	<i>Middle Schools</i>
Heritage Elementary School	Heritage Middle School
Jones Dairy Elementary School	Old Wake Forest Middle School
Wake Forest Elementary School	Wake Forest Middle School
<i>High Schools</i>	<i>Higher Education</i>
Heritage High School	Southeastern Baptist Theological Seminary
Wake Forest High School	
Activity Centers	
Capital Blvd. Business Center	Lowe's Home Improvement
Capital Commerce Center	Luck Stone
Capital Pines	Lyon Shopping Center
Capital Plaza	Main Street Station
Crenshaw Pointe	Market of Wake Forest
Crescente Pointe	North Wake Business Center
Friendship Chapel Center	Riverplace Commerce Center
Golden Corral	Shoppes at Caveness
Hampton Commons	South Forest Business Park
Hampton Park	Tarlton Park Office Center
Heritage Business Park	The Factory
Heritage Commons	Wake Forest Business Park
Heritage Square	Wake Forest Crossing Shopping Center
Heritage Station Shopping Center	Wakefield Ford
Leith Chevrolet & Dodge	Wakefield Junction
Leith Kia Dealership	Winn-Dixie Plaza
Ligon Mill Business Center	

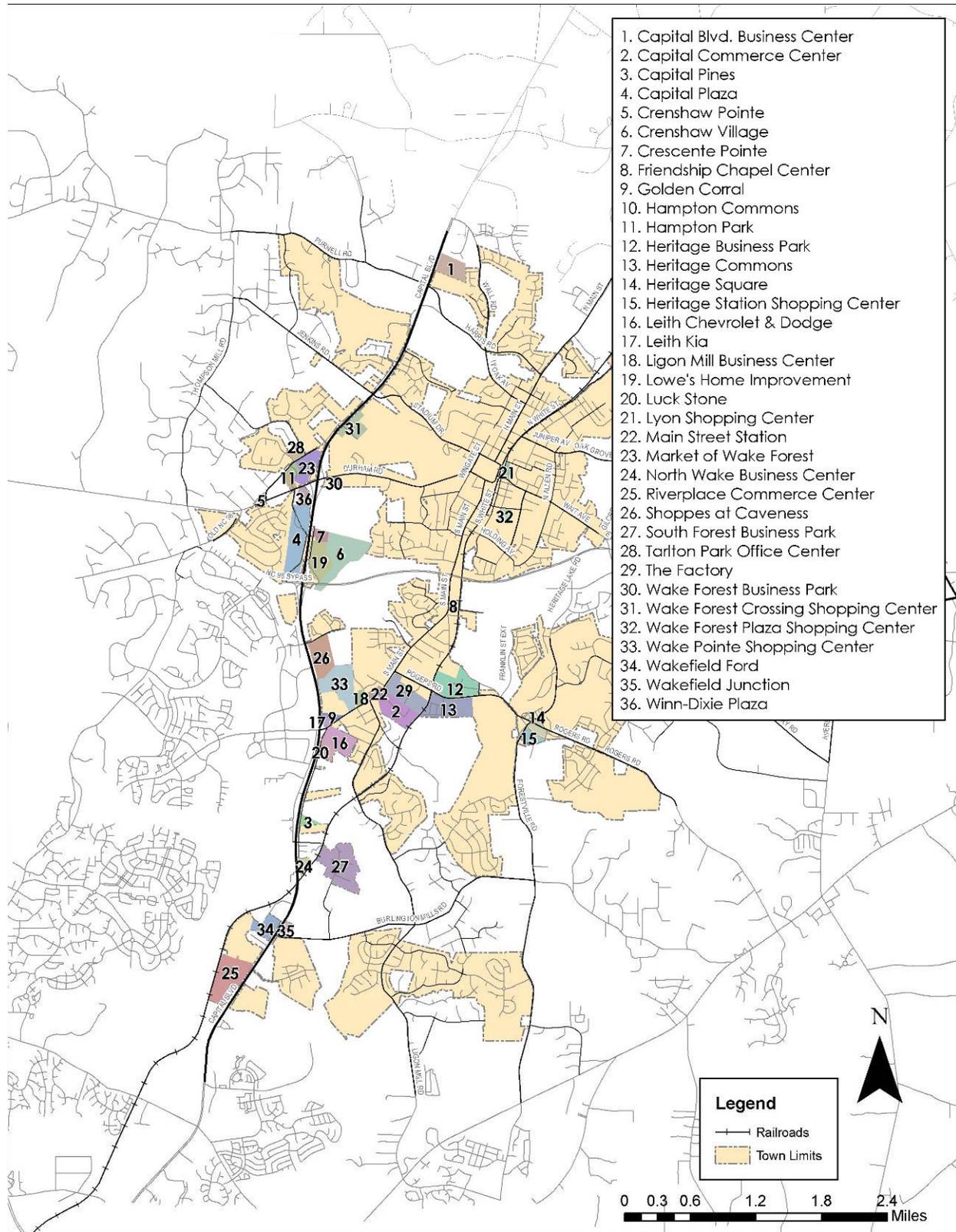


Figure 4-5. Major activity centers in the Town of Wake Forest as of January 2007.

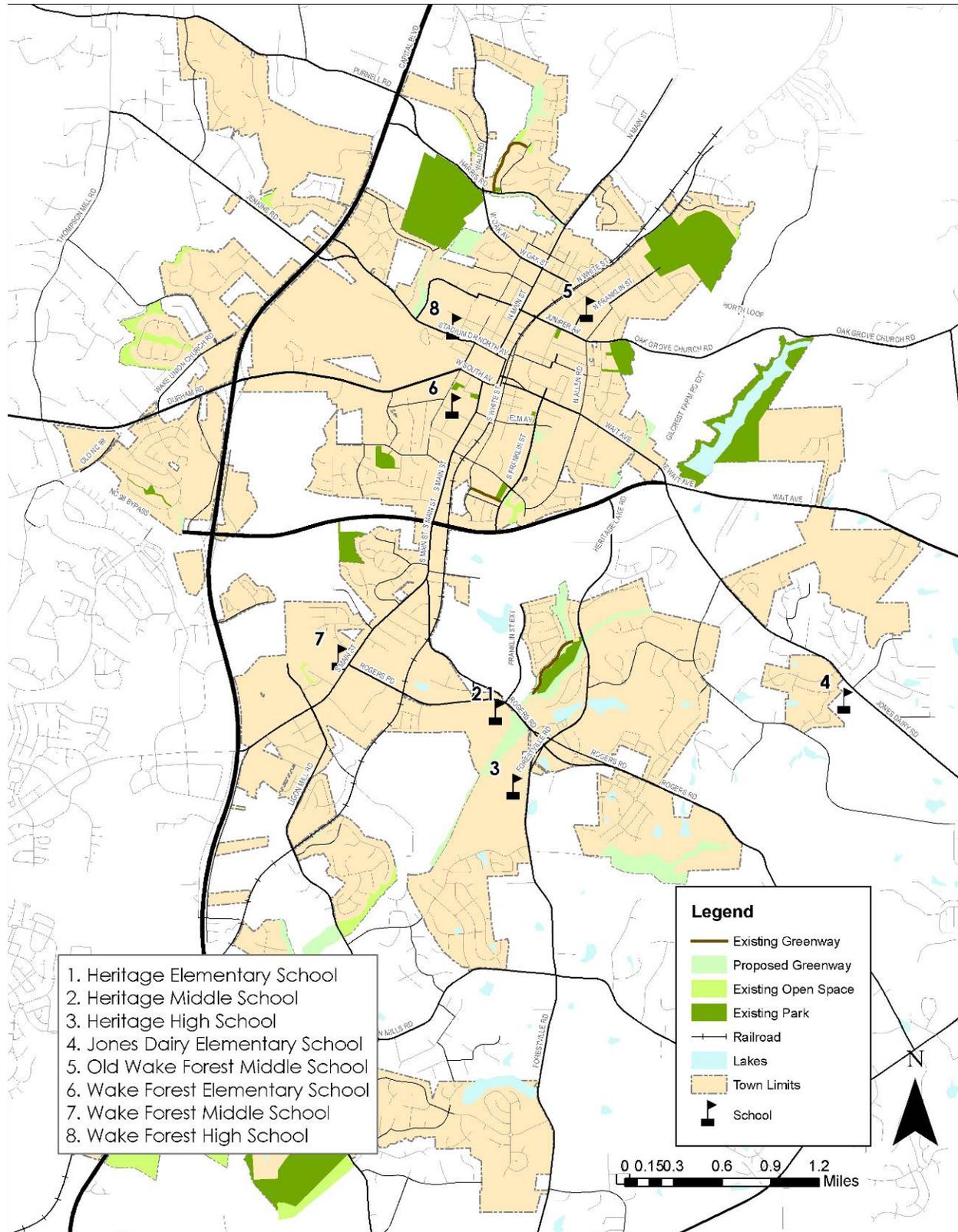


Figure 4-6. Map of schools and activity centers in Wake Forest as of January 2007.

4.2. *Bicycle-Automobile Crash Analysis*

A crash bicycle-automobile crash analysis is useful because it can be an indicator of the bicycle-friendliness of the Town and provide locations where changes should be made to improve safety. A crash analysis can also sometimes indicate popular routes for cycling. Only two bicycle crashes were reported to police in Wake Forest between January 1, 2003 and August 31, 2006. One crash, located at the intersection of Jones Dairy Road and Jones Farm Road at dusk, resulted in evident, but not disabling, injury. Neither crash involved alcohol, which is often a contributing factor to bicycle-automobile crashes. Figure 4-7 shows a map of the two crash locations between January 1, 2003 and August 31, 2006.

The low incident of reported crashes in the Town during the three-and-a-half-year period is more likely due to a low rate of cycling in the town, rather than the bicycle-friendliness of the Town's streets. Preliminary survey results and stakeholder input suggest that residents do not feel comfortable riding in Town limits except on a few residential streets. This may result in fewer cyclists on the road, which can mean lower crashes than a town of a comparable size but better cycling conditions and more cyclists.

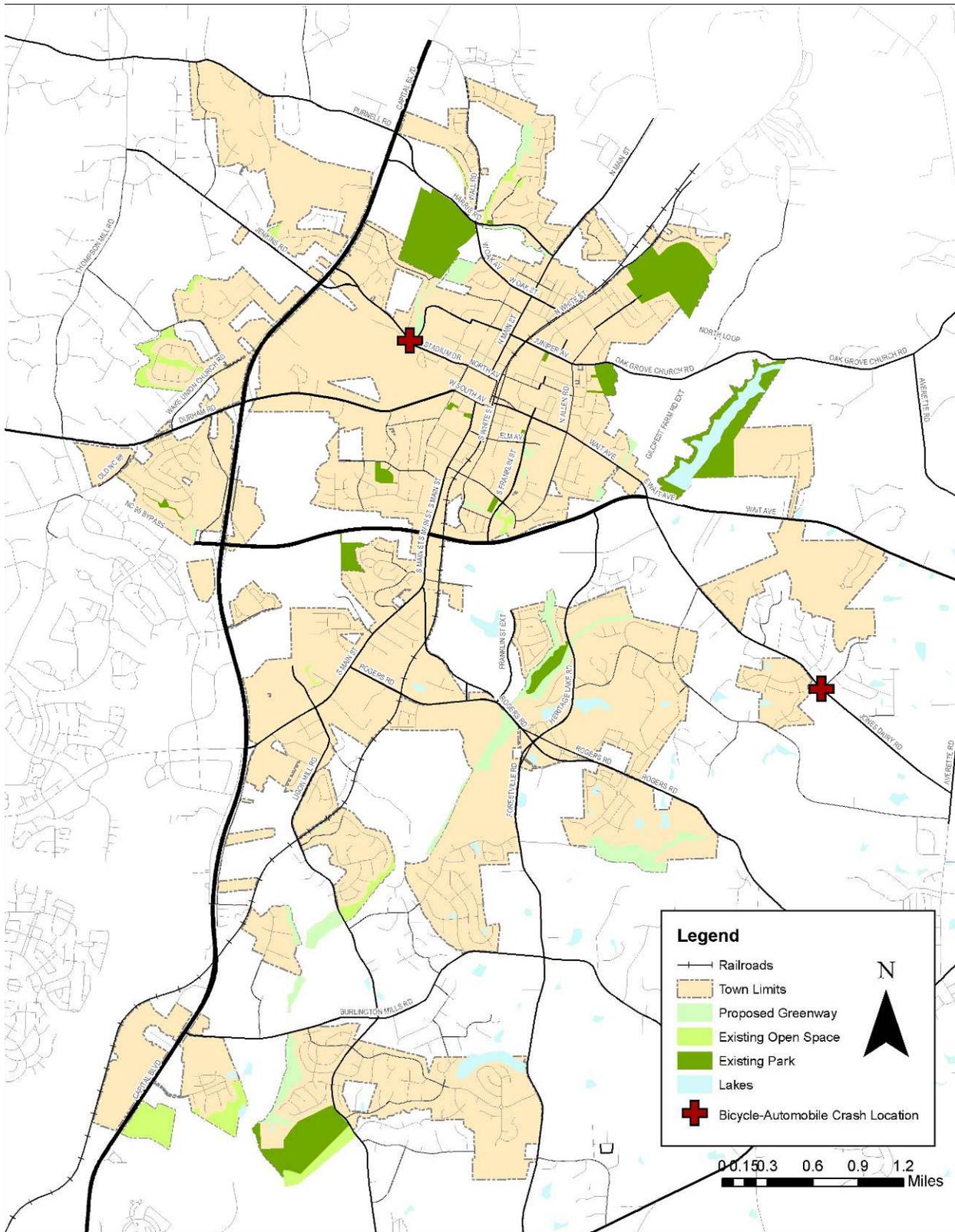


Figure 4-7. A map of reported bicycle-automobile crashes in Wake Forest from January 1, 2003 to August 31, 2006 according to N.C. Department of Transportation.

4.3. Demographic Analysis

It is important to consider the demographics of a location because demographic characteristics such as age, race, and income can be indicators of a population's likelihood to ride a bicycle, especially for transportation. To-work commute characteristics and vehicle availability by household can also be helpful to show the population's current bicycle usage. The following paragraphs provide a summary of the demographic analysis for the Town and discuss the implications of this analysis for the recommendations made in the Bicycle Plan. For the complete demographic analysis, please see Appendix 1.

A demographic analysis of the Town of Wake Forest's Census 2000 data indicates that the town has a primarily white, affluent population. Similar to the County and State, the Town has a low bicycle-to-work rate with less than one percent of commuters who bicycle to work compared to over 80 percent of commuters who drive to work. In addition, the Town has a higher rate of two vehicles available per household compared to the County and State. This could be a result of the potential presence of more dual income earner households in Wake Forest, meaning that both the husband and wife of a household work and therefore each need a car for transportation. The other significant result of the demographic analysis is that in general, Wake Forest residents have longer commutes than those of Wake County or North Carolina. Nearly 50 percent of Wake Forest residents' time to work is between a half hour and an hour, whereas only 30 percent of Wake County residents and 24 percent of North Carolina residents travel that amount of time to work. This suggests that most Wake Forest residents either do not work within reasonable cycling distance of their homes, or that Wake Forest residents live within similar distance of their workplaces as the rest of Wake County and North Carolina, but that congestion on their routes to work has made their commute times comparatively much longer.

In general, the results of the demographic analysis suggest that the Town's population is very car-dependent. Given their commuting times and vehicle availability, the population is more likely to commute to work by car than bicycle. As a result, the Bicycle Plan should make recommendations that would improve the conditions for cycling to shopping or recreation destinations, which are more likely to be cycling attractions in the short-term. At the same time, long-term recommendations should focus on encouraging Wake Forest's residents to cycle to work, which can have health and environmental benefits as well as reduce traffic congestion.

4.4. Existing Needs

4.4.1. Stakeholder Input

At the Stakeholder Meeting on November 16, 2006, stakeholders were given the opportunity to provide input on cycling routes in Wake Forest – in specific those routes which were noted as being popular cycling routes, and those that were considered too dangerous by even the most experienced cyclists. Stakeholders also specified areas where they would like to see improvements for bicycles. In particular, stakeholders would like to see better bicycle access into downtown from the Capital Blvd and Main Street/Falls of Neuse Road intersection, either through better on-road access or through the construction of an off-road facility. This intersection was identified as a particularly dangerous location. Stakeholders also indicated that, with improvements, both Ligon Mill and Forestville Roads would serve well as routes to Raleigh. Figure 4-8 shows the roads which stakeholders identified as uncomfortable and needing improvement, and those that were identified as safe and used for cycling.

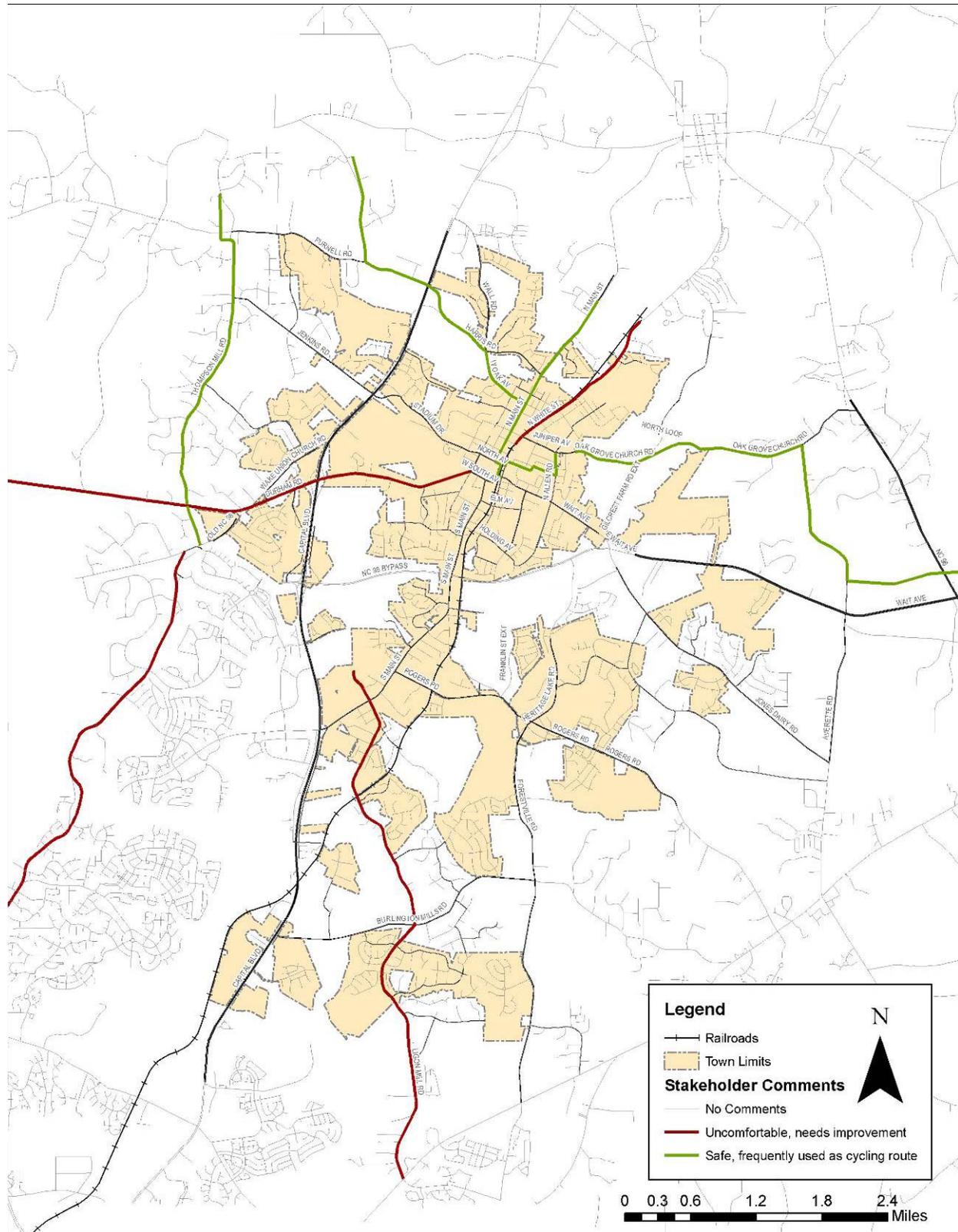


Figure 4-8. Map of roads stakeholders indicated as "comfortable" and "uncomfortable" for cyclists in Wake Forest.

4.4.2. Survey Results

The Wake Forest Bicycle Plan survey is being conducted as one part of the Public Outreach effort for the Bicycle Plan. It was established as a way to provide a convenient, straightforward venue for the public to give input on the cycling conditions in the Town and their hopes for the Town's cycling future. Respondents can choose from either an online or hard copy of the survey. The online version of the survey is accessible through the Town's front page and the Bicycle Plan's page on the website. Hard copies are being distributed through utility bills, a public school handout, and can also be picked up at Town Hall. The survey is also being advertised through a frame on the Town's public access channel. The survey period began on December 8, 2006 and will continue to accept responses until February 28, 2007 (a nearly three month period). For a complete copy of the survey and survey results as of January 26, 2007, please see Appendix 2.

As of January 26, 2007, the survey had received 103 responses. Of those respondents, a slightly greater number were male than female, and the majority of the respondents were between the ages of 30 and 49. 82 percent of respondents had ridden a bicycle in the last six months, usually on weekends but regardless of weather. Most respondents indicated that they ride for recreation, exercise, and a family event. Top destinations included the park, neighborhood, and into town. Nearly 80 percent of respondents wear helmets. Nearly 100 percent of respondents indicated they would like to ride more. Most respondents indicated they would ride more if there were more clearly marked trails, better places to ride to, wider roads, and better road conditions.

100 percent of the survey respondents indicated that they would like to see more greenways in the town, and 95 percent indicated they would like to see more bike lanes. Respondents suggested the following locations for future greenways:

- ◆ Between neighborhoods for connections from one neighborhood to another
- ◆ From neighborhoods to downtown, to parks, and to schools
- ◆ From downtown to the Factory/US 1/Capital Blvd. area
- ◆ Around parks, especially Flaherty Park
- ◆ As connections to the Raleigh Greenway system and the Falls Lake Greenways

The following roads were common recommendations for bike lanes:

- | | |
|----------------------|-----------------|
| ◆ Stadium | ◆ Franklin |
| ◆ Forestville | ◆ Capital Blvd. |
| ◆ Rogers | ◆ Louisburg |
| ◆ Ligon Mill | ◆ Jenkins |
| ◆ S. Main Street | ◆ Purnell |
| ◆ Hwy 98/Durham Road | ◆ Ligon |
| ◆ Burlington Mill | ◆ Thompson Mill |
| ◆ US 1-A | ◆ Jones Dairy |
| ◆ Wait | ◆ Wake Union |

Several respondents also recommended that bike lanes should be constructed for commuting access to Raleigh; towards Falls Lake, Youngsville, and Rolesville; and on any new roadways.

61 percent of respondents felt that Wake Forest needed more bike parking racks. Recommended locations for bike parking racks included:

- | | |
|---|------------------------------|
| ◆ Downtown | ◆ Schools |
| ◆ Parks | ◆ Libraries |
| ◆ Shopping areas (including Retail Drive Shopping Area, and near Stucchi's ice cream in Heritage) | ◆ At Trail Heads |
| ◆ Churches | ◆ In parking areas |
| | ◆ At public gathering places |

Many of the comments from respondents indicated that respondents felt that Wake Forest needed safer bicycling routes to schools, parks, tennis courts, and shopping centers. Respondents often discussed their wish to ride with their children, but they felt that they were unable to because the roads were too dangerous. These statements, along with a demand for connections to Raleigh's greenway and bicycle system, are fairly consistent with the issues identified by the Stakeholder Committee that the town needs a more improved and safer cycling network for children. The major conclusions that can be drawn from the survey results are as follows:

- ◆ Recommendations in the Plan should work to increase cyclist's safety and comfort on existing roadways. This will also attract more cyclists to ride in Wake Forest.
- ◆ The Plan should emphasize building more greenways as a way to promote cycling in Wake Forest.
- ◆ Major roads that should be improved include: Main St, Forestville Road, Ligon Mill Road, and Durham Road.

Some useful quotes from the survey responses:

- ◆ "I absolutely love living in Wake Forest but wish it was a little more bike friendly." (15)
- ◆ "I can't wait to see what riding opportunities Wake Forest currently offers; and what Wake Forest plans to offer in the future. Thanks!" (17)
- ◆ "Any mountain bike trails would be greatly appreciated too." (18)
- ◆ "Make developers include bike/hike trails." (32)
- ◆ "It would be great if Wake Forest took the lead in bicycle paths in the area." (39)
- ◆ "I live in Heath Ridge (by Deacon's Ridge) which is also near the post office and library, and I go to Wake Forest-Rolesville Middle School. So far I can't ride my bike to middle school due to the fact that Main Street is a busy road and my parents don't want me on it. Plus, I have to cross the [NC] 98 Bypass/Main Street intersection and that doesn't seem safe enough for bikers to travel on. If there were clearer pathways to schools, more people that live in my neighborhood could ride there." (49)
- ◆ "I would be happy to see our famous 'small town' atmosphere survive and not get lost in the shuffle." (52)
- ◆ "We support any efforts of the town to make it easier for people to ride bicycles as an option to drive." (61)
- ◆ "Developers in this area are profiting greatly from our growth. They should be responsible for providing recreational areas for the community as they consume the open land and provide upgrades to roads, such as sidewalks and bike lanes for residents to use." (99)

5. Current Policy Discussion

The Town of Wake Forest has a variety of sources for policy guidance relating to cycling in the Town. Construction and design of bicycle facilities, including bicycle lanes, wide outside shoulders, greenways, and bicycle parking, is affected by the Town's *Manual of Specifications, Standards, and Design* (July 2000), *Wake Forest Transportation Plan* (January 2003, discussed previously), and the Town's Code of Ordinances. Bicycle facility maintenance is under two jurisdictions. For on-road facilities, maintenance is the responsibility of the North Carolina Department of Transportation (NCDOT). For off-road facilities, such as greenways, maintenance may be the responsibility of the Town's Parks and Recreation Department or individual property/homeowners associations, depending on the ownership of the greenway. Bicycle facility use is guided by the Town's Code of Ordinance and North Carolina State Law.

5.1. Bicycle Facility Construction

On-road Facilities

For on-road facilities such as bicycle lanes, wide outside shoulders, and nearby adjacent-to-road multi-use paths, constructed by either NCDOT or as part of a new development, Town staff currently requests that bicycle facilities be provided in locations based on the guidance contained in the *Wake Forest Transportation Plan* (January 2003). These facilities will then be constructed using the specifications outlined in the Town's Manual of Specifications, Standards, and Design and the NCDOT's *North Carolina Bicycle Facilities Planning and Design Guidelines*. The Town's *Manual of Specifications, Standards, and Design* sets minimum standards for subdivision streets, which includes a discussion of required curb and gutter, sidewalks, street lights, and street trees, but does not include bicycle facilities such as striped bike lanes, wide outside lanes, or greenways. The Manual's Section 2.6.5: Greenways & Bikeways indicates the following relating to bicycle facilities:

1. **Greenways:** When required, greenways shall be provided with a minimum of a 50' right-of-way.
2. **Bikeways:** When required, the bikeways shall be designed in accordance with the NCDOT's North Carolina Bicycle Facilities Planning and Design Guidelines, latest revision.

In addition, the Town's Manual provides extensive guidelines for conducting Traffic Impact Analysis which address methods for assessing traffic generation, trip distribution, existing conditions, planned improvements, and even pedestrian facilities, but not bicycle facilities. The Bicycle Plan should make recommendations that require a discussion of proposed bicycle facilities with each Traffic Impact Analysis and that the discussion for recommended improvements to mitigate traffic impacts include bicycle facility considerations.

Off-road Facilities

Currently, the Town of Wake Forest requires developers to reserve land, sometimes in the form of easements, for greenways based on the planned future greenway locations indicated in the Town's *Open Space and Greenway Plan* (2002); however, developers are not required to construct the greenways or to pay fees-in-lieu for construction. The Town does require developers to pay a Parks and Recreation fee which contributes to a fund for the construction of future Parks and Recreation facilities in the Town, including greenway construction.

Bicycle Parking Racks

The Town passed an ordinance in 2007 to require bicycle parking to be provided by all non-residential, multi-family, recreation, and industrial uses. Bicycle parking facilities required by the ordinance shall be designed and located in conformance with the Association of Pedestrian and Bicycle Professionals *Bicycle Parking Guidelines*.

5.2. Bicycle Facility Maintenance

On-road facilities

Most of the Town of Wake Forest's roads are maintained by NCDOT, which is responsible for maintaining the bicycle facilities upon them. Currently, there are no striped bicycle lanes in the Town. Partially due to this, the Town and NCDOT do not have a consistent maintenance schedule established for bicycle facilities.

Off-road Facilities

The Town of Wake Forest's Parks and Recreation Department is responsible for maintenance of those greenways under their jurisdiction. Private greenways that have been constructed as part of a residential development are the responsibility of the homeowner or neighborhood association, depending on the neighborhood's regulations. The Town of Wake Forest's Open Space and Greenway Plan contains the following text relating to maintenance of new greenway facilities constructed by neighborhoods:

"It is expected that many Wake Forest neighborhoods will want to connect their greenway systems to the larger, municipal system. This is encouraged. However, it will be necessary for groups wishing to connect to the Wake Forest municipal system to seek permission from the Wake Forest Parks and Recreation Department. Efforts to join systems will require coordination between the Parks and Recreation Department and neighborhood associations. It must be clear to all parties that connecting to the Wake Forest municipal system does not transfer the neighborhood greenways responsibilities of safety, security, and/or maintenance to the Wake Forest Parks and Recreation Department."

This policy may discourage support for constructing greenways if these connections will remain the responsibility of the homeowners upon completion by developers. It may also result in future problems relating to inconsistent maintenance and security along the Town's various public and private trails. To remedy this, the Bicycle Plan should recommend that the Town should establish a program to work with developers and homeowners to ensure that greenways are built, and that a suitable agreement for both parties is reached which guarantees long-term maintenance and security responsibilities.

5.3. Bicycles around Schools

Currently, the Town's ordinances do not address requirements for bicycle facilities such as bike lanes, wide outside lanes, or greenways around schools. The Town should consider implementing these requirements to make it safer for students, staff, and faculty to access schools safely.

5.4. Bicycle Usage

Bicycle usage in the Town of Wake Forest is guided by North Carolina State Law and the Town's Code of Ordinances. The North Carolina Department of Transportation's A Guide to North Carolina Bicycle and Pedestrian Laws provides a summary of laws pertaining to bicycling in North Carolina. In general, North Carolina law considers a bicycle a form of vehicle. Operating a bicycle is considered equivalent to driving a vehicle, and the operator (or cyclist) is therefore subject to the same laws and rules of conduct as pertains to motor vehicles and motorists.

As do many towns and cities in North Carolina, the Wake Forest Code of Ordinances restricts the use of bicycles on sidewalks.