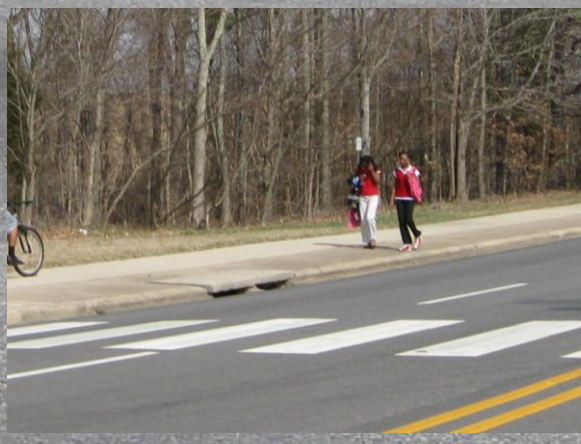
City of Thomasville Comprehensive Bicycle Transportation Plan

Final Draft
June 2009



Division of Bicycle & Pedestrian Transportation

City of Thomasville Comprehensive Bicycle Transportation Plan

Adopted by the Thomasville City Council _____ 2009

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CHAPTER 1: INTRODUCTION

1.1 SCOPE AND PURPOSE

This plan provides a broad vision and a more specific set of goals and strategies to improve the City of Thomasville's bicycle transportation system. This effort was made possible through a planning grant program administered by the North Carolina Department of Transportation's Division of Bicycle and Pedestrian Transportation. A local match was provided by the City of Thomasville's PACE program and Davidson County. The plan includes input from staff, residents and employees in Thomasville through a steering committee, public meetings, talks with social and civic organizations and a user survey.

In the spring of 2008, existing conditions and demographics related to bicycling in Thomasville were compiled (*see Chapter 2*), with a focus of building on adopted plans and policies. Roadways were evaluated for bicycling based on traffic, pavement condition and width, travel speeds, land use, bicycle routes and other factors. Corridors are ranked with weighted scoring criteria based on the above factors (*Chapter 3*). Plan recommendations were centered on enhancing bicycling for transportation, however many recommendation will also benefit bicycling for physical activity and recreation. Proposed projects were prioritized to ensure affordable and critical projects are constructed first, while phasing in other projects based on cost and feasibility. The project recommendations are compiled in a map and table. The plan also recommends policies and programs (*Chapter 3*) to encourage, educate and promote increased use of a more accessible bicycle-friendly transportation network. The most critical action items for plan implementation (*Chapter 4*) are also provided for the first two years following plan adoption. Design guidelines (*Chapter 5*) and funding sources (*Appendix A*) are included to assist with bicycle facility project development.

1.2 BACKGROUND

The way people move around their local communities has dramatically changed in recent years. Our lives have become increasingly dominated by the automobile and marked by a distinct pattern of physical inactivity. Though Thomasville does not suffer from recurring traffic congestion and air quality problems on the scale of larger cities, citizens can benefit greatly from a more walkable and bicycle-friendly environment. As the Triad area grows, congestion and air quality problems will continue to challenge assumptions about how we choose to travel.

Providing safe and accessible places to walk and bicycle can help communities reduce automobile trips and traffic congestion, and in turn, reduce air pollutants and increase the overall health of the community. Safe bicycle facilities include a comprehensive network of bicycle lanes, multi-use paths (e.g. greenways and sidepaths), paved shoulders, shared use lanes (e.g. wide outside lanes and sharrows), signage, signalization and intersection striping (e.g. bike boxes and right turn only lanes where right turn only lanes exist). In addition, providing a wider mix of land uses in close proximity to each other can reduce travel distances, encourage more foot traffic and reduce car trips. Well-designed neighborhoods with ample opportunities for walking

and bicycling can improve quality of life and foster an increased sense of community. Local land use policies can support mixed-use development and the creation of bicycle facilities as part of new road construction and subdivision practices.

The three key elements of a well-designed "walking and bicycling-friendly community" include:

- Safety – (e.g. issues of traffic, crime, buffering, lighting);
- Access – (e.g. curb ramps, crossing treatments, connected streets); and
- Comfort – (e.g. lighting, bicycle accommodation, paths, compatible land uses).

Design characteristics that serve as some of the basic building blocks of walkable and communities include:

- Connectivity - (close sidewalk gaps, safe bicycle network, link open spaces and recreation facilities, build cul-de-sac paths and connections between different land uses);
- Separation from traffic - (bike-lanes, multi-use paths, planting strips, landscaping, bulb-outs);
- Bicycle supportive land-use patterns – (mixed use, higher density);
- Designated space - (bicycle lanes, 5ft+ sidewalks in residential areas and 8-12ft sidewalks in downtown and around schools);
- Accessibility - (ADA ramps, crosswalks, bicycle sensitive traffic signals, shared lanes); and
- Security and visibility (lighting, landscaping and site distance).

The following page includes images that depict the types of bicycle facilities proposed in this plan (see Chapter 3 for specific recommendations and location) to improve bicycle transportation in Thomasville.

- Multi-Use Path – trails, greenways or sidepaths that provide safe bicycle or pedestrian transportation completely separated for car traffic and are suitable for areas such as old rail beds, sewer lines, stream corridors, etc.;
- Bicycle Lane – suitable for urban arterials or busy neighborhood collector streets with higher traffic counts and speeds; where pavement width allows, these facilities can be implemented at a low cost;
- Paved Shoulder – suitable for all high speed roadways without curb and gutter, shoulders improve safety for both automobiles and bicyclists;
- Sidepaths – suitable along hi-speed, busy roadways with very few driveways where on-road accommodation is not suitable for the population using the corridor;
- Sharrows – suitable for busy streets with lower traffic speeds and higher traffic counts and no width for bicycle lanes, such as downtown areas or streets with high levels of on-street parking; and
- Shared Lane – bicycles are allowed on all streets (except Interstates) in Thomasville and automobiles are required to share the road with bicyclists, nearly all of Thomasville streets are shared lane facilities. The outside lane on multiple lane facilities should have a "wide outside lane" 13-14ft wide to provide extra room for automobiles to pass bicyclists.

Different Types of Bicycle Facilities

Multi-Use Path

(Source: Dan Burden, www.pedbikeimages.org)

Bicycle Lane

(Source: Dan Burden, www.pedbikeimages.org)

Sidepath

(Source: Dan Burden, www.pedbikeimages.org)

Sharrows

(Source: City of Portland, OR)

Shared Lane

(Source: Bruce Rosar)

Paved Shoulder

(Source: Dan Burden, www.pedbikeimages.org)

1.3 HISTORY

The City of Thomasville was incorporated in 1857 and has been an important economic force in the furniture industry throughout the 20th century. Economic forces, nationally and globally have affected the local and regional economy. Changing times require the City to be innovative in developing new businesses and provide the quality of life necessary to attract companies and their workers. The provision of bicycle transportation and recreation options in the form of multi-use paths, bicycle lanes and paved shoulders contribute to a high quality of life, important to attracting and retaining workers and the creative class in the new economy.

Some Thomasville citizens use walking or bicycling as a form of transportation (2.1% - Census, 2000) and many more for recreation. Bicycling and walking is not as prevalent as it once was in Thomasville nor across the nation. In 1969, an average of 42% of school children walked or bicycled to school nationwide. By 2001 only 16% of school children walked or bicycled to school (CDC, 2005). This is partly due to a change in where families choose to live, but also is influenced by the built environment that tends to under serve multi-modal transportation needs. Requirements within the City's development ordinances and subdivision regulations have helped to build a moderately good network of sidewalks in Thomasville. The bicycle network has begun to take shape more slowly as trails and bicycle lanes in neighboring jurisdictions have been constructed. There are important connections needed to develop the City's bicycle network, but many current corridors can be upgraded with better bicycle facilities with modest investment.

Safe and inviting places to walk and bicycle are important for neighborhoods, schools, senior centers, downtowns, shopping areas, hospitals and everywhere people go. Even if walking or bicycling is not our everyday mode of travel for journeys to work, shopping or recreation, walking and bicycle-friendly streets and neighborhoods enhance safety, accessibility and comfort for all transportation users.

This the first time the City of Thomasville has developed a comprehensive bicycle transportation plan. Consequently, this planning effort is a major step forward for bicycling in Thomasville. A Greenway Master Plan was completed in 2003 and a pilot project has been implemented adjacent to the Thomasville Middle and High Schools. This comprehensive bicycle transportation plan will work to build from previous planning efforts and the work of neighboring municipalities. Thomasville has signed bicycle routes that were mapped in 1998 by the High Point Metropolitan Planning Organization in cooperation with the NCDOT Bicycle and Pedestrian Division.

1.4 VISION AND GOALS

Steering Committee Members Brainstorm Bicycle Improvement Ideas

The Thomasville Bicycle Plan Steering Committee, composed primarily of older adults who ride regularly in Thomasville, established a vision statement and a set of goals for the City's bicycle transportation system. Serving as a foundation to the plan, the vision statement and goals were refined using feedback from public meetings and a community survey. Recommended programs, policies and pilot projects were drafted using steering committee input, public comments, survey input, civic organization meetings and consultant recommendations (see *Chapter 3 and 4*). The bicycle system recommendations provide specific strategies for achieving the vision and goals for the Thomasville Bicycle Transportation system.

Vision Statement

In the Year 2030, the City of Thomasville will have a bicycle transportation system that is a safe alternative mode of transportation throughout the City.

The downtown will be linked with neighborhoods, schools, recreation, commerce and other points of interest via multi-use paths, bicycle lanes and paved shoulders.

Bicycle accommodations in Thomasville will connect residents to Lake Thom-a-A-Lex and other regional and statewide trail systems in Davidson County and neighboring counties including the Mountains-to-Sea Trail, Triad Park and the Bi-Centennial Greenway.

The bicycle transportation system will be a model for the Piedmont Triad and enable residents to safely ride to work and school, while encouraging visitors to explore and support local businesses.

Goals

Key ***bicycle*** system goals for Thomasville over the next 20 years include:

1 Year Goals

- Have the bicycle plan adopted by Council, build and promote a signature project for citizens to rally around;
- Stripe select wide streets for bicycle lanes;
- Establish ongoing education programs on bicycle safety and benefits;
- Start acquiring public access easements on key existing sewer easements, railways and stream corridors;

- Establish bicycle riding classes and outings for youths;
- Install bicycle racks in key lcoations;
- Encourage ridership through campaigns, rides and education; and
- Amend the development ordinance to encourage implementation of trail development as part of the development process.

2-5 Year Goals

- Establish funding sources (grants, foundations, donations, etc.) and update action plan to fund future bicycle transportation corridors;
- Implement first phases of plan including, lanes, land acquisition along priority railways and easements; and
- Have two high priority multi-use path segments completed or in the construction process.

6-10 Year Goals

- Seek private and public grants to extend growing trail system;
- Have community regularly support multi-use paths with donations;
- Produce county-wide map of updated on-road and off-road bicycle routes and place in visitor centers and on the internet;
- Add bicycle lanes that connect existing trails and on-road routes;
- Expand bicycle system to connect to Lake Thom-A-Lex;
- Begin connecting the Thomasville multi-use path system north toward the Bicentennial Greenway; and
- Evaluate feasibility of requiring impact fees on development for alternative transportation facilities.

11-20 Year Goals

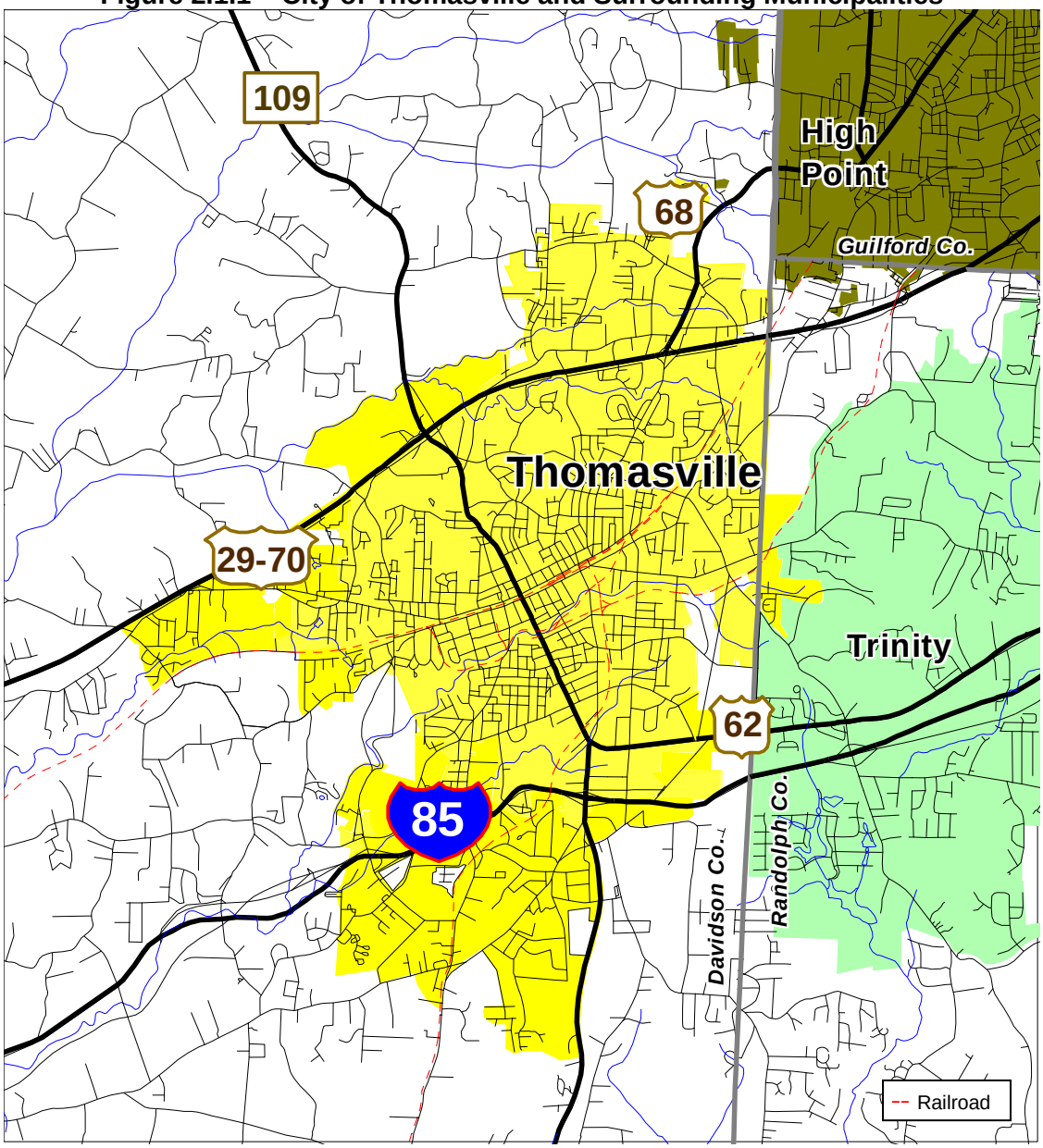
- Plan is 75% complete in 11 years and 100% complete in 20 years and
- Evaluate requirement of bike lanes to be built in all new subdivisions.

CHAPTER 2: EXISTING CONDITIONS

2.1 OVERVIEW

Important to the Thomasville planning process is the assessment of existing conditions, which lays the foundation for what future planning is required. The existing conditions analysis includes an assessment of many different facts, issues and input such as community outreach, surveys, demographics, evaluation of crash data, the location and function of the bicycle network and how people use facilities, ordinances, statutes and existing plans and programs supporting bicycle transportation.

Figure 2.1.1 – City of Thomasville and Surrounding Municipalities



Creating a balance between community concerns and the analysis of data provides a framework of Thomasville's existing conditions. This framework is the foundation from which the Bicycle Transportation Plan recommendations are developed. Extensive analysis of community concerns and review of existing data and plans can be found in this chapter.

Planning efforts in the neighboring municipalities of High Point (e.g. greenway plan) and Trinity (e.g. land development plan) have incorporated bicycling and pedestrian transportation elements. For example, there are few safe bicycling routes between High Point and Thomasville. Improving alternative transportation connections between these cities will be integral to shifting away from automobile use. In addition, Davidson County has also pursued a land development plan update and a greenways plan in an effort to identify and prioritize areas for development, open space and greenways.

2.2 DEMOGRAPHICS AND CRASH DATA

This section explores population, growth, density, race, ethnicity, income, educational attainment, disability, work commute patterns and travel time. The annual crash data for recent years and geographic locations of pedestrian and bicycle crash data are compiled from local police records and the Division of Bicycle and Pedestrian Transportation. Demographic data is compiled from the US Census, the NC Office of Budget & Management and the State Data Center.

Population and Density

The City of Thomasville has grown in both land area and population since 1980. It has also become more densely populated. Much of the population growth was due to annexation outpacing population growth statewide. Figure 2.2.1, 2.2.2 and 2.2.3 illustrate the growth and population density over the past three decades.

Figure 2.2.1 –Population and Land Area - 1980-2006

Population	Population	Land Area
2006	26,326	16.888
2000	19,788	11.147
1990	15,915	10.080
1980	14,144	6.760

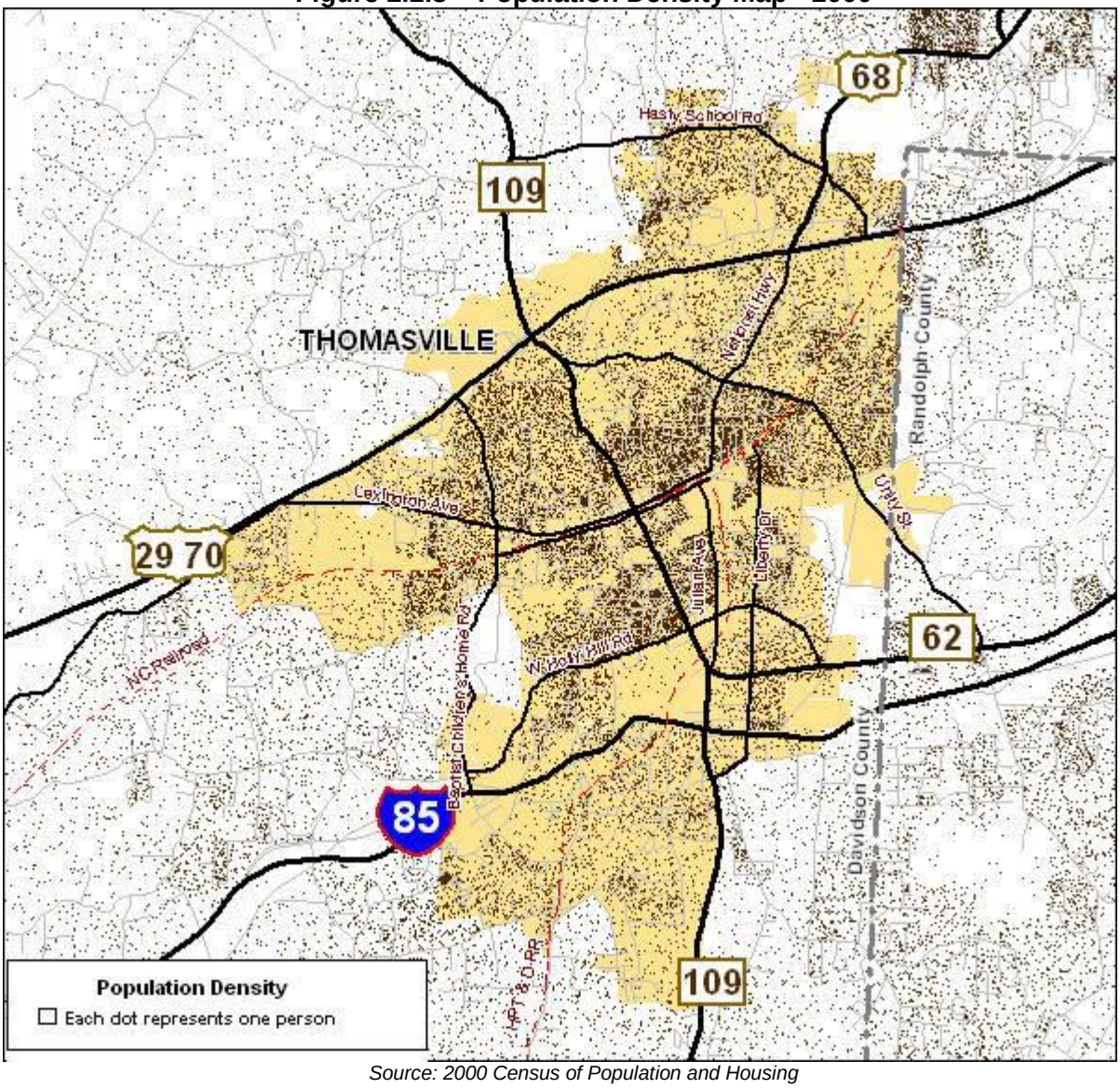
Source: NC Office of Budget & Management, 2006 figures released in July of 2007 and the US Census Bureau, decennial census.

Figure 2.2.2 – Population Growth and Density - 1980-2006

Growth	Thomasville	NC
2000-2006	33.0%	9.7%
1990-2000	24.3%	21.3%
1980-1990	12.5%	12.8%
Persons per square mile		
2006	1,558.86	181.2
2000	1,775.19	165.2
1990	1,578.87	136.1

Source: NC Office of Budget & Management, 2006 figures released in July of 2007 and the US Census Bureau, decennial census.

Figure 2.2.3 – Population Density Map - 2000



Source: 2000 Census of Population and Housing

Race, Ethnicity, Income and Poverty

The City of Thomasville has a larger percent minority population of African-American and Hispanic than the rest of North Carolina as a whole. The percent minority population of American Indian and Asian was lower than North Carolina in 2000. The poverty rate for all age categories is higher in Thomasville than the rest of the state, resulting in a combined 33% higher poverty rate. Additionally, the Thomasville median household income in 2000 at $30,972 was trailing North Carolina at $39,184.

Figure 2.2.4 - Race and Ethnic Origin - 2000

	Thomasville	NC
Race and Ethnic Origin		
Non-Hispanic		
White	66.9%	70.2%
Black or African American	23.8%	21.4%
American Indian / Alaska Native	0.4%	1.2%
Asian	0.8%	1.4%
Native Hawaiian / Pacific Islander	0.0%	0.0%
Some other race	0.2%	0.1%
Multi-racial	1.0%	1.0%
Hispanic or Latino	6.9%	4.7%

Source: 2000 Census of Population and Housing

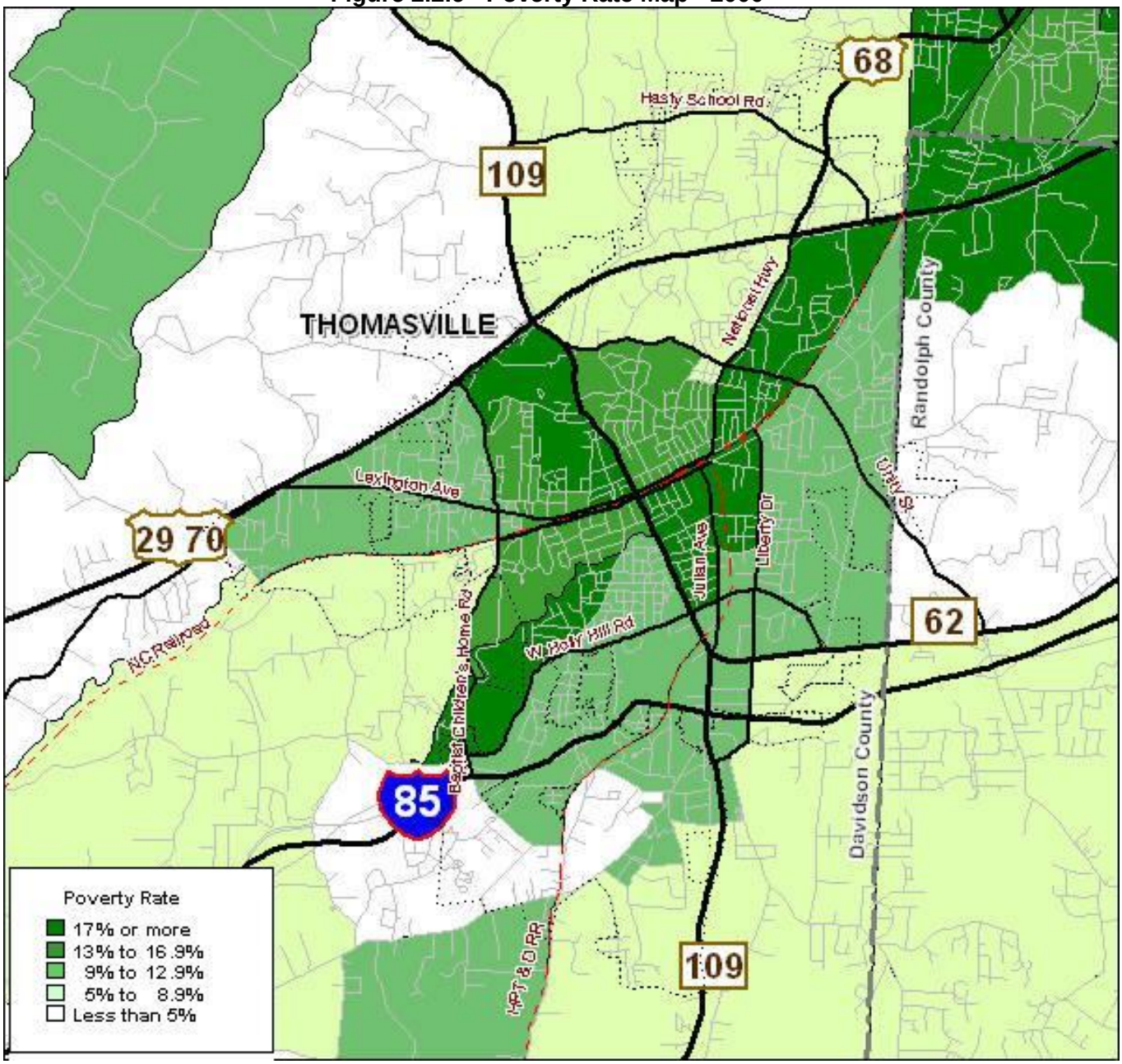
Figure 2.2.5 - Poverty Rate and Median Household Income - 2000

	Thomasville	NC
Poverty Rate	16.2%	12.3%
Children under 18	23.8%	16.1%
Age 18 – 24	25.3%	21.0%
Age 25 – 44	12.5%	9.5%
Age 45 – 64	8.4%	8.2%
Age 65+	16.4%	13.2%
Median Household Income	$30,972	$39,184

Source: 2000 Census of Population and Housing

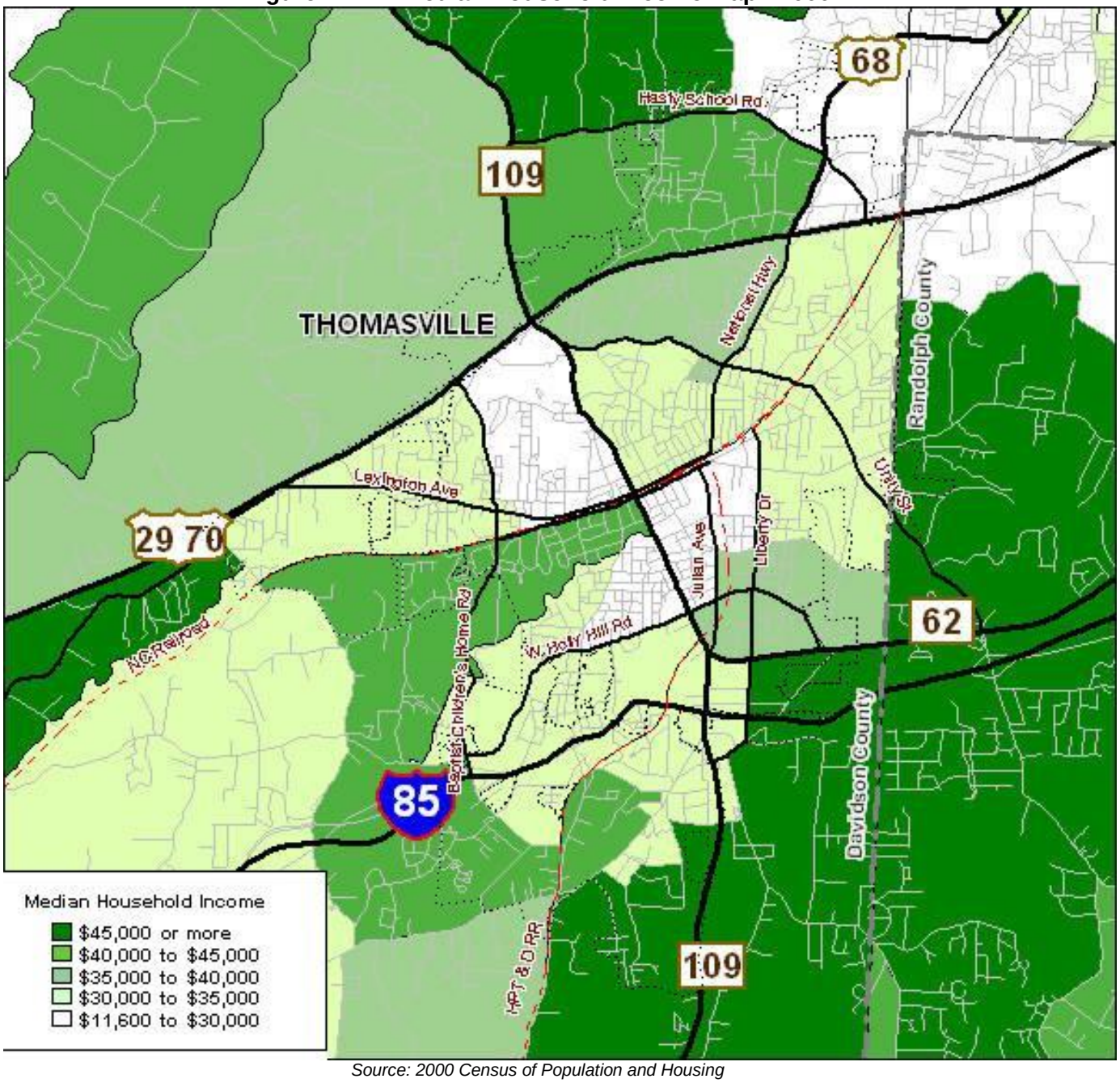
Figure 2.2.6 and 2.2.7 show the areas with the highest poverty rate and lowest median income. These areas shown in dark green are centered on downtown Thomasville and also include areas of southwest High Point. There is a strong correlation between the poverty rate and the number of households without access to a vehicle, shown in figure 2.2.9 and 2.2.10 below.

Figure 2.2.6 - Poverty Rate Map - 2000



Source: 2000 Census of Population and Housing

Figure 2.2.7 – Median Household Income Map - 2000



Source: 2000 Census of Population and Housing

Education

The educational attainment of Thomasville residents lags behind the average for the rest of North Carolina. Residents with a high school diploma or higher is just under 66%, compared to just over 78% statewide. Of the nearly 66% receiving a high school diploma, 34% of the entire population have taken at least some college courses. Less than 10% of residents received a bachelor's degree or higher and just under 3% have a graduate degree or higher, compared with over 22% and 7.2% respectively for the entire State.

Figure 2.2.8 – Educational Attainment - 2000

	Thomasville	NC
Educational Attainment		
High School Diploma or higher	65.8%	78.1%
At least some college courses	34.0%	49.7%
Bachelor's Degree or higher	9.6%	22.5%
Graduate Level Degree or higher	2.9%	7.2%

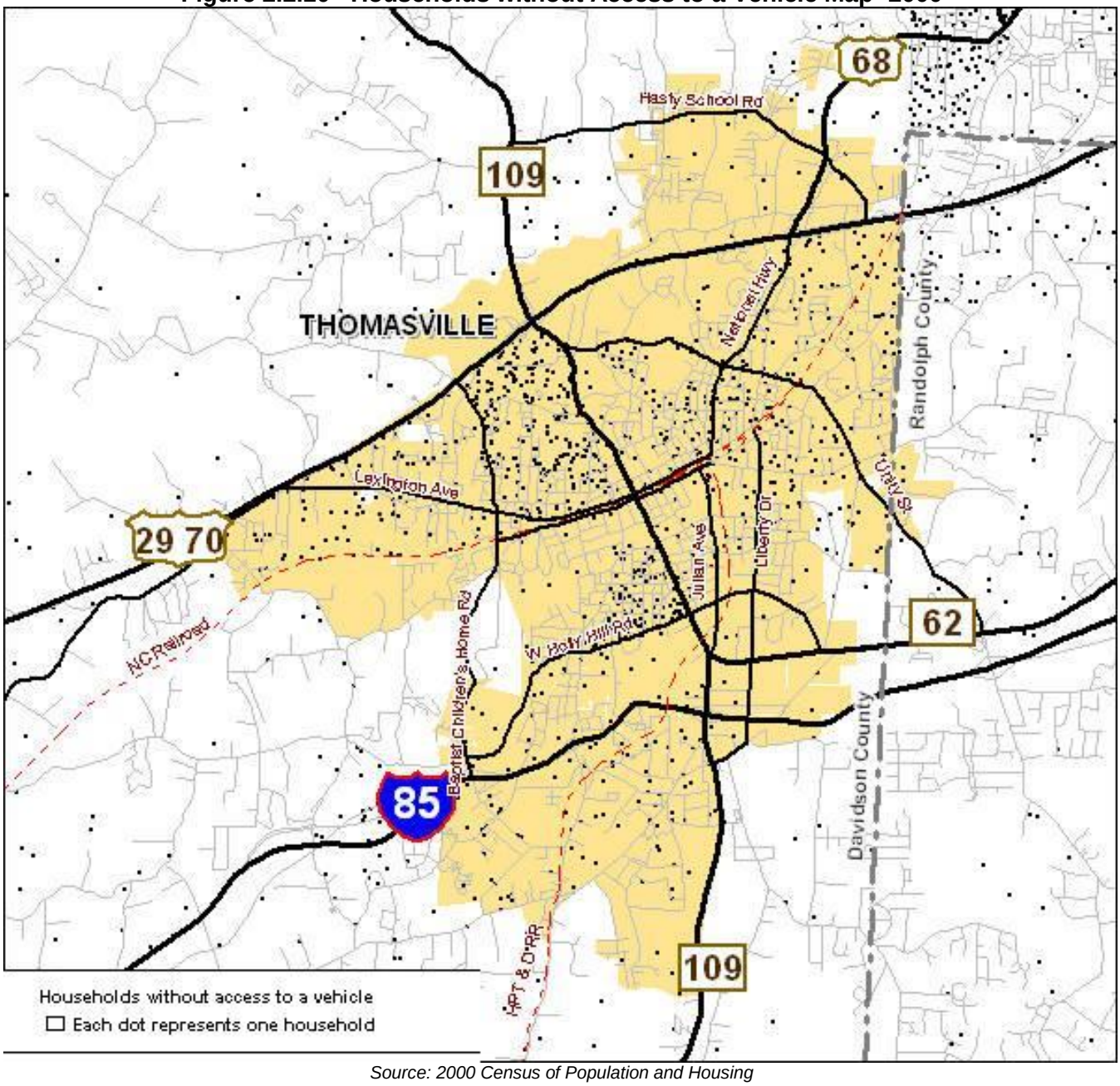
Access to Vehicles and Disability

More than one in ten Thomasville households do not have access to a vehicle or nearly 11% of households, compared with 7.5% for North Carolina. In all age categories, the number of households without access to a vehicle outpaces the State. Multi-modal options are very important for Thomasville residents without access to a vehicle. Disabled persons make up nearly ¼ of the Thomasville population or just over 24%, compared with just over 21% for North Carolina.

Figure 2.2.9 – Households without Access to a Vehicle – 2000

	Thomasville	NC
Households without access to a vehicle	10.9%	7.5%
Under age 24	22.1%	10.0%
Age 24-64	8.3%	5.4%
Age 65+	16.7%	14.5%

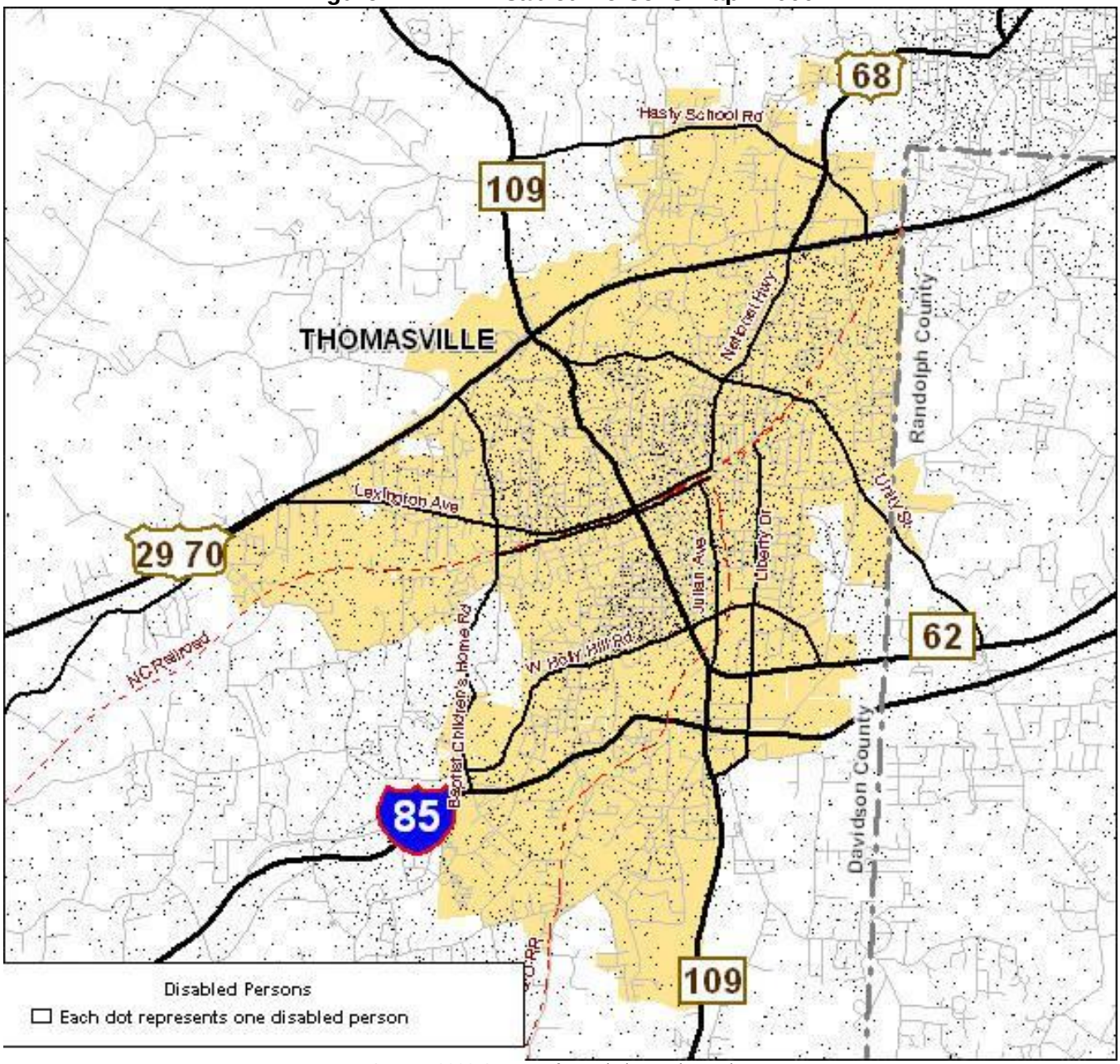
Figure 2.2.10– Households without Access to a Vehicle Map -2000



Source: 2000 Census of Population and Housing

Figure 2.2.11 – Disabled Persons - 2000		
	Thomasville	NC
Disabled Persons	4,278	1,540,365
% of Disabled Persons	24.2%	21.1%

Figure 2.2.12 – Disabled Persons Map - 2000



Source: 2000 Census of Population and Housing

Transportation to Work and Travel Time

There are limited transit options currently available in Thomasville, which is reflected in the 1.2% of residents who take public transportation/other to work. There are just over 2% of residents who either walk or bicycle to work. Nearly 75% of residents drive alone to work, while almost 21% carpool. There are 1.5% of residents who work at home.

Over 64% of Thomasville residents commute to jobs outside the city limits. Nearly 50% commute to neighboring counties. The average commute time for Thomasville residents is 20 minutes, compared to 24 minutes for North Carolina.

Figure 2.2.13 – Means of Transportation to Work, Out-Migration and Travel Time - 2000

	Thomasville	NC
Means of transportation to work (all workers 16+)		
Drive alone	74.5%	79.4%
Carpool	20.7%	14.0%
Bicycle or Walk	2.1%	2.1%
Public Transportation / Other	1.2%	2.6%
Worked at home	1.5%	2.7%
% of residents working in Thomasville	35.9%	n/a
% of residents working elsewhere in Davidson Co.	14.2%	n/a
% of residents working outside of Davidson Co.	49.9%	n/a
Travel Time to Work		
Less than 10 minutes	20.8%	13.5%
10-19 minutes	41.6%	34.1%
20-29 minutes	16.8%	21.9%
30 minutes or more	20.7%	30.5%
Average (in minutes)	20.0	24.0

Source: 2000 Census of Population & Housing.

Crash Data

The City of Thomasville Police Department compiles crash reports and the information is then sent to the Department of Motor Vehicles for input into the State database. Only incidents that cause injury or damage property in excess of $1,000 are reported to the State. In addition, only crashes that occur on public roadways are reported to the State. The North Carolina Highway Safety Research Center reports the following bicycle crash totals from 1997-2004 shown in Figure 2.2.14 below. The population figures are from 2005 Census estimates.

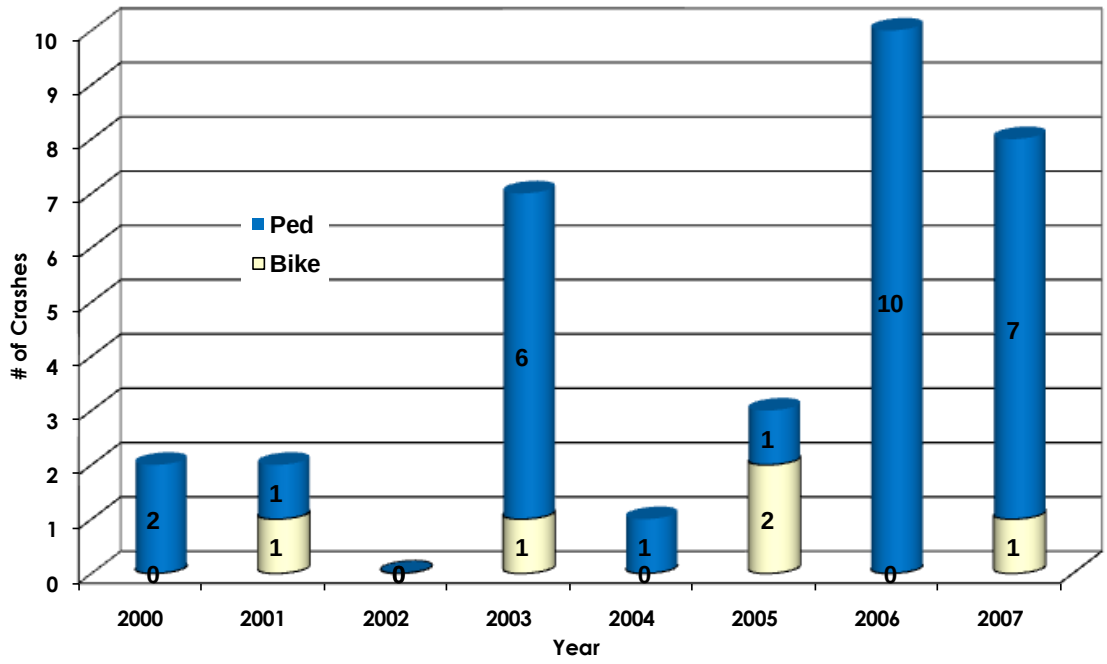
Figure 2.2.14 – Pedestrian and Bicycle Crash Data Compared to Other Similar Sized Cities

City	Crashes 1997-2004	Population
Statesville	100	25,344
Sanford	96	25,864
Asheboro	90	23,213
Albemarle	56	15,645
Lexington	54	20,918
Salisbury	47	29,058
Thomasville	27	26,084
Graham	14	14,025

Source: NC Highway Safety Research Center

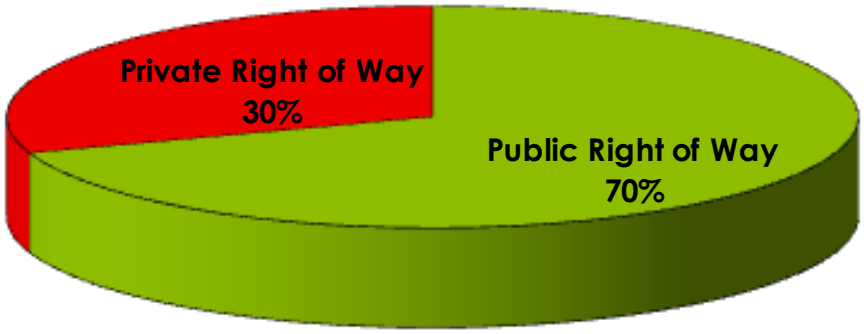
For this planning study, the Thomasville Police Department (TPD) provided local data on bicycle and pedestrian crashes, which is also supplemented by data from the NCDOT Division of Bicycle and Pedestrian Transportation. Figure 2.2.15 shows the total number of pedestrian and bicycle crashes by year in the City of Thomasville. There are a couple of years where no crashes were reported and another where up to 10 crashes were reported. The number of crashes between 2000 and 2007 totaled 33. One out of every 10 bicycle and pedestrian crashes were bicycle/car crashes, while 9 out of 10 were pedestrian/car crashes.

Figure 2.2.15 – Annual Pedestrian and Bicycle Crashes 2000-2007 Total=33



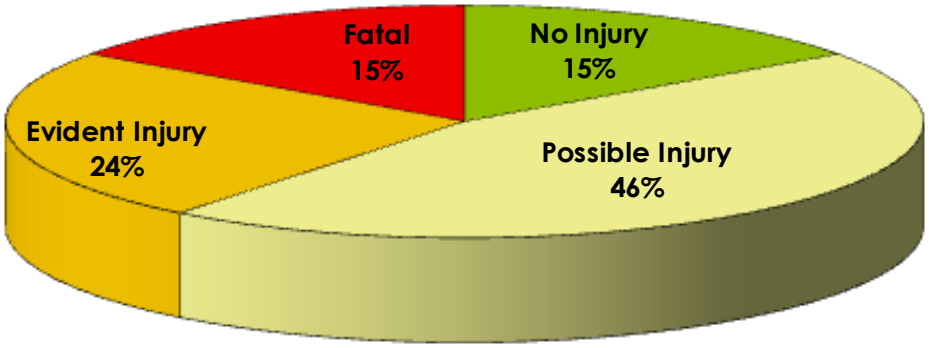
The following figure shows the split of bicycle and pedestrian crashes for the City of Thomasville between the public and private right of way. Over the eight year period from 2000-2007, 33% of crashes occurred in a private right of way (i.e. driveways and parking lots) and 67% of crashes occurred in a public right of way (i.e. streets and roads).

Figure 2.2.16 - Public and Private Right of Way Pedestrian and Bicycle Crashes 2000-2007
Total=33



In Figure 2.2.17 the crash severity percentage for 2000-2007 is reported. Fifteen percent (15%) of crashes involved no injury, 46% involved possible injury, 24% involved evident injury, 0% involved a disabling injury and 15% were fatal.

Figure 2.2.17 – Pedestrian and Bicycle Crash Injury Severity 2000-2007
Total=33



The crash data from 2000-2007 contains information on the specific location where crashes occurred. This detail allowed mapping of crash locations, a key factor in determining which projects are selected for improvement. Figure 2.2.18 illustrates the location of bicycle crashes shown with an asterisk and pedestrian crashes shown with a triangle. Also included are existing local bicycle routes designated by the High Point Metropolitan Planning Organization and the Piedmont Triad Rural Planning Organization. Some of the crashes included in the calculations above do not have specific location information and are therefore not shown on the map below.

Origins and Destination

Thomasville's parks, schools and commercial centers are community trip attractors or places where people visit or travel to and from daily. These community facilities are the origin or destination of many shorter trips by Thomasville citizens that could be taken by bicycle or by foot. Twenty-five percent (25%) all trips – social, recreational, work - under a mile nationwide are taken on foot, while the automobile is used for seventy-five percent (75%) of trips one mile or less[1]. Approximately forty percent (40%) of trips to visit friends and relatives and for other *social* and *recreational* purposes (e.g., to go to the gym, attend a movie, visit a park, or visit a library) totaling a mile or less are accomplished by walking. It is important to provide opportunities to safely walk and bicycle to parks, schools, restaurants and shops. A goal of this plan is to reduce the number of car trips, by providing a strategy to create safe and inviting opportunities to bicycle to destinations.

The following maps give a sense of where trip generators and origin and destination points exist throughout the City of Thomasville. Figure 2.2.19 illustrates the location of employment centers, parks and schools respectively in the City of Thomasville. Schools and parks are the destination of many trips and can often be accomplished by foot or by bicycle. Employment centers are the destination and origin of a number of trips and in some cases can be made by foot or bicycle if located along safe roadways or in close proximity to housing.

[1] U.S. Department of Transportation, Bureau of Transportation Statistics, Federal Highway Administration, 2001 National Household Travel Survey, January 2004 dataset, https://www.bts.gov/pdc/index.xml

Figure 2.2.18 - Crash Data Map

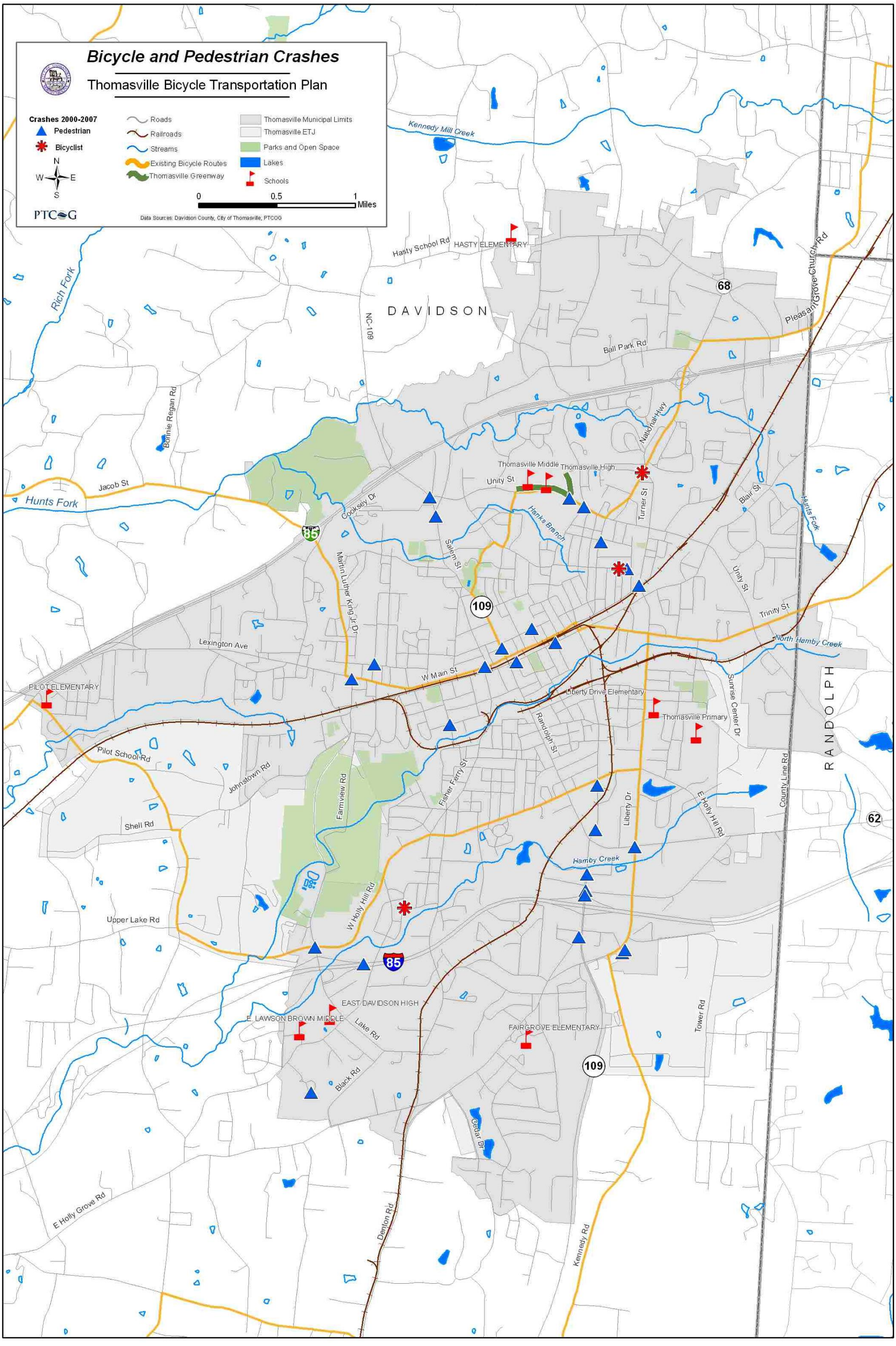
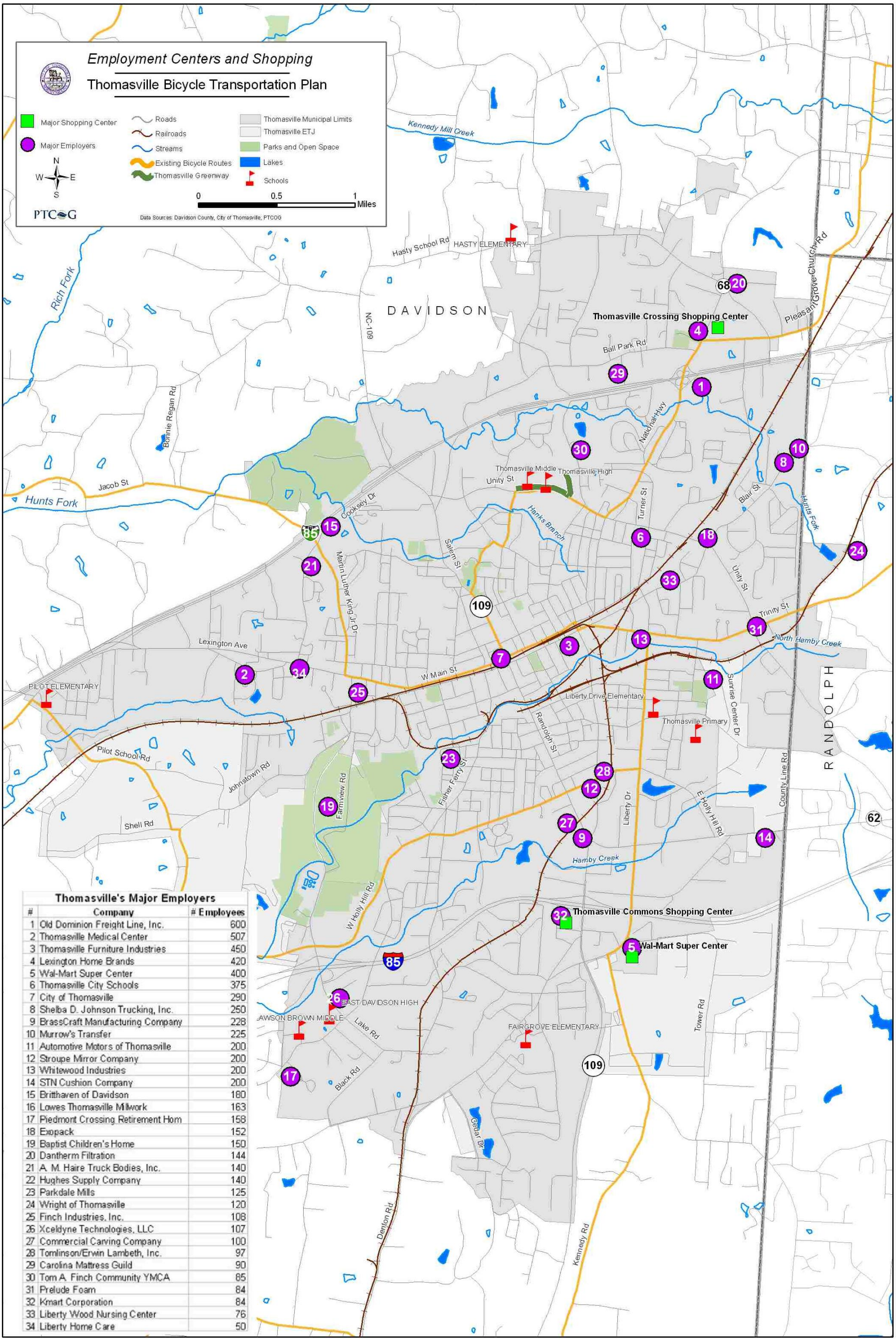


Figure 2.2.19 - Employment Centers Map



Thomasville's Major Employers

#	Company	# Employees
1	Old Dominion Freight Line, Inc.	600
2	Thomasville Medical Center	507
3	Thomasville Furniture Industries	450
4	Lexington Home Brands	420
5	Wal-Mart Super Center	400
6	Thomasville City Schools	375
7	City of Thomasville	290
8	Shelba D. Johnson Trucking, Inc.	250
9	BrassCraft Manufacturing Company	228
10	Murrow's Transfer	225
11	Automotive Motors of Thomasville	200
12	Stroupe Mirror Company	200
13	Whitewood Industries	200
14	STN Cushion Company	200
15	Britthaven of Davidson	180
16	Lowes Thomasville Millwork	163
17	Piedmont Crossing Retirement Hom	158
18	Exopack	152
19	Baptist Children's Home	150
20	Dantherm Filtration	144
21	A. M. Haire Truck Bodies, Inc.	140
22	Hughes Supply Company	140
23	Parkdale Mills	125
24	Wright of Thomasville	120
25	Finch Industries, Inc.	108
26	Xceldyne Technologies, LLC	107
27	Commercial Carving Company	100
28	Tomlinson/Erwin Lambeth, Inc.	97
29	Carolina Mattress Guild	90
30	Tom A. Finch Community YMCA	85
31	Prelude Foam	84
32	Kmart Corporation	84
33	Liberty Wood Nursing Center	76
34	Liberty Home Care	50

2.3 COMMUNITY ISSUES

In addition to five meetings with the Comprehensive Bicycle Plan Steering Committee, there was significant outreach to the Thomasville community as a whole. To assess community concerns about the bicycling environment in Thomasville, a number of community outreach efforts were conducted, supplemented by knowledge and expertise on local issues provided by the steering committee.

Local cyclists and steering committee members (from left to right): Allen Brown, Johnny Warner, Mitchell McGuire, Ernest Perkins and Richard Lawrence take a break from a ride on the New River Trail in southwestern Virginia.

Outreach efforts included a community survey and focus groups with local civic organizations including: the Lion's Club, the Civitan Club, People Achieving Community Enhancement (PACE) and the Thomasville Beautification Committee.

Focus Groups

The focus groups were held during the regular meetings of each organization. A presentation about existing bicycle facilities and programs was made and then an informal discussion about the future of bicycling in Thomasville was conducted. The following presentations and approximate number of attendees occurred in the summer of 2008:

Figure 2.3.1 - Focus Group Bicycle Plan Presentations

Group	Date	Attendees
Thomasville Lion's Club	July 10	45
PACE	July 23	15
Civitan Club	July 28	25
Thomasville Beautification Committee	Aug 21	15

Important themes from each of these focus group meetings indicate that more bicycle trails and paved shoulders are needed to increase bicycling in Thomasville. A high priority should be placed on making the center of Thomasville bicycle friendly and converting rails to trails. The conversion of the abandoned rail line that follows Hamby Creek to a trail near downtown was discussed with enthusiasm at the focus group meetings.

Bicycle User Survey

The Thomasville Bicycle Transportation Plan survey was conducted from May 2008 through July 2008. The survey was composed of 10 questions, not including

demographic information. Surveys were distributed via email, the Ped Power website www.pedpower.org and in paper format at public and civic meetings and also distributed to local municipal buildings. The local newspaper, the Thomasville Times ran a story about the plan and provided a link to the online survey.

Online and paper responses were compiled after the survey closed July 31 and there were a total of 52 responses. The full survey results can be found in the Appendix.

Survey Highlights:

- 94% of respondents think a 'bicycle-friendly' community is important or very important;
- 66% of respondents ride '5+ times per week'(25%) or a 'few times per week' (41%);
- 4% of respondents were bicycle 'commuters'; 53% were 'regular on-road recreational cyclists';
- 'Trails and greenways' were ranked as the #1 (71% ranked it #1) bicycling destination by respondents (can rank multiple factors as #1);;
- 54% of respondents prefer bicycling on 'trails', while 46% of respondents prefer bicycling on 'streets' (18% thoroughfares, 14% collector streets and 14% neighborhood streets);
- 33% of respondents rank 'lack of roadways with bicycle lanes' and 27% rank 'aggressive motorist behavior' as the biggest factors discouraging riding;
- 45% of respondents rank 'more on-street bicycle lanes' and 41% rank 'more greenway trails' as the biggest factor to increase bicycling in Thomasville (can rank multiple factors as #1); and
- 32% of respondents rank #1 a 'bond referendum' and 29% rank #1 'public/private partnerships' as a means to fund bicycle lane, shoulder and trail improvements (excluding grants) (can rank multiple factors as #1).
- 85% of survey respondents live or work in the City of Thomasville, while 15% live and work outside the Thomasville City limits.

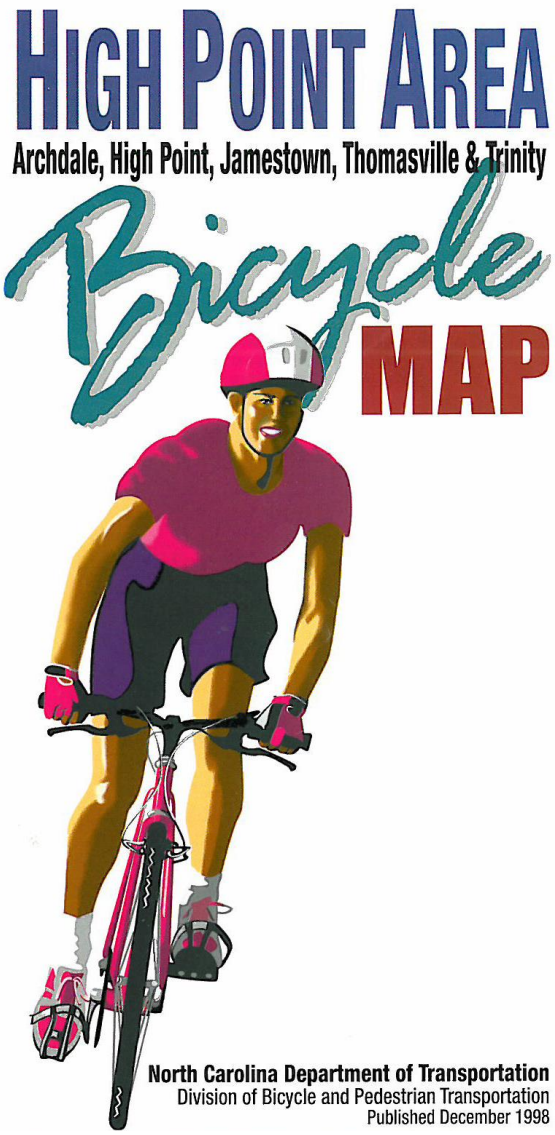
Public Meetings

An open house was held on Dec. 9th to review the comprehensive bicycle transportation plan recommendations with the public. There were 11 attendees to the meeting and participants offered written and verbal comments. These comments were incorporated into the map recommendations and the final draft plan.

2.4 INVENTORY AND ASSESSMENT OF EXISTING FACILITIES

Bicycle Friendliness of Local Transportation System

The City of Thomasville has some neighborhoods that are very bicycle friendly. Neighborhood and residential streets provide ample room for bicyclists and automobiles to share the road at safe speeds. The older downtown has a well connected system of streets with slower traffic speeds. There are however major arterials and collector roads bisecting Thomasville (e.g. NC-109, National Highway, Holly Hill Road and Liberty Drive) that have a number of commercial businesses, driveway cuts, high traffic volumes and narrow travel lanes, which do not create a safe or comfortable environment for bicyclists. National Highway and NC-109 are the heaviest traveled arterials and come through the center of Thomasville. In addition, Business 85 and I-85 are barriers to bicycling and walking, limiting access points across these corridors. In addition I-85 has supported a land-use pattern south of the center of Thomasville not conducive to bicycling or walking.

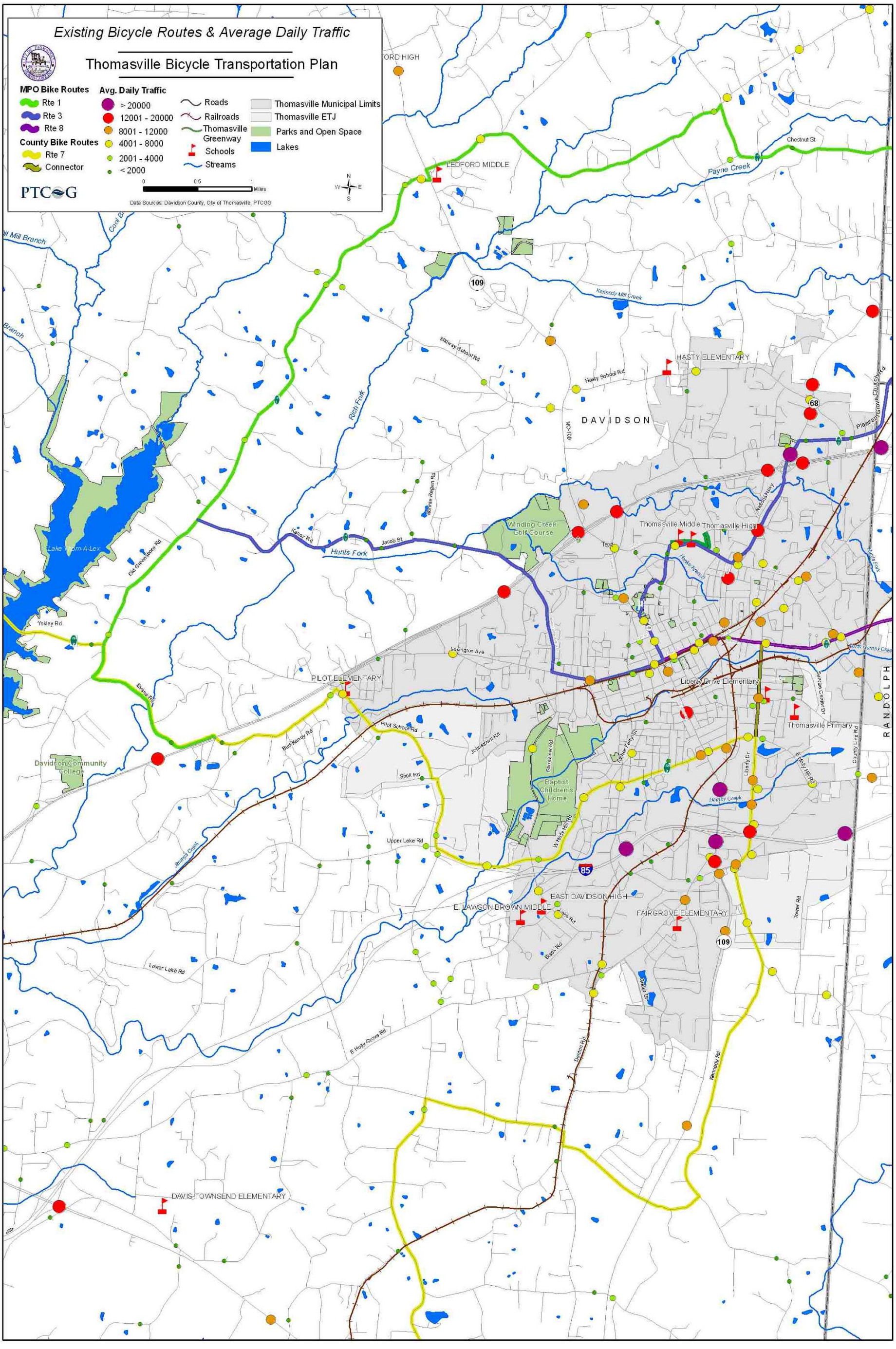


Bike Routes for Thomasville Shown in this 1998 Map

High travel speeds and annual average daily traffic (AADT) are particularly difficult for bicyclists traveling on roadways. Narrow travel lanes on residential streets may encourage bicycle travel, but when found on multi-lane roadways, with higher travel speeds, narrower travel lanes without shoulders or bicycle lanes discourage bicycling.

The High Point Metropolitan Planning Organization (MPO) and the Piedmont Triad Rural Planning Organization (RPO) have mapped out regional bicycle routes that connect with the City of Thomasville. These routes have lower traffic volumes and have been chosen by citizen committees as the best places to ride. The route maps are not currently in print, however copies are available on the internet through the MPO and RPO websites. The High Point MPO provides transportation planning services for the City of Thomasville. The Piedmont Triad RPO provides transportation planning services for Davidson County outside the High Point or Thomasville city limits. Figure 2.4.1 shows the High Point Bike Map routes as well as the Piedmont Triad RPO designated routes in the greater Thomasville area.

Figure 2.4.1 - Existing Bicycle Routes and Average Daily Traffic Map



2.5 BICYCLE STATUTES AND LOCAL ORDINANCES

The Zoning and Subdivision Ordinances are the two primary documents regulating development in Thomasville. These ordinances are part of the complete Code of Ordinances for Thomasville. Regulations relating to bicycling and bicycles are found in Chapter 70 - Streets, Sidewalks and Other Public Places; Chapter 74 – Subdivisions, and Chapter 78 – Traffic and Vehicles. These ordinances regulate bicycling behavior, where cyclists can and cannot ride and the way streets are constructed.

The use of bicycles on sidewalks is prohibited within a business district, (Chapter 78 Traffic and Vehicles, Article 1, Section 17) and Myers Park (except on the roadways) (Chapter 58 Parks and Recreation, Article 1, Section 3). There are regulations requiring having hands on handlebars at all times while riding a bicycle (Chapter 78 Traffic and Vehicles, Article 1, Section 16) and attaching oneself to motor vehicles while riding a bicycle is prohibited (Chapter 78 Traffic and Vehicles, Article 1, Section 18).

The minimum public street standards and dimensions for roads in new development are found in the Appendix of Chapter 74- Subdivision Ordinance and are as follows:

Figure 2.5.1 - Minimum Public Street Standards

Road Classifications	Min. Right of Way	Min. Street Width Back Curb-Back Curb	Ribbon Paving	Min. Center-line Radius	Minimum Vertical Curve Sight Distance	Max Grade	R/W Radii at inters-ection	For Adjacent inter-section	Angle of intersection
Arterial	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Collector	60'	29'(6)	No	230'	200'	9%	30'	200'	75/105 degrees
Minor Residential Cul-de-sac	50'	27'	No	230'	200'	12%	20'	150'	75/105 degrees
Commercial / Industrial	60'	37'	No	230'	200'	9%	30'	200'	75/105 degrees
Minor Comm/Ind Cul-de-Sac	60'	29'	No	230'	200'	12%	30'	150'	75/105 degrees

The above are minimum design standards. Sidewalks are required in most cases for subdivisions. In instances where the subdivision adjoins existing sidewalk, sidewalk must be built. If a community facility, such as a school or park is included in the subdivision, a network of sidewalks is required.

2.6 REVIEW RELEVANT LOCAL, REGIONAL AND STATE PLANS AND GUIDELINES

This is the City of Thomasville's first Comprehensive Bicycle Transportation Plan. However, the concept of walkable and bikeable infrastructure and facilities has been incorporated into recent planning efforts within Thomasville. Statewide and regional transportation planning efforts also include alternative transportation and recreation initiatives.

Thomasville Greenway Plan

The City of Thomasville adopted a Greenway Master Plan in 2003. The plan identifites 56.2 miles of greenway corridors within the City of Thomasville. The five major goals of the plan include project and program development to support:

1. Quality of Life, Recreation and Transportation;
2. Habitat Conservation;
3. Environmental Education;
4. Economic Value and
5. Implementation.

Following adoption of the plan, the City of Thomasville successfully applied for Transportation Enhancements funding for the development of a ¾-mile multi-use path connecting Memorial Park Drive with Thomasville Middle and High School and the YMCA. This has been the only trail project implemented from the 2003 Greenway Plan.

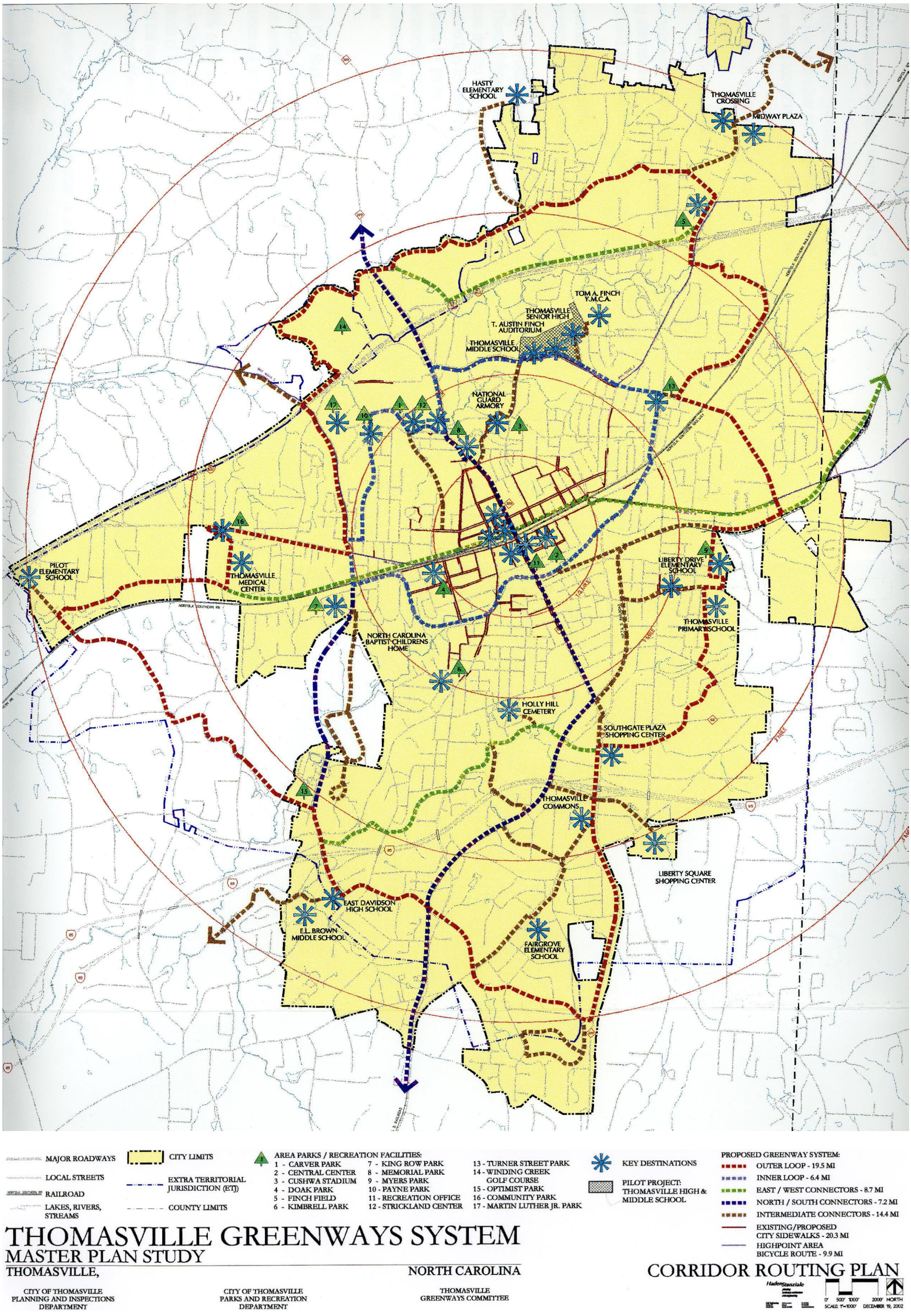
Immediate and near-term projects from the 2003 Greenways plan are summarized here;

- School Pilot Project (shown in blue Figure 2.6.1) 0.66 mi (built)
- Thomasville Medical Center Loop (green, blue, red) 0.38 mi
- Memorial Park Dr./Stadium Dr. and Salem St. (blue, brown) 1.28 mi
- Sign Bicycle Routes 3 and 8 as part of the Greenway (green) 9.99 mi
- Inner Loop (blue) 6.4 mi

Total 18.6 mi

Long-term needs (shown in brown and red lines in Figure 2.6.1) were planned for implementation between 6 to 10 years of adoption and include 19.5 miles of greenway.

Figure 2.6.1 – 2003 Thomasville Greenway Plan Recommendations Map



Thomasville Land Use Plan

The City of Thomasville completed a Land Use Plan in 2008. The Land Use Plan analyzes existing land use conditions and future land use trends until 2030. The plan determines the amount of land needed for future growth, with different scenarios of residential and commercial growth, varying in density in the urban core and the suburban areas of Thomasville. The Land Use Plan will guide future development, zoning and subdivision ordinance updates and open space preservation.

High Point MPO Long Range Transportation Plan

Thomasville is a member of the High Point MPO. The High Point MPO completed a Long Range Transportation Plan (LRTP) update in February 2009. The plan is not fiscally constrained and includes projects up to 2035. Section 4.3 of the LRTP, the Bike and Ped Element, explores bicycle and pedestrian transportation issues and the transportation system. The plan does not outline any new bicycle transportation projects in Thomasville, however it does show examples of "road diets" where bicycle lanes replace a motorized vehicle travel lane. In addition a discussion of the water quality, physical activity and other benefits to greenway development are included. The two High Point MPO bike routes that run through the City of Thomasville (Routes 3 and 8) are mentioned in the plan. It is worth noting that the LRTP also includes important general objectives for including bicycle lanes and trails in key areas (p. 1 and 2 of Section 4.3):

Safety

- Provide safe and convenient off-road or near road facilities for recreation and commuting.

Environmental Protection and Quality of Life

- Improve the quality of life by connecting schools to neighborhoods using sidewalks, bicycle lanes, and trails, and
- Improve the quality of life by providing good outdoor recreational activities using sidewalks, bicycle lanes, and trails, and
- Improve the quality of life by connecting key local destinations using sidewalks, bicycle lanes, and trails.

System Preservation

- Make use of abandoned or unused rail rights-of-way as new multi-purpose transportation facilities.

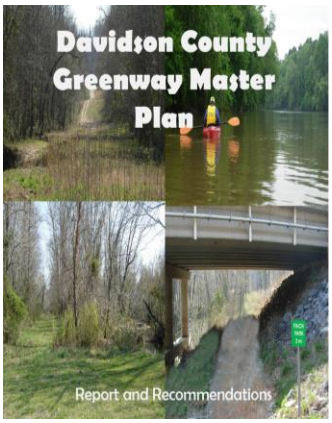
Intermodal Connectivity

- Improve accessibility to key destinations by providing good pedestrian and bicycle access to transit routes.

Improved Project Delivery

- Improve highway and transit project delivery by including pedestrian and bicycle projects in the conceptual phases of transportation projects, and
- Improve project delivery of pedestrian and bicycle projects by performing sufficient feasibility and preliminary design studies early in the project development phase to define the projects' designs, concepts, scopes, and estimates.

Davidson County Greenway Plan



The Davidson County Greenway Plan was completed in 2009 and was funded by Davidson County. The countywide Greenway plan explores important regional connections between recreational and environmental resources and population centers which will improve stream corridor preservation efforts, water and air quality and quality of life, while bringing together diverse resources. Abbotts Creek from Lake-Thom-A-Lex to Lexington is a pilot project corridor in the County Greenway Plan, which is top priority for funding and implementation (see Figure 2.6.2 – 2009 Davidson County Greenway Plan Recommendations Map).

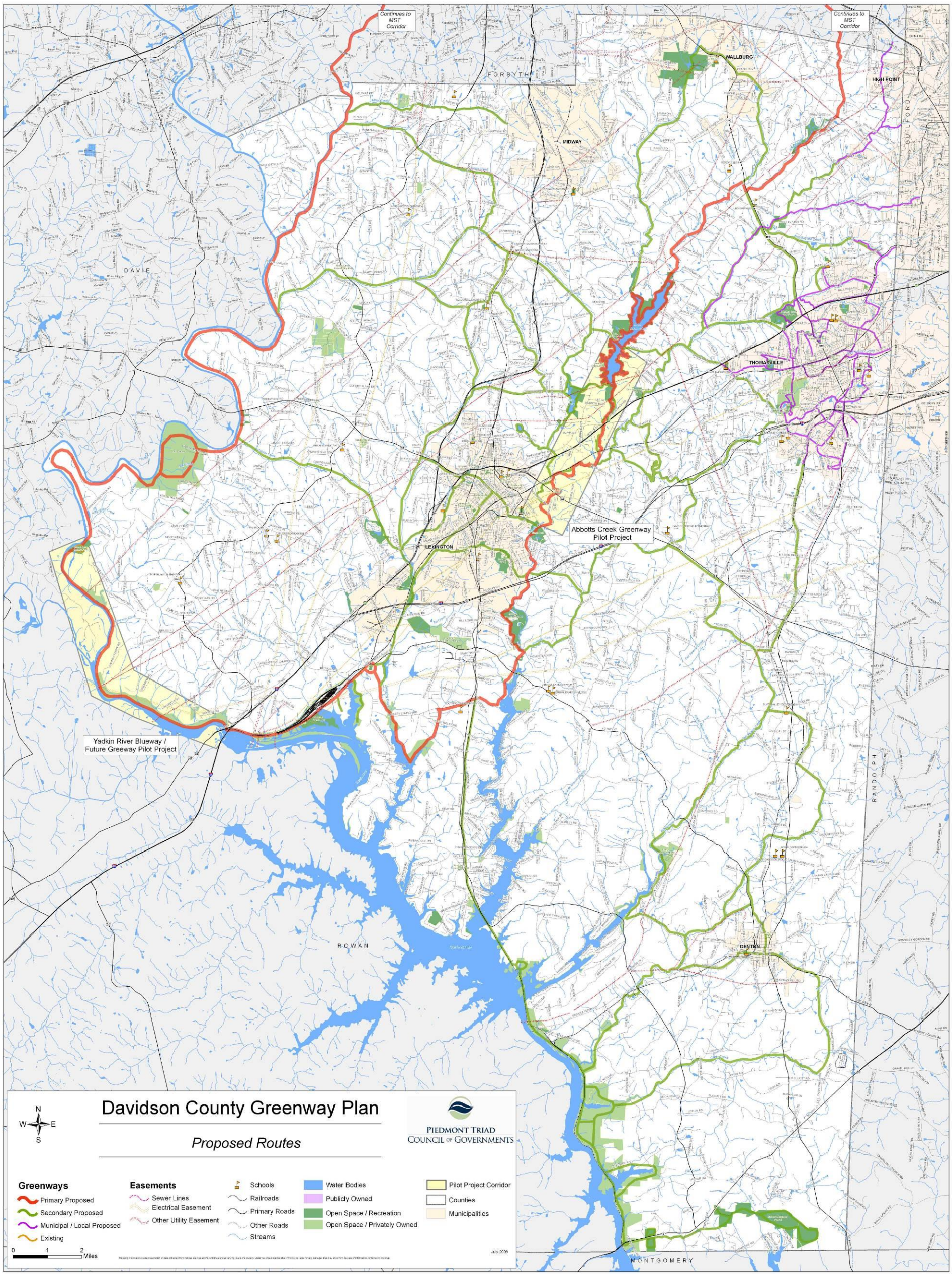
NCDOT Long Range Statewide Multi-Modal Transportation Plan

Completed in 2004, this plan calls for an increase in bicycle and pedestrian funding from an annual statewide average of $6 million/year to $12 million/year over the next 25 years. The plan also emphasizes the need for training and mainstreaming bicycle and pedestrian planning and design so that these facilities are included earlier in the process of roadway design across North Carolina.

Bicycling and Walking in North Carolina: A Long-Range Transportation Plan

This long range plan was completed in 1996 and has laid the groundwork for a number of bicycle and walking initiatives across the state. The plan provides 5 goals and 21 focus areas with the overarching vision to provide "All citizens of North Carolina and visitors to the State [the ability to] walk and bicycle safely and conveniently to their desired destinations with reasonable access to all roadways."

Figure 2.6.2 – 2009 Davidson County Greenway Plan Recommendations Map



2.7 OTHER PROGRAMS AND INITIATIVES

Encouragement and Promotions

Move More Thomasville - The City of Thomasville Parks and Recreation Department a public health initiative called *Move More Thomasville*. Begun in the Spring of 2007, this program provides financial incentives for individuals who keep track and increase their level of physical activity. On average there are 20 people a month who turn in physical activity records.

Working with the Davidson County Health Department, Thomasville City Schools, Thomasville Tourism, PACE and the Thomasville Medical Center, *Move More Thomasville* has received $17,500 in funding to promote existing and future trails and sidewalks in Thomasville. Increased interest in using trails will be achieved through signing walking routes, the production of a promotional brochure and improving the downtown sidewalks.

Annual Bicycle Rodeo – The Thomasville City Schools conducts an annual bicycle rodeo for the Thomasville Primary School on Sunset Avenue. The event is a full day of activities involving 900 children from Pre-K to 3rd grade. Programs for older school children on bicycle and pedestrian safety have been taught in the past, but nothing is currently being offered. Bicycle safety training is part of the standard course of study in North Carolina.

Bicycle and Pedestrian Counts – Peak-hour bicycle and pedestrian counts were conducted in the fall of 2008. Locations chosen include downtown (Main Street and Salem St, Main St and Randolph St) and also at the Thomasville and Middle and High School. Counts were conducted by volunteers, school and City staff. Yearly counting at these locations and other high pedestrian or bicycling activity areas will prove useful in planning new bicycle and pedestrian accommodations. See Appendix F for more detail.

CHAPTER 3: BICYCLE TRANSPORTATION SYSTEM PLAN

3.1 CURRENT BICYCLE TRANSPORTATION SYSTEM OVERVIEW

There are many different bicycle users with varying skill and comfort levels, and each may use different bicycle facilities. Experienced riders may prefer on-road routes that provide the most direct route, while other young or inexperienced riders may choose less direct routes with lower traffic or separated shared use pathways. The Thomasville Comprehensive Bicycle Transportation System Plan includes a series of projects, programs and policy recommendations for improving bicycle transportation access and safety for all users.

The City of Thomasville can develop a bicycle transportation system to serve all users. Wide streets, low traffic volumes on many City streets and quick access to recreational riding in the rolling countryside of Davidson and Randolph County provide opportunities for both the utilitarian and recreational cyclist. An abandoned rail line traverses through the Colonial Drive historic district near downtown, providing opportunity for rails to trails development in the heart of Thomasville. Stream corridors and sewer or utility easements provide the opportunity for increasing trail connectivity throughout the City.

Everybody's Day Main Street Thomasville - Fall 2003

Development of a bicycle transportation system is not without its challenges. Thomasville is bounded to the north and south by limited access freeways. Busy arterials and streets with constricted rights-of-way make providing on-road facilities difficult (*e.g.* National Highway and Randolph Street). A portion of National Highway is a designated bike route from Thomasville to High Point, but can be difficult to travel by bicycle for even the most experienced rider. National Highway is one of only two routes that connect with High Point across Business 85. The other route, Old Thomasville Road has narrow travel lanes and high speeds. These roadways will require significant investment in dedicated on-road and off-road bicycle facilities to encourage more bicycling traffic.

Bicycle parking and shower/changing facilities are an important component of any bicycle transportation system. Bicyclists need a safe place to secure their bicycle when shopping or working. In addition, workplaces can encourage bicycle commuting by providing shower facilities for their employees. Particularly in the warm summer months, shower facilities are extremely helpful in accommodating bicycle commuters.

3.2 BICYCLE TRANSPORTATION SYSTEM PROJECT RECOMMENDATIONS

Recommended projects are grouped into on-road facility improvements (*e.g.* bicycle lanes, paved shoulders and sharrows) and off-road facility improvements (*e.g.* multi-use pathways and side paths), definitions and images of each facility are described on page 2 & 3 of this report. The on-road projects and side paths are prioritized based on weighted factors such as proximity to parks and schools, heavy traffic, speed limits, crashes and land use. More detail on prioritization and the weighted factors can be found in Appendix D. Improvements have been identified from the following sources:

a) public comments (survey, public meeting maps and feedback);
b) safety issues related to high traffic streets and intersections;
c) safety concerns resulting from crash data and demographic analysis;
d) proximity to trip generators (e.g. parks, schools, shopping, Downtown);
e) steering committee recommendations;
f) previous plan recommendations (*e.g.* Land Development Plan, Greenways Plan); and
g) field analysis.

Opportunities for project improvements may arise through new road projects, repaving projects, utility installation or specific funding opportunities and these opportunities should be capitalized upon.

Detailed on-road project recommendations for FY 2009-10 (phase 1) and intersection improvements are described in Chapter 4 - Implementation. See Chapter 5 - Design Guidelines for examples and specifications for installation of off-road and on-road bicycle facilities.

Intersection Improvements

The following intersection improvements will make bicycle transportation in Thomasville safer and more accessible along and across key corridors. As intersections are improved in Thomasville, consideration for bicycle transportation should be included in the scoping and design process, even if the intersection is not included in the table below. See Chapter 4 - Implementation for a detailed view of these intersections.

Figure 3.2.1 – Intersection Improvements

Map ID	Intersection	Recommendations
1	Salem Street & Main Street	Signage, bicycle loop detector for left turns
2	E Main Street & Maple Ave	Signage, bicycle loop detector for left turns
3	Old Greensboro Rd & Business 85	Above grade crossing of interstate for Old Greensboro Road
4	National Highway & Unity Street	Signage, bicycle loop detector for left turns and Unity Street
5	Randolph Street & Holly Hill Road	Signage, bicycle loop detector for left turns and on Holly Hill Road
6	Salem Street & Unity Street	Signage, bicycle loop detector for left turns and on Unity Street
7	National Highway & Business 85	Signage, provide wide outside lane or striping for curb lanes by narrowing median

Off-Road Facility Improvements

Some of the proposed greenway connections in the 2003 plan may be more suitable as bicycle lanes or paved shoulders, while others are essentially sidepaths and some are greenways. Proposed *priority* multi-use paths are shown in the Proposed Bicycle Transportation Improvement Maps, Figure 3.2.4 and 3.2.5 and are named as shown in Figure 3.2.2. Other greenways are shown as green dotted lines as well, but do not have names. Green/white hashed lines indicate sidepaths or pathways that are adjacent to roadways.

There are ***6 miles*** of priority proposed multi-use path and sidepath projects within the city limits of Thomasville. There are over ***13 miles*** of other proposed multi-use paths and **1.5 miles** of other proposed sidepaths.

Figure 3.2.2 - Priority Multi-Use Paths

Name	Estimated Mileage	Width	Surface/Notes
Hanks Branch Greenway and MLK Greenway (Inner Loop)	1.3	10ft	Asphalt/Concrete
War Memorial Greenway (Inner Loop)	2.3	12ft	Permeable Asphalt/Concrete and Boardwalk
Baptist Children's Home Farmview Greenway	1.6	10ft	Crushed Stone and Asphalt/Concrete
Memorial Park Sidepath	0.8	10ft	Asphalt/Concrete

On-Road Facility Improvements

On-road bicycle facilities include bicycle lanes, sharrows, paved shoulders, wide outside lanes and share the road signage. Bicycle lanes, paved shoulders and sharrows are prioritized for improvement (see Figure 3.2.3 below) using scoring factors and include lane width, number of lanes, length of project, type of facility, recommended improvement, estimated cost and phasing. The system used to rank each project will serve as a guide to programming resources. More detail on the scoring factors can be found in Appendix D: Project Prioritization Methodology.

Use the Map-ID in Figure 3.2.3 to locate each project in the Bicycle Transportation Improvements Maps in Figures 3.2.4 and 3.2.5. There are a total of **16.5 miles of bicycle lanes** and **21 miles of shoulder** in the City Limits and extra territorial jurisdiction of Thomasville.

Sharrows are proposed in downtown on Main Street and Salem Street. The on road improvements should include Share the Road signs and end bike lane signs where new facilities transition from a dedicated bicycle facility to a shared roadway. Proposed intersection improvements are identified with pink diamonds in Figure 3.2.4 and 3.2.5, the Bicycle Transportation Improvements Map.

Figure 3.2.3 – On-Road Corridor Improvement Projects by Rank and with Cost (includes sidepaths)*

Facility Type	Map ID (See Recommendations Map) *	Street	From To	Lane Width	Number of Lanes	Facility Width (ft)	Recommended Improvement	Est. Length (ft)	Total Cost	Construction Description	Phase
L	1	Salem St	Unity St to Forsyth St	18 to 20	2	5	Restripe	4,900	$6,880	Install 2 lines	2009-10
SH	1B	Salem St	Forsyth St to Main St	15	2	NA	Restripe	1,500	$1,650	Install 10 Sharrow markings	2009-10
L	2	National Hwy	Main St to Business 85	10 to 13	4	5	Road Diet	11,000	$58,200	One travel lane reduction, remove 6 lines and install 6 lines	2011-13
L	3	Liberty Dr	Trinity St to E Holly Hill Rd	10 to 23	2 to 3	5	Construction	4,600	$522,727	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
L	4	Liberty Dr_Turner St	Unity St to Trinity St	16 to 17	2	5	Restripe	3,700	$5,440	Install 2 lines	2009-10
L	5	Unity St	Salem St to National Hwy	12 to 15	4	5	Road Diet	6,400	$34,280	One travel lane reduction, remove 6 lines and install 6 lines	2009-10
S	6	Lake Rd	W Holly Hill Rd to Fisher Ferry Rd	12 to 13	2	4	Construction	6,700	$761,364	Construct 4 foot shoulder	Reconstruction or development
S	7	Trinity St	Liberty Dr to City Limits	12	2	4	Construction	5,500	$625,000	Construct 4 foot shoulder	Reconstruction or development
S	8	Liberty Dr_Kennedy Rd	Arthur Dr to ETJ Line	13	4	4	Construction	6,500	$738,636	Construct 4 foot shoulder	Reconstruction or development
L	9	E Main Street_Blair St	Taylor St to Trinity St	13 to 20	3	5	Restripe	2,000	$3,400	Install 2 lines	2009-10
SH	10	Main St (N)	Highland Ave to Park Ave	12 to 20	3	NA	Restripe	3,000	$1,780	Install 12 Sharrows	2009-10
L	11	National Hwy	Hasty Sch Rd to Bus-85	13	5	5	Road Diet	3,500	$23,400	Narrow travel lanes, remove 6 lines install 8 lines	2011-13
L	12	Lexington Ave_ WMain	Old Lex Rd to Highland Ave	12 to 15	3	5	Restripe	5,900	$8,080	Install 2 lines	2009-10
S	13	Pilot School_Johnstown and Lake Rd	Old Hwy 29 to Baptist Childrens Home Rd	9 to 12	2	4	Construction	15,600	$1,772,727	Construct 4 foot shoulder	Reconstruction or development
S	14	Hasty School Rd	Hwy 68 to City Limits	12	2	4	Construction	7,000	$795,455	Construct 4 foot shoulder	Reconstruction or development
L	15	Liberty Dr	Holly Hill Rd to Arthur Dr	9 to 13	2 to 4	5	Construction	4,300	$488,636	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
L	16	Holly Hill Rd	Liberty Dr to Randolph St	10	2	5	Construction	2,600	$295,455	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
S	17	Holly Hill Rd	Randolph St to Fisher Ferry Rd	10	2	4	Construction	4,400	$500,000	Construct 4 foot shoulder	Reconstruction or development
L	18	Martin Luther King Jr Dr	Bus-85 to Lexington Ave	18	2	5	Restripe	5,400	$7,480	Install 2 lines	2009-10
L	19	Unity St	National Hwy to Blair St	10	3	5	Road Diet	3,600	$15,400	One travel lane reduction, remove 4 lines and install 4 lines	2009-10
L	20	Peace St	Lexington Ave to Idol St	13	3	5	Road Diet	1,800	$8,200	One travel lane reduction, remove 4 lines and install 4 lines	2011-13
L	21	Randolph St	Main St to Holly Hill Rd	20	3 to 5	5	Construction	4,800	$545,455	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
S	22	Holly Hill Rd	Fisher Ferry Rd to Baptist Childrens Home Rd	9 to 11	2	4	Construction	6,500	$738,636	Construct 4 foot shoulder	Reconstruction or development
S	23	Lexington Ave	Bus 85 Ramp to Bike Lane	12 to 15	3	3	Restripe	5,100	$7,120	Install 2 lines	2011-13
SH	24	Main St (S)	Fisher Ferry Rd to Taylor St	13 to 20	2	NA	Restripe	1,900	$1,650	Install 10 Sharrows	2009-10
S	25	Cedar Lodge_Fleet Rd	Liberty Dr to Lambeth Rd	9 to 12	2	4	Construction	1,500	$170,455	Construct 4 foot shoulder	Reconstruction or development
L	26	Fisher Ferry St	W Main St to W Holly Hill Rd	14	2	5	Construction	5,900	$670,455	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
L	27	Memorial Park Dr_Culbreth Ave	Unity Street to Stadium Dr.	18	2	6	Restripe	2,200	$3,640	Install 2 lines	2009-10
L	28	Trinity St	E Main St to Liberty Dr	12 to 14	2	5	Construction	2,000	$227,273	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
S	29	Pleasant Grove Church Rd	National Hwy to County Line	9 to 10	2	4	Construction	3,800	$431,818	Construct 4 foot shoulder	Reconstruction or development
S	30	W Cooksey Dr	Salem St to MLK Dr	9 to 12	2	4	Construction	3,200	$363,636	Construct 4 foot shoulder	Reconstruction or development
SP	31	Border Street	Thomasville Primary to Myers Park	NA	NA	10	Construction	1,800	$239,400	Construct 10 foot wide Sidepath	2014-20
SP	32	Memorial Park Dr	Salem St to Culbreth Ave	NA	NA	10	Construction	2,000	$266,000	Construct 10 foot wide Sidepath	2014-20
L	33	Julian Ave	E Main St to E Holly Hill Rd	13 to 17	4	5	Construction	5,400	$613,636	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
S	34	Lambeth Rd	Fleet Rd to Kennedy Rd	9	2	4	Construction	2,900	$329,545	Construct 4 foot shoulder	Reconstruction or development
S	35	Ball Park Ave	Hasty Hill Rd to National Hwy	11	2	4	Construction	5,900	$670,455	Construct 4 foot shoulder	Reconstruction or development
L	36	Blair St	Trinity St to Conrad St	14 to 18	2	5	Restripe	3,700	$5,440	Install 2 lines	2009-10
S	37	Hasty Hill Rd	Ball Park Rd to Hasty Sch Rd	NA	2	4	Construction	4,700	$534,091	Construct 4 foot shoulder	Reconstruction or development
S	38	Fairgrove Rd and Forest Dr	Fisher Ferry Rd to Cedar Lodge Rd	9 to 14	2	4	Construction	4,400	$500,000	Construct 4 foot shoulder	Reconstruction or development
SP	39	Holly Hill Rd	N Hamby Creek to Hamby Creek	NA	NA	10	Construction	3,900	$518,700	Construct 10 foot wide Sidepath in conjunction with proposed greenway	Reconstruction or development
L	40	Blair St	Conrad St to Penny Circle	9 to 16	2	5	Construction	2,400	$272,727	Construct 4 foot lanes and add one foot from existing travel lane	Reconstruction or development
S	41	Johnsontown Rd	S Peace St to Pilot Sch Rd	12	2	4	Construction	7,200	$818,182	Construct 4 foot shoulder	Reconstruction or development
S	42	Ferndale Dr_Hillcrest Rd	W Holly Hill Rd to Forest Dr	12 to 14	2	4	Construction	5,800	$659,091	Construct 4 foot shoulder	Reconstruction or development
S	43	Holly Grove Rd	Fisher Ferry Rd to City Limits	11	2	4	Construction	2,900	$329,545	Construct 4 foot shoulder	Reconstruction or development
S	44	Blair St	Penny Circle to City Limits	16	2	4	Construction	3,700	$420,455	Construct 4 foot shoulder	Reconstruction or development
S	45	Lexington Ave	Pilot Elem to Bus 85 Ramp	12 to 15	2	4	Construction	4,300	$488,636	Construct 4 foot shoulder	Reconstruction or development
S	46	Fisher Ferry Rd	Fairgrove Rd to Cedar Lodge Rd	11 to 13	2	4	Construction	4,000	$454,545	Construct 4 foot shoulder	Reconstruction or development
SP	47	Business 85	Service Roads Ball Park Ave to National Hwy	NA	NA	10	Construction	2,600	$345,800	Construct 10 foot wide Sidepaths to connect service roads	2014-20

L=Bicycle Lane, S = Paved Shoulder, SP = Sidepath, SH=Sharrow

Projects shown in green are Phase 1, which are low cost and easy to implement (e.g. no right of way needs to be acquired).

*See Chapter 4 for a detailed list of Phase 1 corridor projects and intersection improvements; Map ID number indicates the rank received according project scoring from prioritization factors, see Appendix D: Project Ranking Methodology for more detail

Figure 3.2.4 - Proposed Bicycle Transportation Improvement Map – Thomasville City Limits

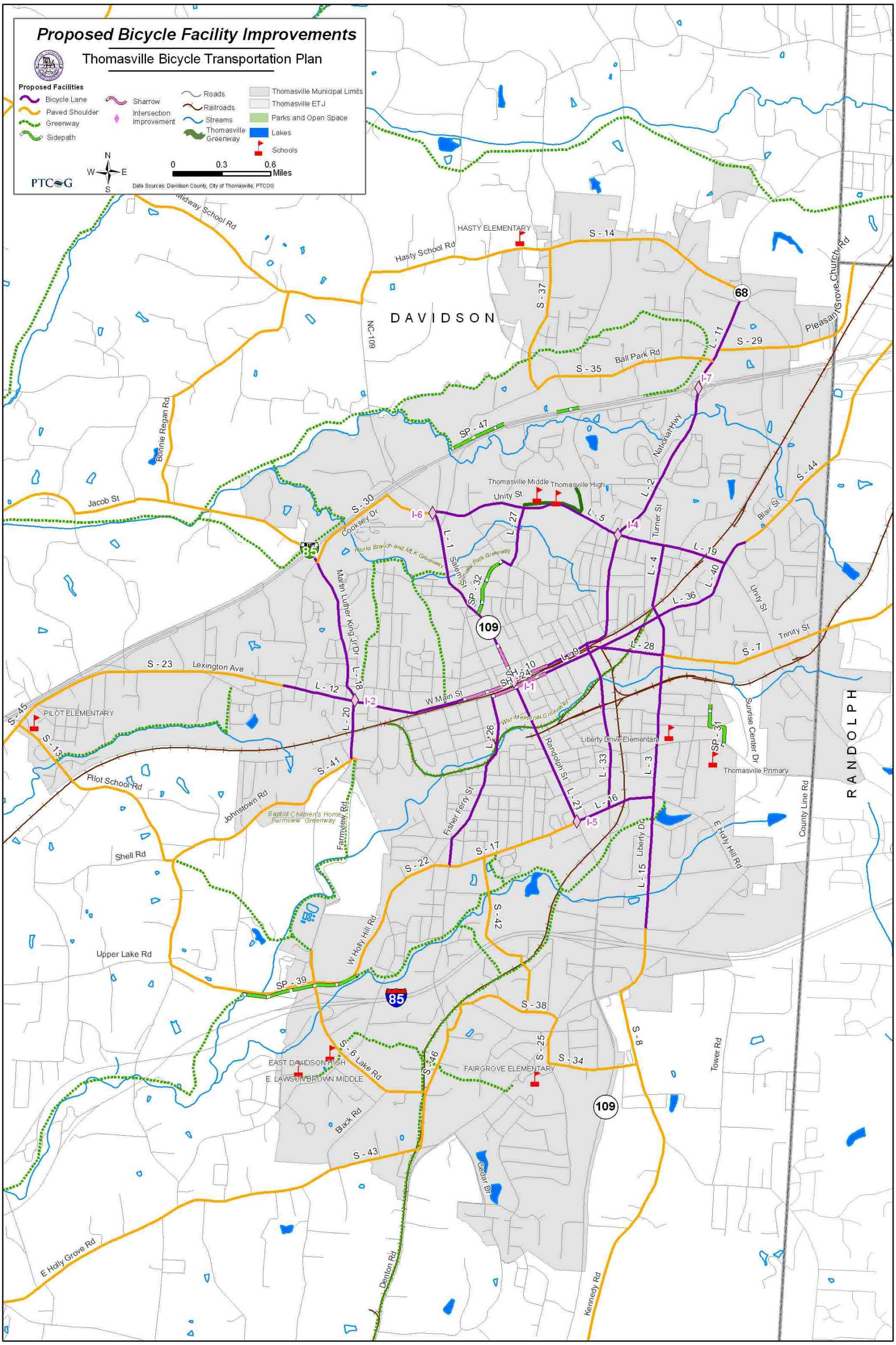
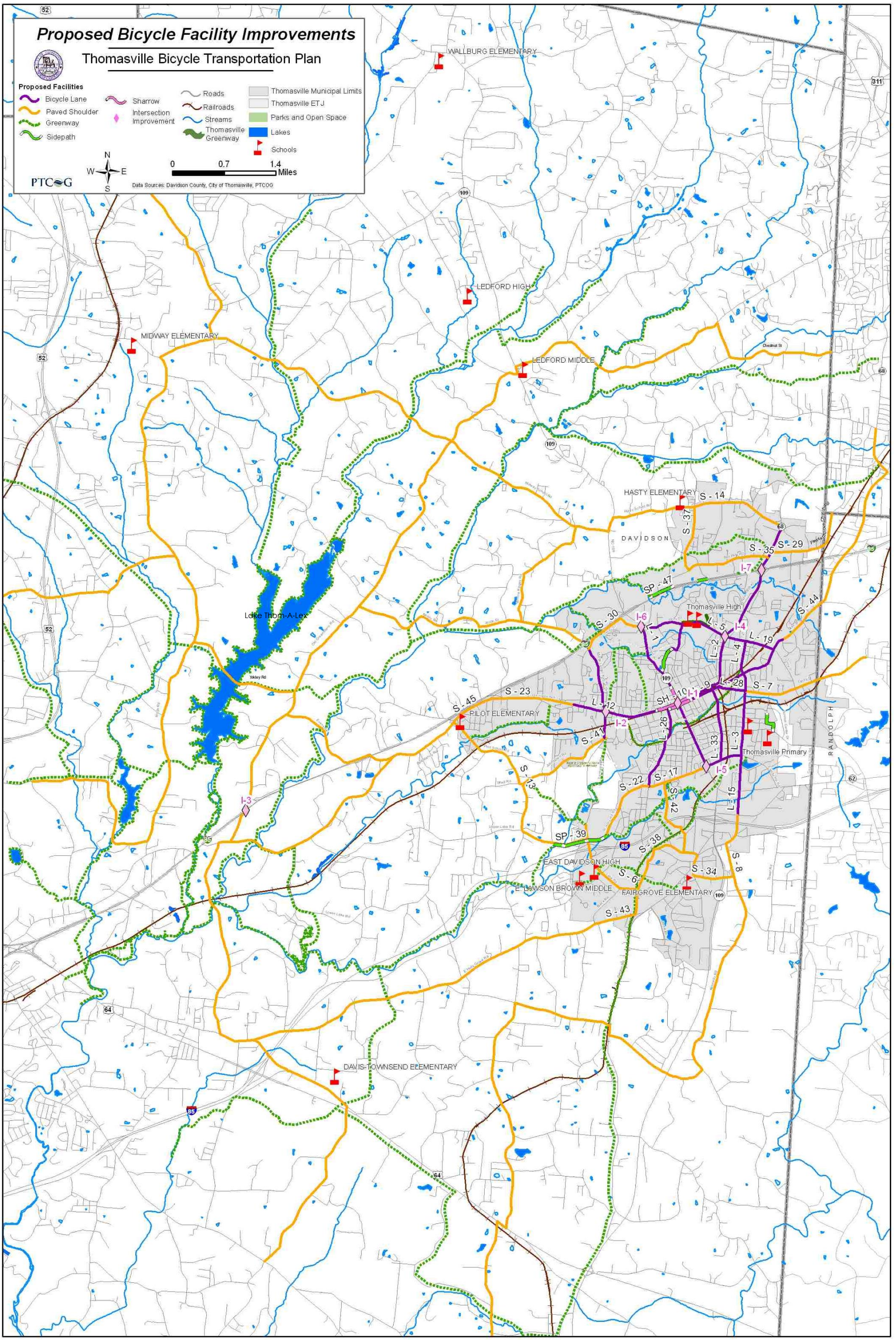


Figure 3.2.5 - Proposed Bicycle Transportation Improvement Map – Greater Thomasville



Current Project Opportunities

Currently there are no funded bicycle-related projects on the NCDOT Transportation Improvement Program in Thomasville. Although unfunded presently, a future NC-109 bypass in Thomasville has been discussed by the Thomasville Transportation committee. This road improvement through the City of Thomasville should include bicycle accommodations along and across the corridor. In addition, the present NC-109 alignment on Randolph and Salem Street should be considered for bicycle improvement if and when the bypass is constructed on new right of way. The NC 109 bypass will include a key railroad overpass, allowing uninterrupted traffic flow across the North Carolina Railroad.

3.3 COST ESTIMATES FOR TYPICAL BICYCLE LANE, SHOULDER AND MULTI-USE PATH IMPROVEMENTS

The following cost estimates were used in estimating the provision of resources to fund projects outlined in this plan and are current for 2008. In many cases, costs may significantly vary based upon geology, topography and market fluctuations in labor and material costs. It is recommended unit costs be revised periodically to reflect current trends. New cost estimates can be requested from the NCDOT Division of Bicycle and Pedestrian Transportation or from the Pedestrian and Bicycling Information Center.

Figure 3.3.1 – 2008 General Bicycle Facility Cost Estimates[1,2]

On-Road Bicycle Facilities		
Facility	**Unit**	**Unit Cost**
Install bicycle route signs	EA	$250
Install bicycle lanes (on existing pavement or during repaving)	Linear foot per single line	Paint: $0.20 Thermo: $0.60
Restripe roadway for wide outside lanes	Linear foot per single line	Paint: $0.20 Thermo: $0.60
Remove existing 4" paint or road stripe marking	Linear foot per single line	$0.40
Install shared lane markings (on existing pavement or during repaving)	EA	Paint: $40 Thermo: $65
Construct wide outside lanes (additional lane pavement added during roadway construction)	Linear mile	$300,000
Construct four-foot paved shoulder (additional lane pavement added during roadway construction)	Linear mile	$600,000
Construct four-foot bicycle lanes (additional lane pavement added during roadway construction)	Linear mile	$600,000
Bicycle Route Signage (Standard vs. High Visibility)	EA	Standard: $150 High-Visibility: $200

Bicycle Parking Facilities

Facility	Unit	Unit Cost
Bicycle rack (purchase and install)	One rack	$700
Bicycle locker (purchase and install)	One locker	$2,000
Bus rack on bus (purchase and install)	One rack	$570

Multi-Use Pedestrian and Bicycle Facilities

Facility	Unit	Unit Cost
Construct 10-foot asphalt shared-use path	Linear foot Linear mile	$133 $700,000
Construct 10-foot crushed stone walkway	Linear foot Linear mile	$15-$25 $80,000-$106,000
Construct 6- to 8-foot wooden or recycled synthetic material boardwalk	Linear foot Linear mile	$200-$250 $1,000,000- $1,300,000
Trail markers - Flat fiberglass pole 4" wide and 1/8 inch thick driven into the ground to mark crushed stone or dirt path. Decal 4" in width or a sign applied to the pole. Used to mark either the name of the trail, used as a mile marker, or to mark a feature of interest, such as a type of tree.	EA	$50

1 All items listed include installation costs.

2 Cost for paths includes clearing, grubbing and grading. Geotextile cost or other major costs, including utility relocation, are not included in multi-use path or sidepath estimates. Multi-use paths and sidepaths with 2" asphalt and 6" aggregate base course.

3.4 POLICY AND PROGRAM RECOMMENDATIONS

Zoning and Subdivision Ordinance Recommendations

Thomasville presently operates under a general use district type of zoning ordinance, commonly referred to as a conventional zoning ordinance. Conventional ordinances were first established in the early 20th century to divide land into districts (or zones) for the purpose of separating uses, to protect public health and safety by providing minimum distances between noxious uses (e.g. polluting smokestacks, coal-burning factories, offensive odors of slaughter houses) and high-density residential areas. Over time, jurisdictions established specific zoning districts (residential, commercial, industrial, etc.) and a list of permitted uses within each district.

As zoning categories became more exclusive, fewer provisions were made for walking and bicycling to "other use" districts and eventually the car became virtually the only viable mechanism to cross zoning district boundaries regardless of actual distance.

By design, a conventional ordinance is limiting in two ways. First, it works on the basis of separation of land uses, not on compatibility, which undermines the function of a traditional neighborhood and often leads to sprawl. Secondly, a conventional ordinance applies blanket regulations to all parcels within a district, often ignoring the individual natural characteristics of each parcel, and thereby reducing the opportunities for creative site design solutions. Many communities around the country are beginning to realize their displeasure with land development resulting from their own zoning regulations and investigating alternatives.

Alternatives To Conventional Zoning Ordinances

Most conventional zoning ordinances do not regulate the design of streets, the installation of utilities, or the reservation or dedication of parks, street rights-of-way, or school sites. However, communities around the country, including several in North Carolina (e.g. Davidson, Huntersville, Mocksville, Elon, Lexington, Franklinville) have adopted development ordinances based on new urbanism and smart growth principles. Design-based ordinances combine zoning and subdivision rules to encourage bicycle and pedestrian-friendly, traditional neighborhood development patterns. Proposed developments are reviewed holistically to evaluate how the existing site features, proposed land use, infrastructure, and site design will function together. Greater emphasis is placed on design guidelines to achieve a vibrant mixture of compatible uses and housing types, instead of strictly separating uses and housing types.

Recommended Ordinance Changes

The recommended ordinance changes build upon policies developed in the City's Land Development Plan and were suggested by the steering committee and project staff to enhance or revise the existing Code of Ordinances (see Section 2.5). These regulatory changes will enhance the bicycle friendliness of new and existing development.

Policy 1: Public access easements

Current Policy: Does not require the acquisition of multi-use path, trail or other public access easements when sewer and water lines are extended.

Recommended Policy: As new sewer or water lines are extended along existing or proposed greenway corridors in this plan and the 2003 Greenway Plan, acquire public access easements for both sewer line use and future trail use. Include a requirement in the subdivision ordinance that requires public access easements along proposed greenway corridors when land is subdivided within the City Limits and ETJ. Explore acquiring easements on existing sewer lines where greenways are planned.

Policy 2: Mixed use districts

Current Policy: The downtown zoning district allows live/work units. However, live/work units are not allowed in other zoning districts.

Recommended Policy: Amend the zoning ordinance to allow mixed use development in other districts. Areas around the Hospital and the I-85 and Business – 85 interchanges may be suitable for mixed use development. These areas have a concentration of businesses and therefore jobs and may be suitable for mixed use development. Creating mixed use districts will allow new development to have a range of uses thereby allowing live/work units or a combination of commercial land uses adjacent residential. The combination of land uses may allow shorter trips that can be made by foot or bicycle.

Policy 3: Cul-de-sac connections

Current Policy: No requirements for pathway connections in cul-de-sac subdivision developments.

Recommended Policy: Provide requirements for cul-de-sac development to accommodate bicycles by connecting cul-de-sacs with the nearest neighboring street or parks. The photo shows an example of a cul-de-sac connection. In cases where there are no pathways or streets to connect to behind the cul-de-sac, appropriate right-of-way should be set aside to connect with future cul-de-sacs, streets or pathways during the subdivision process.

Cul De Sac Path – Canby, Oregon

Policy 4: Complete Streets

Current Policy: The City of Thomasville has no provision for a "complete street" when new roads are built.

Recommended Policy: Adopt the "Complete Streets" policy for all new and existing local street projects so urban streets are built to accommodate all users. The Complete Streets concept defines streets for all users: automobiles, bicyclists, transit and pedestrians. The policy would require that roads being reconstructed or newly built accommodate bicyclists and pedestrians as well as automobiles. The policy provides equity to all users improving the safety and multi-modal function of new and existing streets.

Policy 5: Trail access on and under new road bridges

Current Policy: None

Recommended Policy: Bridges which are planned to be replaced or newly constructed along local roadways should include accommodation for future trail development where greenways or conservation areas are proposed – or on bridges within 1/2 mile of existing or planned parks and schools. Conduct a feasibility study exploring trail development under existing bridges in the City limits and ETJ.

For bridge replacement projects planned along state maintained roadways, the municipality should submit comments to NCDOT regarding any pedestrian or bicycle needs that the municipality identified. The NCDOT project engineer will send a request for comments to each municipality as part of the project scoping process. The municipality is invited to attend the scoping meeting to discuss concerns related to the project.

The NCDOT bridge policy addresses greenways planned under bridges that are due for replacement. NCDOT is required to provide accommodations for the greenway to run beneath the bridge so long as the municipality has set aside funding or owns the right of way for the greenway project. The NCDOT Division of Bicycle and Pedestrian Transportation is integrally involved in assessing the need for greenway accommodation beneath bridges slated for replacement.

Policy 6: Bicycle Parking Ordinance

Current Policy: None

Recommended Policy: Incorporate bicycle parking into new commercial and multi-family development. Encourage bicycle parking in large single family residential developments that include community centers or resources. Guidelines should include location, directional placement and the number of bicycle racks and will vary depending on the size and nature of

Source: www.streetsblog.org

development. Location should be close to the main entrance, not obstruct walkways and include room to lock up the rear wheel and frame of the bicycle. Shower amenities in larger commercial or multi-family facilities should be considered as well. More information about bicycle parking can be found at the Association of Pedestrian and Bicycle Professionals: http://www.apbp.org/?page=Publications

Program Recommendations

The following program recommendations will improve the bicycle friendliness of Thomasville. Regional and community partnerships will be essential to creating a successful program.

Establish Comprehensive Maintenance Plan for Bicycle Route and Lane Network

Following installation of a network of bicycle lanes, the City of Thomasville should develop a bicycle route sweeping schedule that occurs frequently enough to remove gravel, debris and other hazards from shoulders and bicycle lanes.

Bicycle Parking Program

Multi-family, retail, planned unit developments and new employment centers should be incentivized to includee bicycle parking and shower facilities. Existing developments lack adequate bicycle parking. The City, neighboring jurisdictions and the High Point Metropolitan Planning Organization should assess needs and provide funds for a bicycle parking program across the region. Bicycle racks and lockers should be placed at key locations (e.g. shopping centers, downtown areas, community centers, etc.) to encourage bicycle travel.

Enforcement in School Zones

Provide police staffing to enforce speeding and illegal parking during school pick-up and drop-off to discourage parents from unsafe pick up and drop off behavior. This will encourage fewer car drivers and a reduce automobile congestion around schools, encouraging bicycling and walking to school.

Bicycle Laws Training Program

This program curriculum is produced by the NCDOT Division of Bicycle and Pedestrian Transportation and can be taught for children, adults or police.

Adopt a Trail / Adopt a Sidewalk Programs

Adopt a Road programs are used in many communities across North Carolina. The program has a corporate or organization sponsor that provides financial or volunteer resources to help clean up road litter. The City of Thomasville can begin a similar program for its sidewalks and multi-use paths. This program could also be used as a means for the community to alert the city when there is a maintenance issue with a sidewalk or trail. If effective, the quality of the sidewalk and trail system will increase significantly.

Safe Routes to School Programs (SRTS)

Safe Routes to School programs are comprehensive efforts that look at ways to make walking and bicycling to school a safer and more appealing transportation alternative, thus encouraging a healthy and active lifestyle from an early age. The North Carolina SRTS program is administered by the North Carolina Department of Transportation. There is funding available for a broad spectrum of initiatives including, but not limited to:

- Walking school bus programs (i.e. groups of students and parents/teachers walking to school);
- Crossing guard training;
- One-time walking and bicycling safety events (i.e. bicycle rodeos, safety and health awareness fairs, walk to school day);
- Safety curriculum (i.e. printing safety curriculum and training for teachers);
- Bicycling and walking improvements (i.e. sidewalks, paths, bike parking, bike lanes, crossing treatments); and
- Weekly walking or bicycling programs (i.e. walking Wednesdays, Walk across America).

Many of the SRTS encouragement or education programs take few resources to get started, however a "local champion" is needed to start and implement Safe Routes to School programs. The "local champion" will likely be a parent or teacher who can lead the effort on Safe Routes to School. This is a significant opportunity to fund programs that educate and encourage students and parents about the benefits of walking or bicycling to school.

Special Bicycling Events

The City of Thomasville should continue to promote walking, running and bicycling events to raise awareness of the need for increased physical activity through fun activities. The 2008 Piedmont Triad Omnium bicycle race in the City of Thomasville showcased organized bicycle racing for the citizens of Thomasville. The Cycle NC ride raises the visibility of cycling in Thomasville, which passed through Thomasville in 2006 with around 1000 recreational cyclists and is planned for 2009 as well.

Piedmont Triad Omnium 2008 Time Trial (Photo: Tom Wannenburg)

The Thomasville Medical Center and Parks and Recreation Department should continue to promote bicycling events by employing marketing and external promotion for events. The success of well planned and fun events involving the community will attract individuals who may not participate or be aware of the benefits of bicycling.

CHAPTER 4: IMPLEMENTATION

The action items on the following page outline specific steps to move toward plan implementation. Possible funding opportunities and phase 1 (projects for completion in FY 2009 and 2010) project detail are also included in this chapter.

Effective implementation of recommended projects, programs and policies outlined in this plan will require the sustained, focused and coordinated efforts by City staff, citizens, business and community leaders. The City of Thomasville should capitalize on road projects or other opportunities that may arise independent of action items and incorporate restriping or road-diet projects into the ongoing street maintenance budget. The list of action items and project phasing should be reviewed and evaluated by City staff and reprioritized *every 2 years*.

Current Issues, Barriers and Opportunities

There are both barriers and opportunities relating to bicycle transportation in Thomasville. Successfully overcoming these barriers and leveraging the opportunities will be key to successful implementation of the plan.

Issues/Barriers

- There is a shortage of off-road and on-road bicycle facilities in Thomasville, while latent demand exists for these facilities;
- Sources of funding are limited and seeking competitive grant funding is time consuming;
- The municipal fiscal environment is constrained;
- Land use development trends and policies encourage separated land uses and automobile trips; and
- Bicycle advocacy and safety education is limited.

Opportunities

- A comprehensive bicycle transportation plan provides a menu of options for projects, programs and policies to improve bicycle transportation in Thomasville;
- Public and private resources are being provided to communities across North Carolina for trail development (e.g. Clean Water Management Trust Fund, Community Foundation, Safe Routes to School Program and others) – see the Appendix for more funding sources;
- The abandoned Norfolk Southern rail line south of downtown provides an opportunity for a rail-to-trail conversion; and
- Major bicycling events (e.g. Cycle NC and the Piedmont Triad Omnium) have raised the awareness of the economic benefits of bicycling and bicycle tourism.

4.1 ACTION PLAN

A step-by-step implementation process is detailed for the next 2 years. The action items below are a menu of options for the City of Thomasville to pursue as time, resources and political will allow.

One of the most important first steps is the formation of an alternative transportation working group that will advocate for implementation of the plan and assist in public outreach and grant writing, City staff communication and other duties. The working group may be the plan steering committee or a part of an existing organization serving the City of Thomasville (e.g. Move More Thomasville or P.A.C.E.) and will likely be involved in each of the action items. New members will need to be recruited to share the workload and maintain active participation as implementation progresses

Each new project, program or policy change should be evaluated for effectiveness when appropriate. In 2011, another comprehensive assessment and evaluation of efforts should be performed to both look at proposed changes and their progress, but also to look at new ideas and new challenges facing bicycle transportation in Thomasville.

FY 2009 Action Items

Item	Responsible Parties
1. Adopt the Bicycle Transportation Plan	City Council, NCDOT
2. Complete design for one multi-use path project and construct half of the Phase 1 lane and sharrow projects from the Comprehensive Transportation Plan priority projects.	Engineering, Planning and Zoning, High Point MPO, NCDOT
3. Apply for Safe Routes to School funding to improve bicycle and pedestrian education and access for Thomasville Schools.	Engineering consultant, Planning and Zoning, Alt. Transportation Working Group, City Schools
4. Continue communication with Norfolk Southern about acquiring the abandoned rail corridor south of downtown. Identify a first phase of a rail to trail conversion along this corridor.	Planning and Zoning, City Manager's Office, Alternative Transportation Working Group, Transportation Committee
5. Identify water-quality improvement projects along streams and creeks that support the multi-use pathway network in Thomasville. Acquire public access easements as part of the development process.	Planning and Zoning, Public Services
6. Establish and fund a Thomasville Greenway Trust Fund.	Alternative Transportation Working Group, P.A.C.E., Civic Organizations
7. Establish a bicycle parking program in Thomasville.	High Point MPO, P.A.C.E., Civic Organizations

FY 2010 Action Items

Item	Responsible Parties
1. Secure funding for a multi use path project and construct the second half of the Phase 1 lane and sharrow corridor projects.	Planning and Zoning, High Point MPO
2. Actively seek grants and donations to grow the Thomasville Greenway Trust Fund.	Alternative Transportation Working Group, Planning and Zoning, Parks and Rec.
3. Begin acquiring abandoned rail corridor south of downtown.	City Manager's Office, Planning and Zoning
4. Apply for grants to build a water quality improvement project and multi-use path along an existing stream or creek.	Alternative Transportation Working Group, Public Services
5. Establish a Safe Routes to School program for Thomasville City Schools, building from grant funding received from the 2009 application.	Thomasville City Schools, Move More Thomasville, Parks and Recreation
6. Incorporate bicycle-friendly development regulations that support bicycle transportation (i.e. bike parking incentives, shower facilities for new businesses and bicycle lanes on new roads).	Planning and Zoning
7. Engineer Phase 2 2011-2013 projects and incorporate projects into the Transportation Improvement Program	Planning and Zoning, Engineering, High Point MPO, NCDOT

4.2 REVIEW OF FUNDING OPPORTUNITIES

There are a number of funding sources that the City of Thomasville can use to construct projects and implement proposed programs. Generally, private foundation money and local support is a good source of funding to be garnered for multi-use path development. In addition, there are water quality protection programs that can be used for acquiring riparian corridors that can be used for future trail development (i.e. *Clean Water Management Trust Fund, EPA grants*). State and Federal funding sources related to transportation should be used for improvements along streets within public rights of way (i.e. *Transportation Enhancements, Safe Routes to School*). Significant time and preparation is needed to successfully apply for grant funding.

Cooperation with neighboring jurisdictions and multiple partners enhances the strengths of many funding applications. Projects outlined in this plan should be used as a reference in the application of grant monies to build new sidewalks, multi-use paths and other bicycle facility improvements and combined with other municipal projects when appropriate.

See Appendix A for more detailed information on potential funding sources and how to access application materials.

4.3 SOUTHERN BELTLINE PILOT PROJECT DETAIL

Pilot Project: War Memorial Greenway Old Southern Railway Beltline

One unique multi-use trail development opportunity is the abandoned Southern Railway beltline that runs south of downtown Thomasville. Some of the rail line has been sold to adjacent property owners, but other sections have been preserved and are still owned by Norfolk Southern railroad. The two pictures show the rail corridor to the west of Fisher Ferry Street.

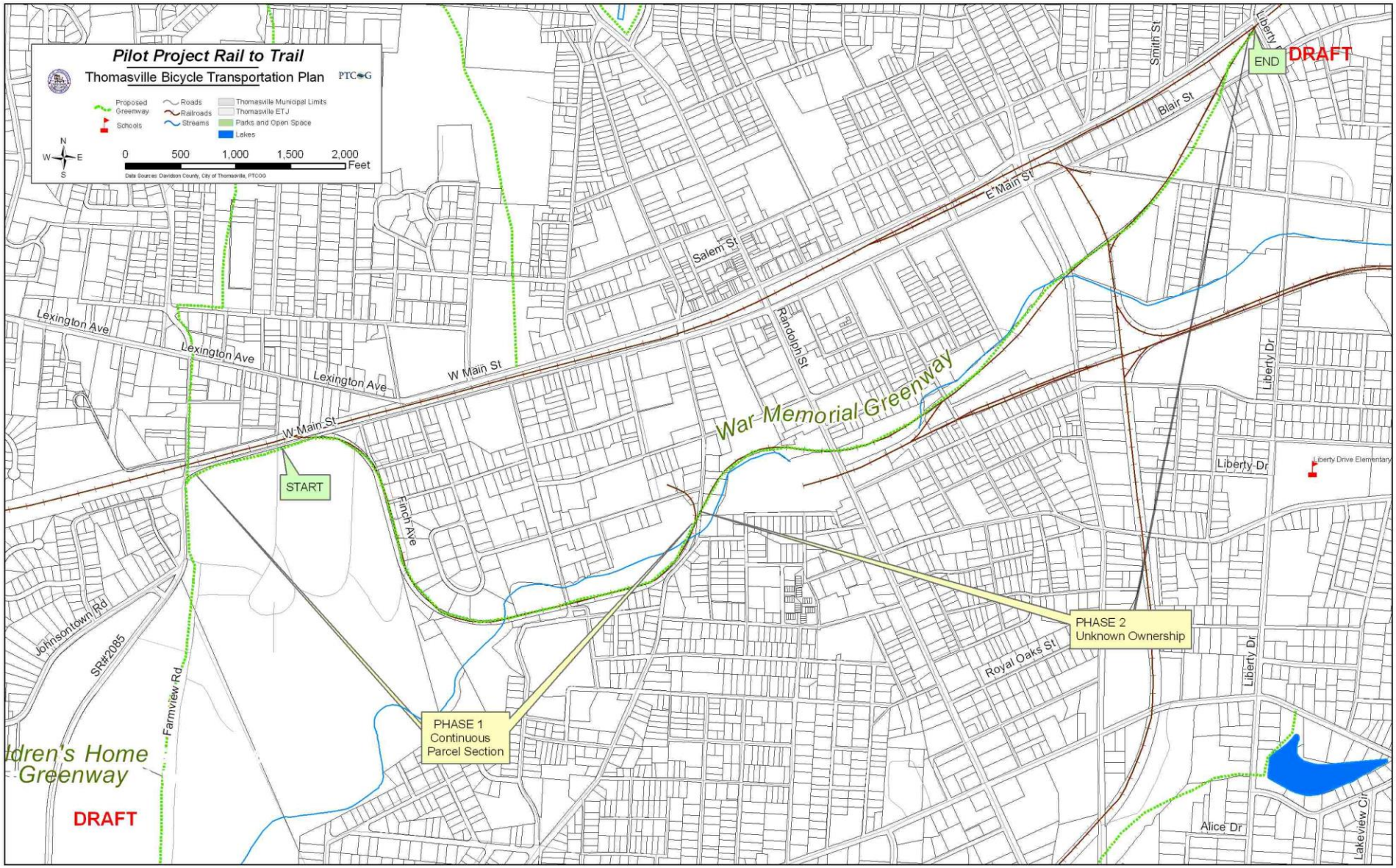
There are a number of steps to convert this rail line to a trail: 1) The owners of the rail line need to agree to sell; 2) Funds for purchase of the corridor will need to be raised; 3) An engineering design for the trail and any road crossings will need to be completed; 4) Funds for construction of the trail will need to be raised and 5) Construction of the trail is then put out for bid. This process may take some time, but resources are available to complete these steps, including the North Carolina Rails to Trails, private foundations, civic organizations, Transportation Enhancement grants and many others.

The western section of this corridor (shown in Figure 4.3.1) from Fisher Ferry St to W. Main St appears to have one owner and would likely be the 1st phase of the rail to trail conversion. The eastern section (2nd phase) is east of Fisher Ferry St and ends at Blair St. This section has several owners that would need to agree to developing the rail trail. A title search was not completed before publication of this plan, but title and deeds for the rail line are being investigated.

Old Norfolk Southern Beltline Near Fisher Ferry St

Old Norfolk Southern Beltline Near Fisher Ferry Street

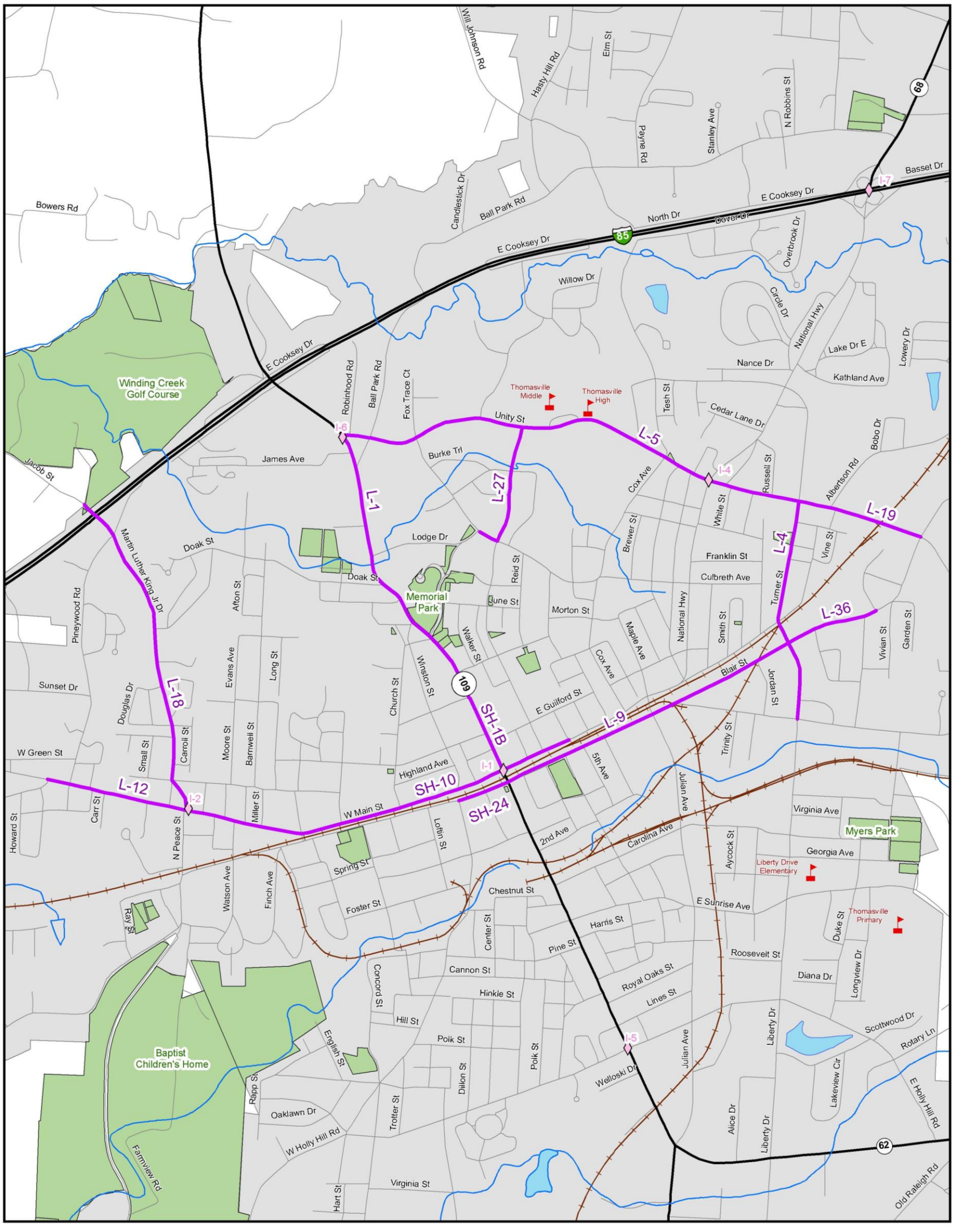
Figure 4.3.1 – Pilot Project Along the Old Southern Beltline



4.4 PHASE 1 PROJECT DETAIL

The recommended phase 1 projects are described in more detail in this section. These projects are short term and should be completed in FY 2009 or FY 2010. The projects are not capital intensive and may be included in regular maintenance programs. However review of projects on State maintained roadways will need to be approved in the High Point MPO and NCDOT Division work plans. Roads that are maintained by the City of Thomasville can be implemented as part of regular street maintenance in consultation with the Thomasville Engineering Department and where budget allows. All projects should include "shared roadway" signs where facilities terminate and as appropriate "bike lane ends" signs. Figure 4.4.1 shows corridor projects in purple and intersection improvements are shown with pink diamond icons. Figure 4.4.1 only shows phase 1 projects, please refer to figure 3.2.4 and 3.2.5 for all the bicycle network project recommendations.

Figure 4.4.1 – Phase 1 Proposed Corridor Improvement Projects Map



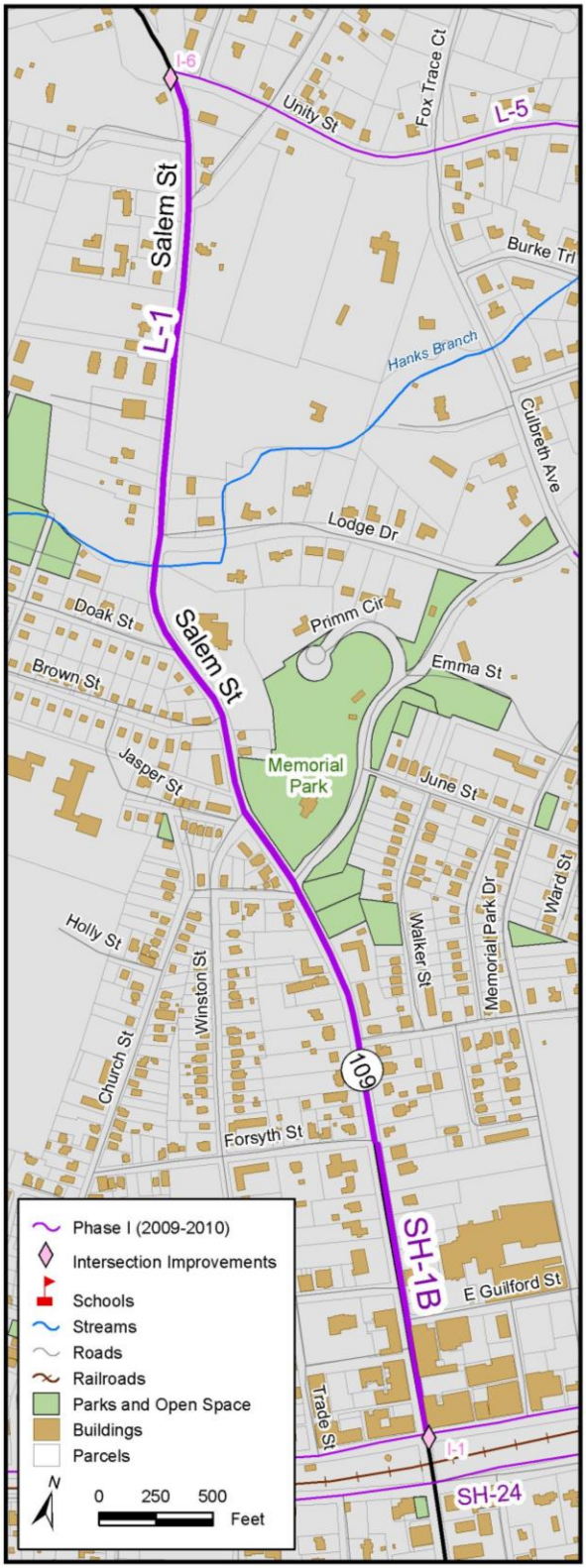
Salem Street (Unity Street to Main Street) Map ID: L-1 and SH-1B

Phase 1 Recommendation: 5 ft bicycle lane and sharrows via restriping roadway
Cost Estimate: $8,530 (not including intersection improvements)
Distance: 6,400ft
Intersections: Salem St and Main St (Map ID I-1); Salem St and Unity St (Map ID I-6)

Summary: This corridor is recommended for a bicycle lane from Unity Street to Forsyth St, which will reduce vehicular travel lanes from 18-20ft to 13-15ft. Part of the route is a regional bicycle route. At Doak Street there is a turn lane, which may require bicyclists to share the lane with motor vehicle traffic for a short distance; shared roadway signs should be installed here. Sharrows are recommended from Forsyth Street to Main Street. South of Forsyth Street the roadway width is constrained and there is on-street parking. As indicated in the design guidelines, sharrows should be placed away from the door zone and spaced approximately every 250 feet.

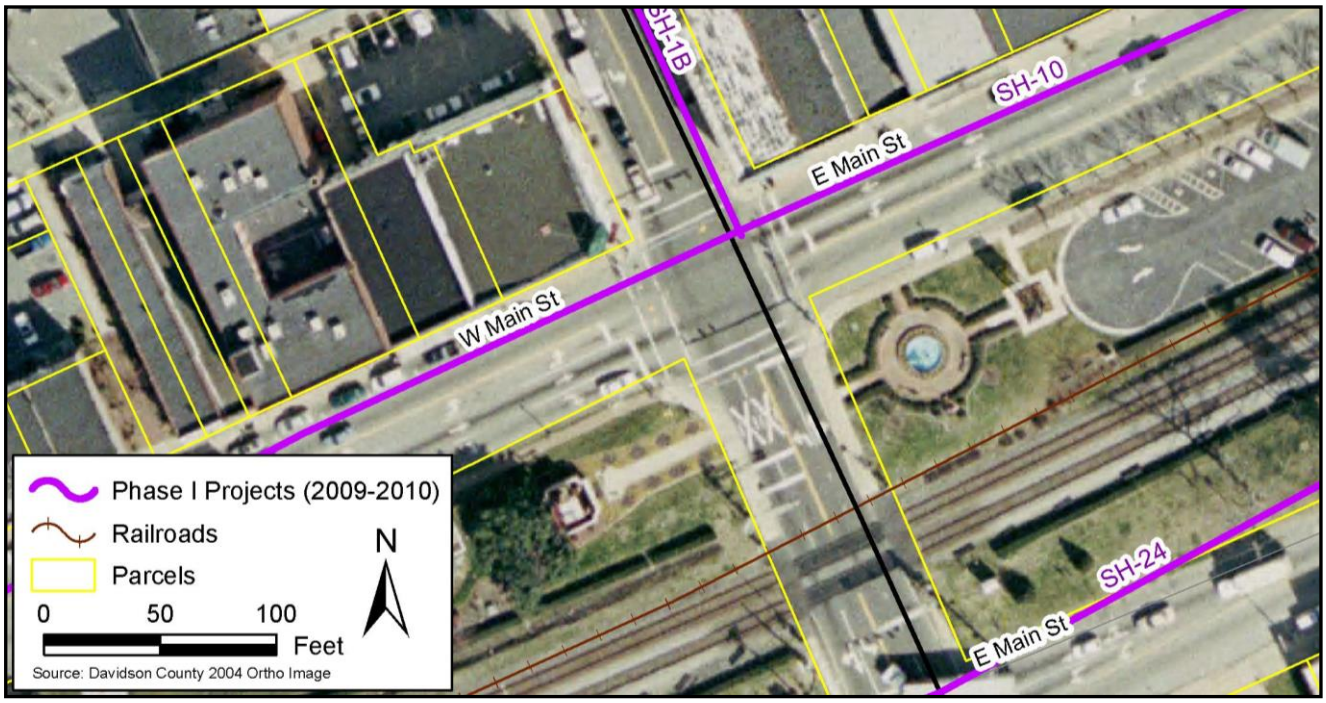
Thomasville Park and Ride Lot at Salem St and Unity St

Bicyclists take a rest stop during an organized ride at Main and Salem St



Intersection: Salem St and Main St (Map ID I-1)

Recommendations: a) Bicycles have use of the full lane at signals and bicycle route signage; b) Sharrows at all corners of the intersection; c) Bicycle stencil over signal detection loops to indicate where bicyclists may stand to activate the left turn signal.



Intersection: Salem St and Unity St (Map ID I-6)

Recommendations: a) Share the road signage; b) Bicycle stencil over signal detection loops to indicate where bicyclists may stand to activate the left turn signal at all corners of the intersection.

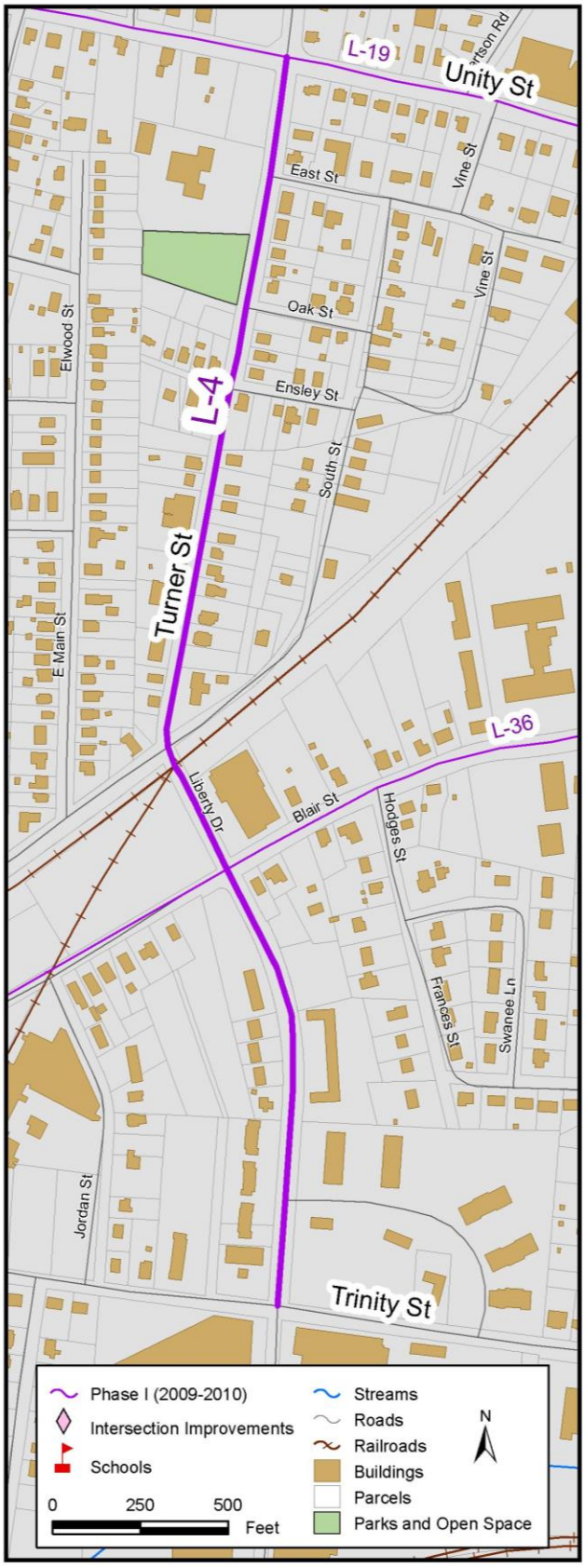
Liberty Dr and Turner St (Unity St to Trinity St) Map ID: L-4

Phase 1 Recommendation: 5 ft bicycle lane via restriping roadway
Cost Estimate: $5,440
Distance: 3,700ft

Summary: This corridor is recommended for a bicycle lane from Unity Street to Trinity St. This route will be an important future connection to the proposed rail trail along the abandoned Norfolk Southern Railroad. Travel lanes will need to be reduced from 16-17ft to 11-12ft. At the intersection with Blair Street, bicycle lanes may need to terminate due to turn lane right of way constraints. Bicyclists allowed full use of lane and/or shared roadway signage at the intersection is appropriate.

Liberty Dr looking north multi-family land uses on both sides of the street

Turner St looking north near intersection with railroad



Unity St (Salem St to Blair St) Map ID: L-5 and L-19

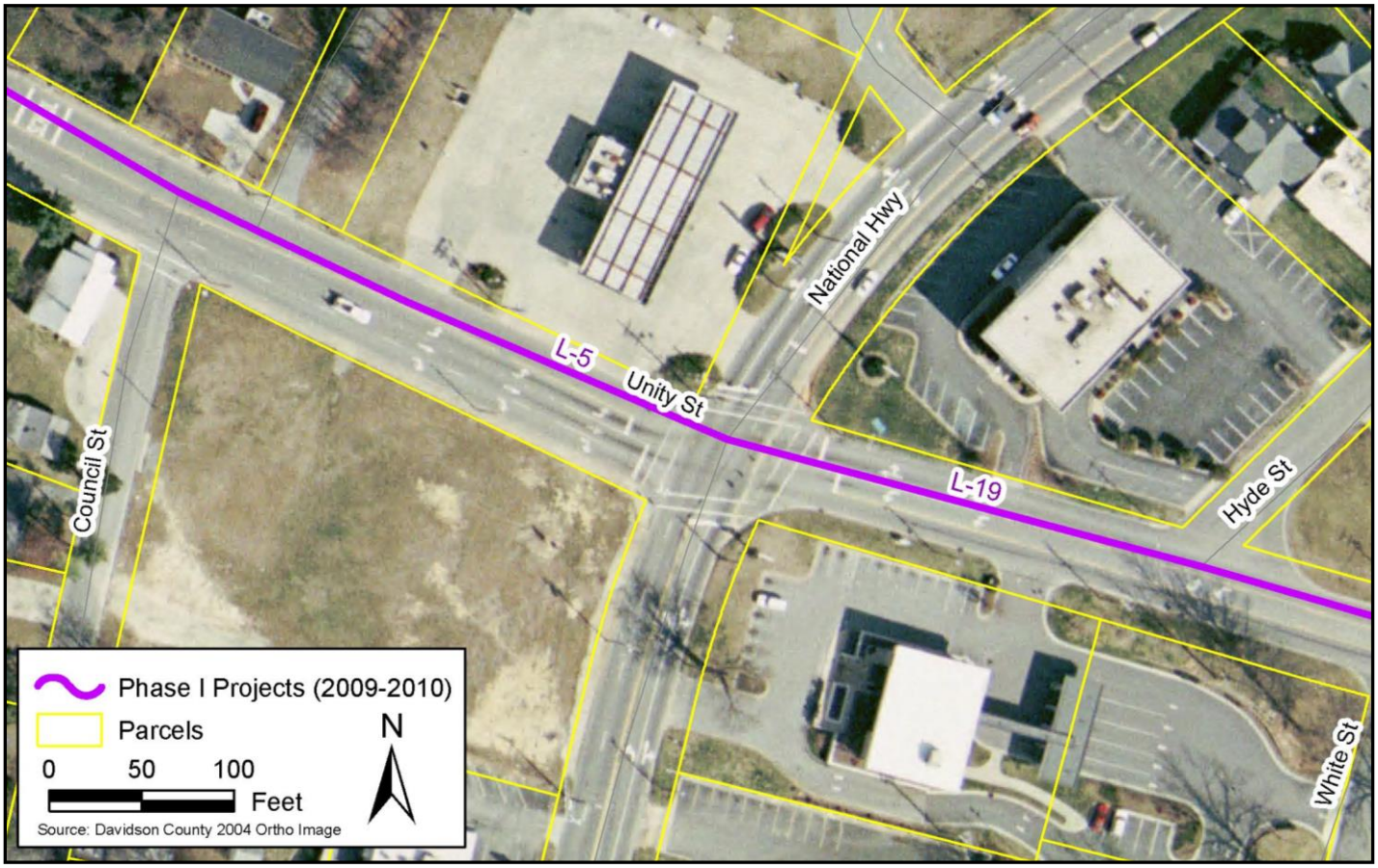
Phase 1 Recommendation: 5 ft bicycle lane via road diet and restriping
Cost Estimate: $49,680
Distance: 10,000ft
Intersections: Salem and Unity St (see above for analysis)(Map ID: I-6), National Hwy and Unity St (Map ID: I-4)

Summary: This corridor is recommended for a bicycle lane from Salem St to Blair St and is analyzed in two pieces. Unity Street is part of the regional bike route system. The first section (L-5 see next page) goes from Salem St to National Highway and connects with Thomasville Middle and High School. Unity Street is 4 lanes wide, but carries a level of traffic that can provide a similar level of service with three travel lanes. Removing one of the travel lanes will provide width on either side of the road for striping a bicycle lane, provide better bicycle connection to the two schools and the Thomasville Greenway.

The second section (L-19 see next page) goes from National Highway to Blair Street and consists of three lanes of traffic. Removing one of the three lanes of traffic, except at the intersection will likely carry existing traffic with minimal loss of level of service. The streets intersecting Unity Street between National Highway and Blair Street are primarily residential and do not have a significant level of turning traffic.

Intersection: National Highway and Unity Street (Map ID: I-4)

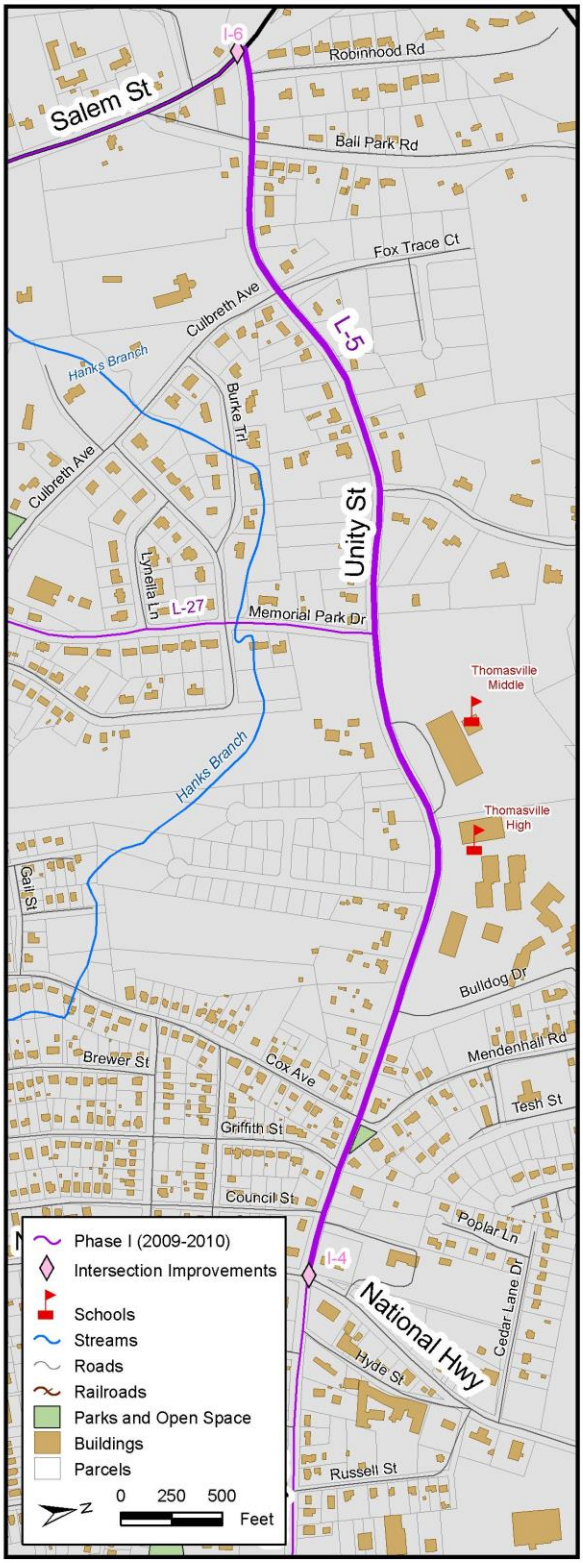
Recommendations: a) Bicycle route signage; b) Bicycle stencil over signal detection loops to indicate where bicyclists may stand to activate the left turn signal and c) a bike stencil over the signal detector on



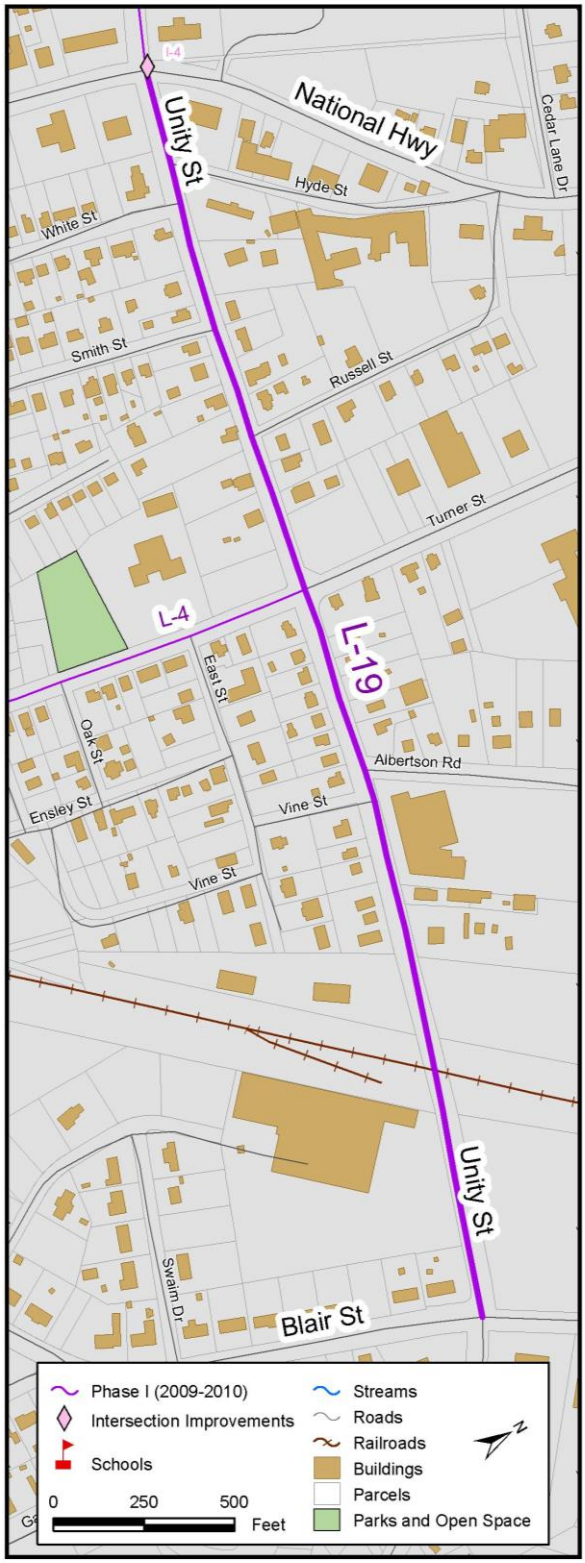
Unity Street for straight through or left turn lanes.

Unity St (Salem St to Blair St) Map ID: L-5 and L-19 (cont'd)

Section 1



Section 2



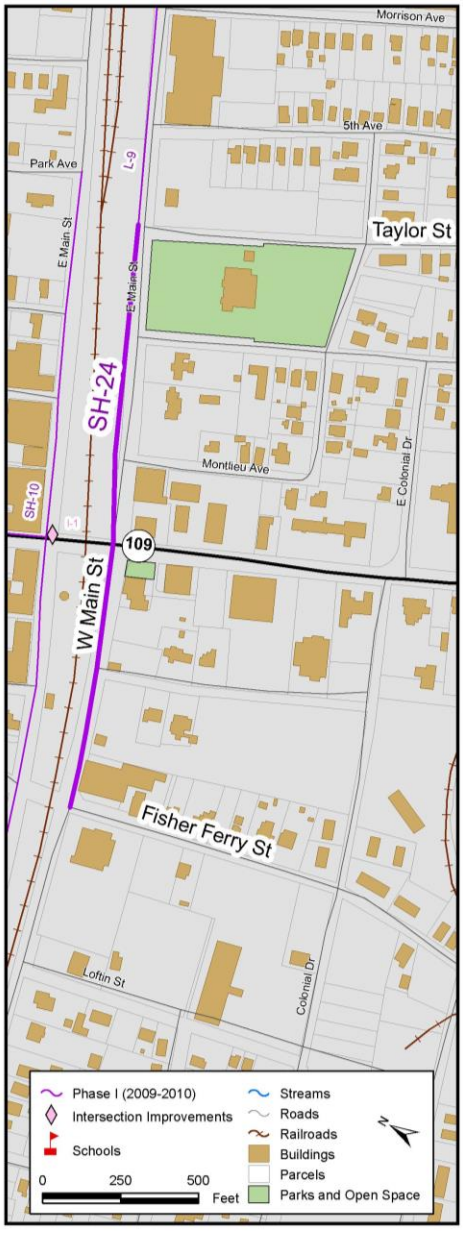
E Main St (South) and Blair St (Fisher Ferry St to Conrad St) Map ID: SH – 24, L-9 & L-36

Phase 1 Recommendation: 4-5 ft bicycle lane and sharrows via restriping roadway
Cost Estimate: $8,840
Distance: 5,700ft

Summary: This corridor is recommended for a combined sharrow and bicycle lane improvement from Fisher Ferry St to Conrad St. The sharrow will provide added safety and accommodation from Fisher Ferry St to Taylor Street where on street parking is common. The bicycle lane is recommended from Taylor Street east to Conrad St. Continuing the bicycle lane from Conrad St to Unity St will require a street widening combined with curb and gutter and is recommended for a later phase

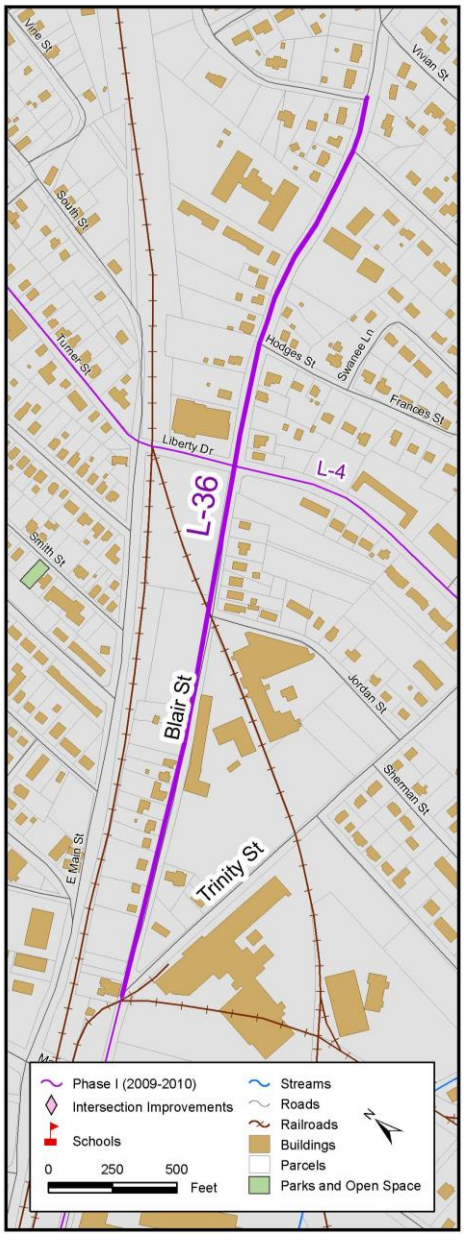
This bicycle lane and sharrow project will provide important bicycle accommodation into downtown Thomasville from residential points east of downtown and south of the railroad. In some sections of this corridor, travel lane widths are currently 14ft wide, which will require the bicycle lane to be 4ft wide, preserving 10ft wide automobile travel lanes.

Section 1



Section 2

Section 3

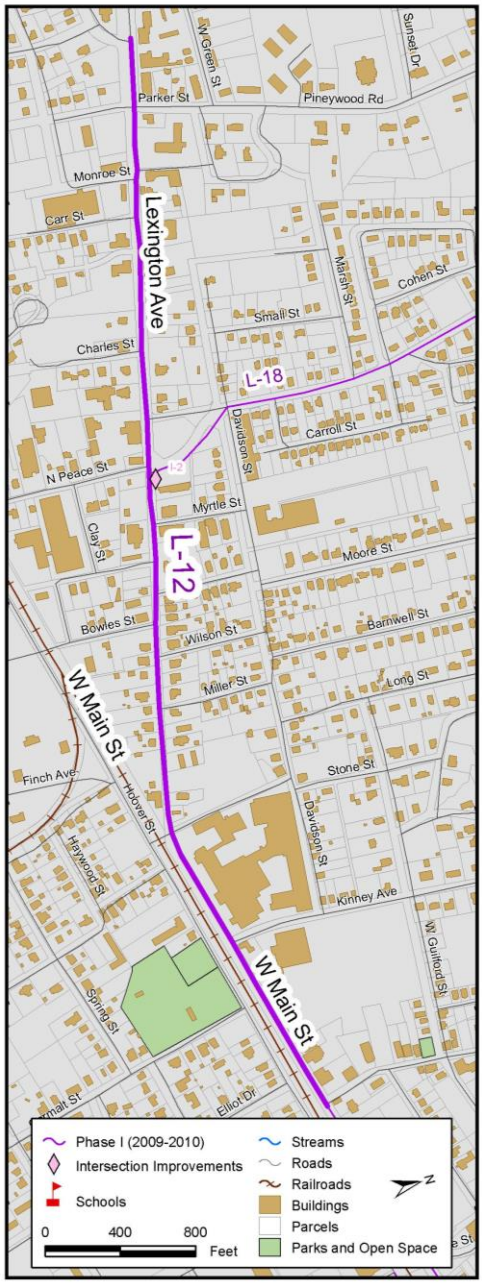


W Main St (N) and Lexington Ave (Old Lexington Rd to Park Ave) Map ID: L-12 & SH-10

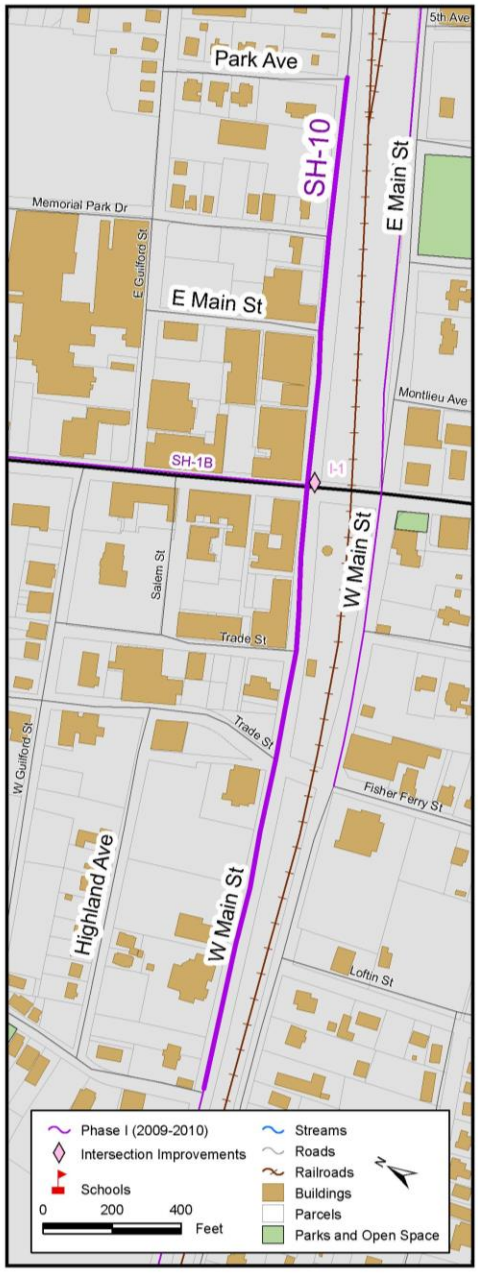
Phase 1 Recommendation: 5 ft bicycle lane and sharrows via restriping roadway
Cost Estimate: $8,900
Distance: 9,860ft
Intersections: Salem St and Main St (see above for analysis) (Map ID: I-1) and Lexington Ave and Peace St/MLK Dr (Map ID: I-2)

Summary: This corridor is recommended for a combined bicycle lane and sharrow improvement from Old Lexington Rd to Maple Ave. A bicycle lane is recommended on Lexington Rd and Main St from the split with Old Lexington Road to Highland Ave. The sharrow will pick up from Highland Ave through the intersection of Main St and Salem St. This section through the heart of Thomasville has significant levels of automobile, pedestrian and bicycle traffic, with on-street parking. This bicycle lane and sharrow project will provide important bicycle accommodation into downtown Thomasville from residential points west and north of town.

Section 1

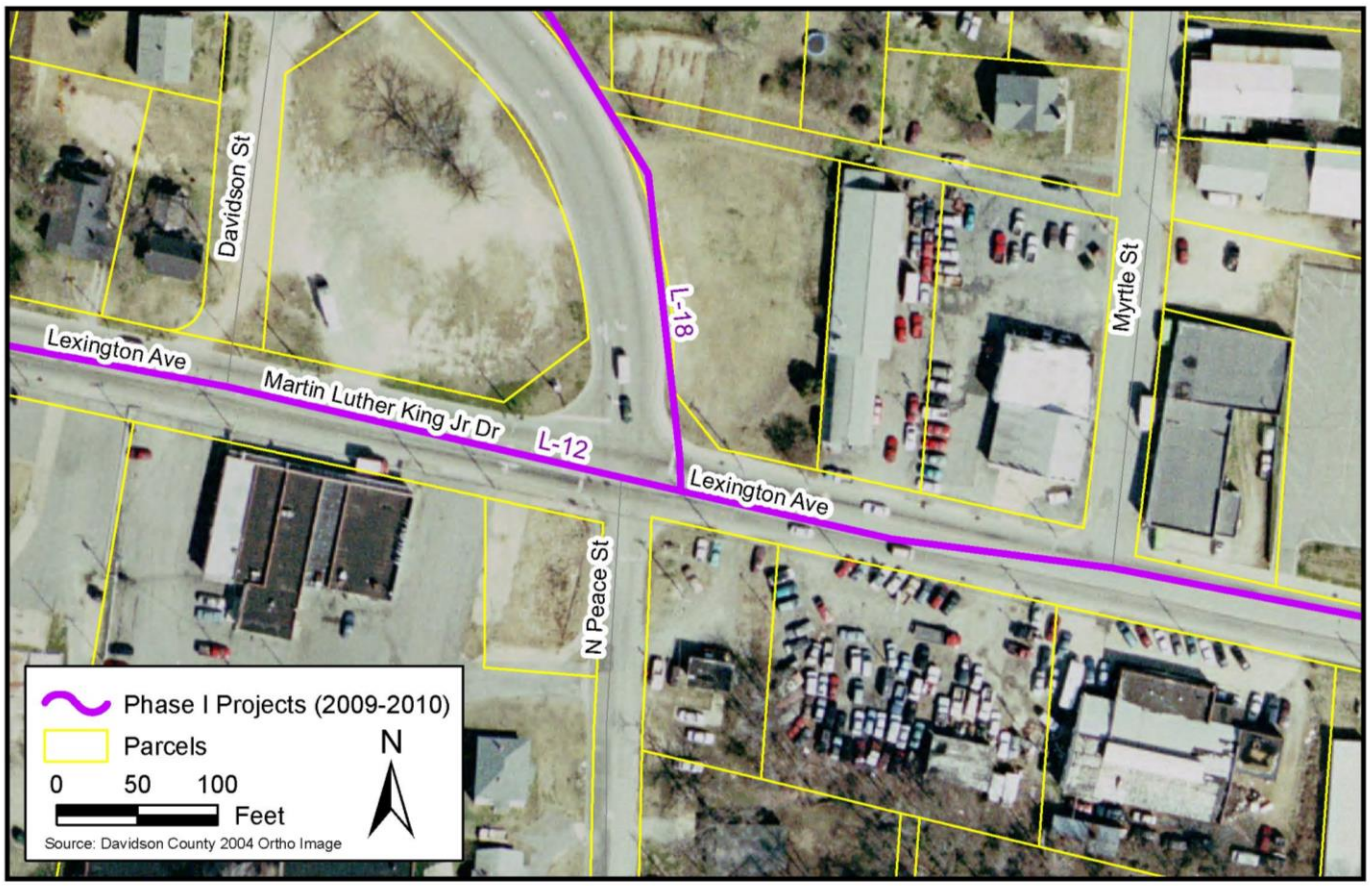


Section 2



Intersection: Lexington Ave and Peace St/MLK Dr (Map ID: I-2)

Recommendations: a) Bicycles allowed use of the full lane at signals and bicycle route signage b) Bicycle stencil over signal detection loops to indicate where bicyclists may stand to activate the left turn signal.



Lexington Ave and Peace St & MLK Dr. looking southeast

Lexington Ave looking west, intersection with Peace St & MLK Dr

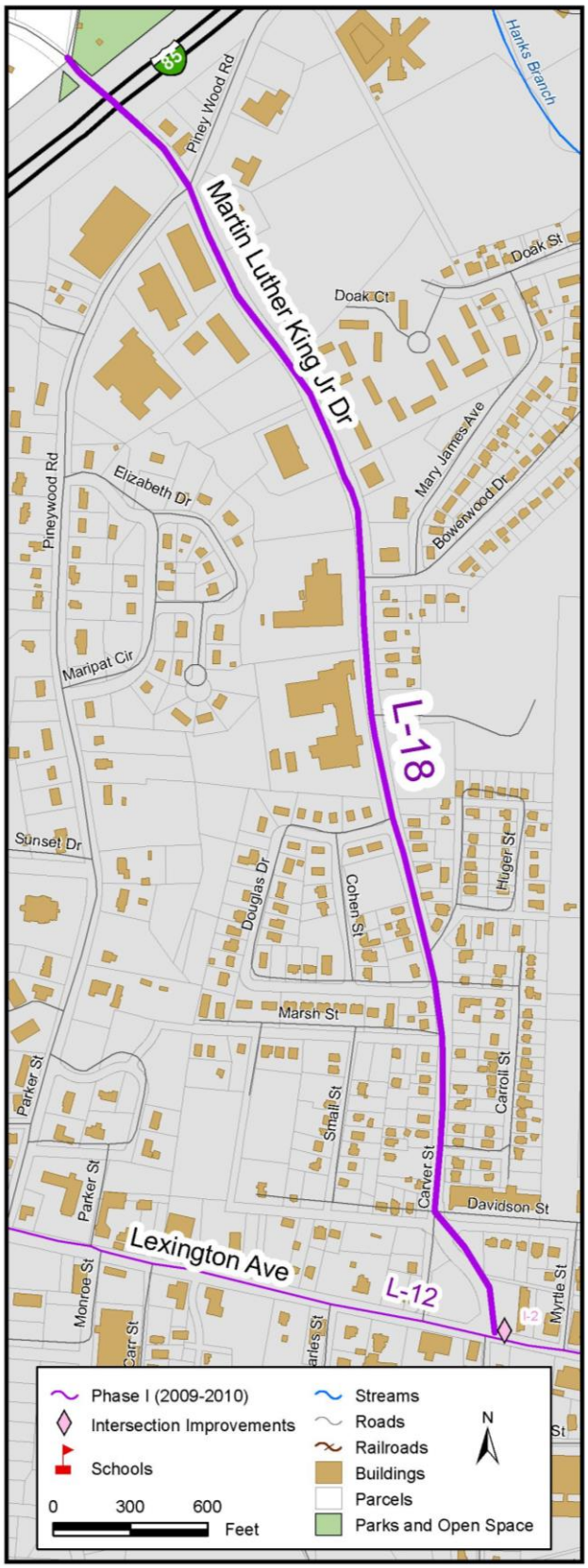
Martin Luther King Jr Dr (Business - 85 to Lexington Ave) Map ID: L-18

Phase 1 Recommendation: 5 ft bicycle lane via restriping roadway
Cost Estimate: $7,480
Distance: 5,400ft
Intersection: Lexington Ave and Peace St/MLK Dr (see analysis above) Map ID: I-2

Summary: This corridor is recommended for a bicycle lane improvement from the bridge over Business 85 to the intersection with Lexington Avenue. The route is a designated bike route used often by recreational riders heading to Lake Thom-A-Lex or other parts of northern Davidson County. Along with NC 109 and National Highway, Martin Luther King Jr. Dr is a separated grade crossing of Business 85, making it an ideal alternative transportation connection. The extremely wide existing travel lanes of 18ft leave ample room for 5ft bicycle lanes and 13ft motor vehicle lanes.

Intersection of MLK Jr Dr and Lexington Ave looking north

MLK Jr Dr looking north, 18 ft wide travel lanes

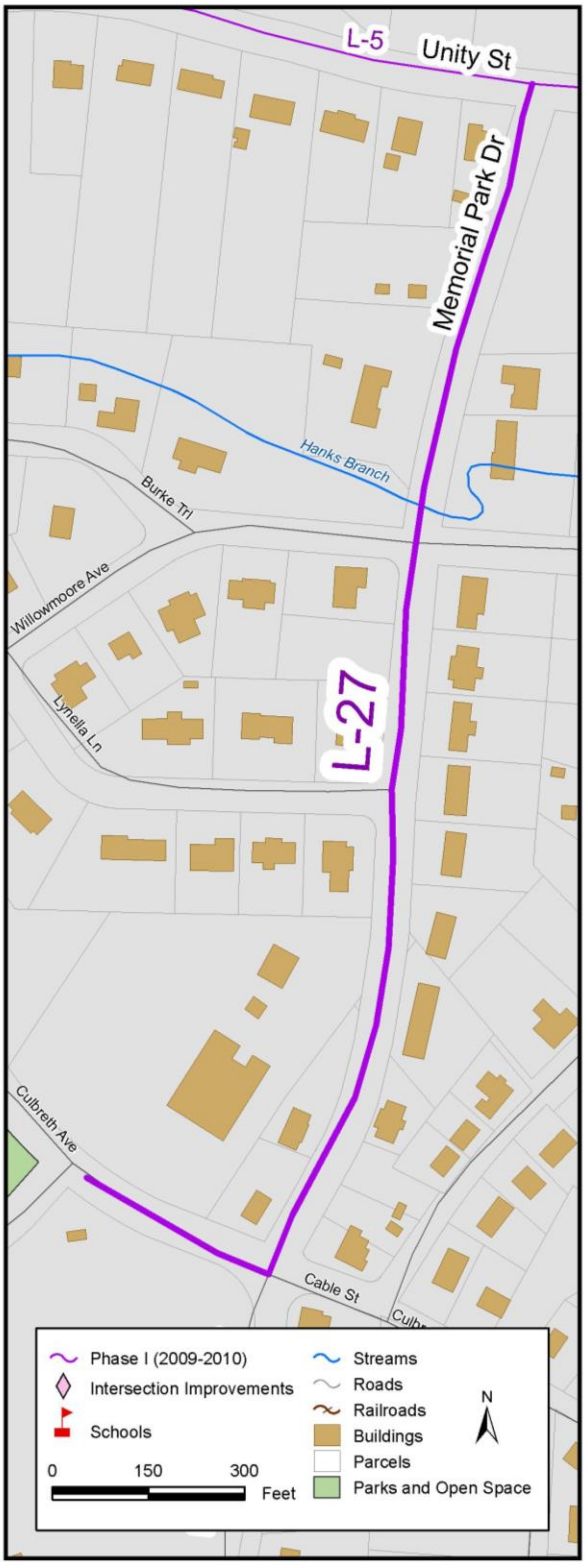


Memorial Park Dr/Culbreth Ave (Unity St to Stadium Dr) Map ID: L-27

Phase 1 Recommendation: 6 ft bicycle lane via restriping roadway
Cost Estimate: $3,640
Distance: 2,200ft

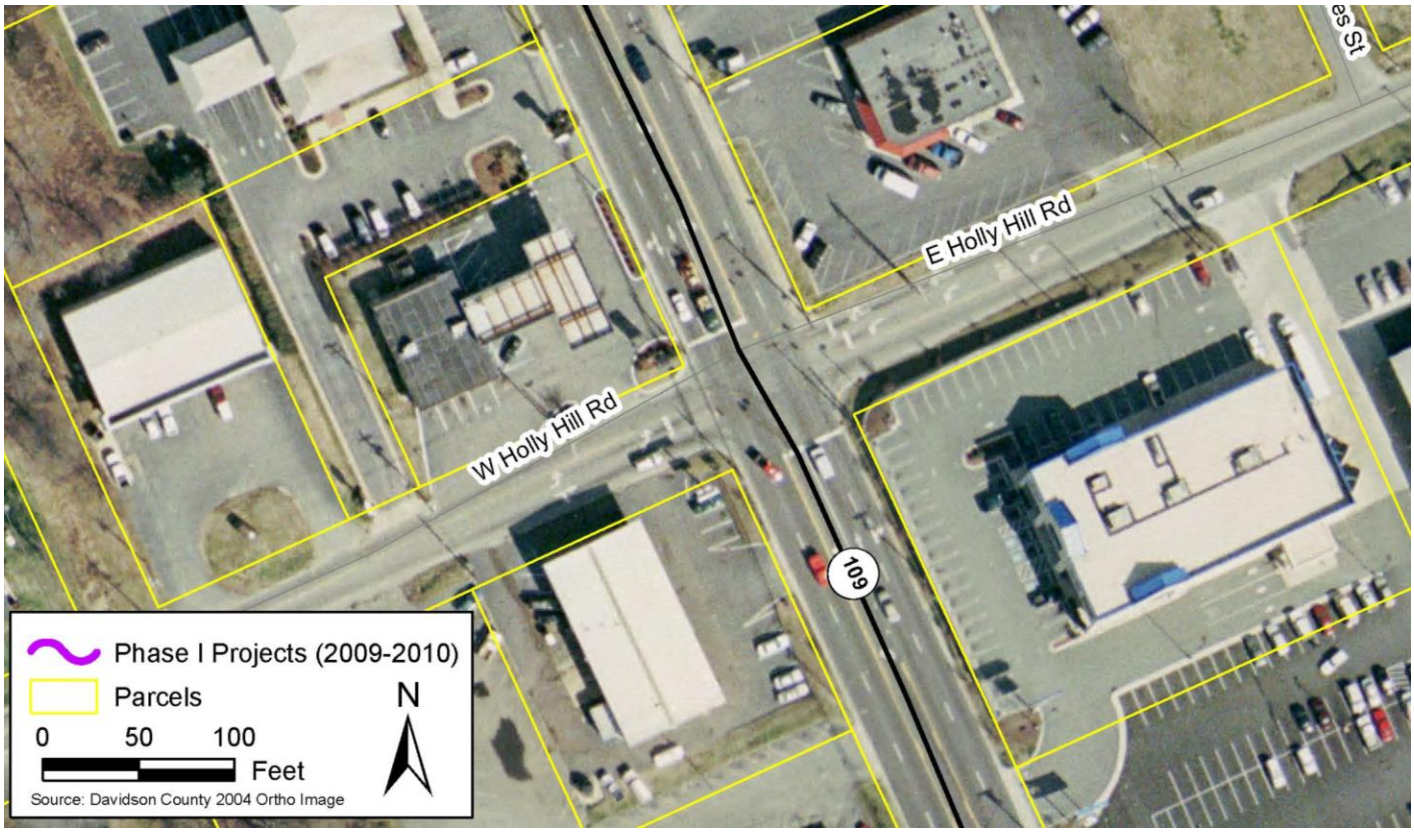
Summary: This corridor is recommended for a 6ft bicycle lane. The Thomasville Greenway is located at the northern end of this facility, making this an important connection to exsiting bicycle facility assets. Even though this is a residential street, ample room is available to have on-street parking, bicycle lanes and two travel lanes. This route is commonly used for travel to and from Memorial Park and the Thomasville Middle and High School on Unity Street. The bicycle lane installation will encourage automobile drivers to go slower, while providing a safe bicycle facility for bicyclists of all ages who may be using the facility. The bicycle lane will end at the intersection of Stadium Drive and Culbreth Ave, where signage for the existing bicycle route will direct riders onto Memorial Park Drive.

Bicyclist crossing Unity Street where Memorial Park Dr intersects



Intersection: Randolph St and Holly Hill Rd Map ID: I-5

Phase 1 Recommendation: The intersection of Randolph St and Holly Hill Rd is a busy intersection for automobiles. There are a number of retail and commercial land uses surrounding the intersection. Holly Hill Rd is regional bicycle route, seeing a moderate level of bicycle activity. Simple treatments will assist bicycle travel including a) Bicycles allowed use of the full lane at signals and bicycle route signage and b) Bicycle stencil over signal detection loops to indicate where bicyclists may stand to activate the left turn signal.

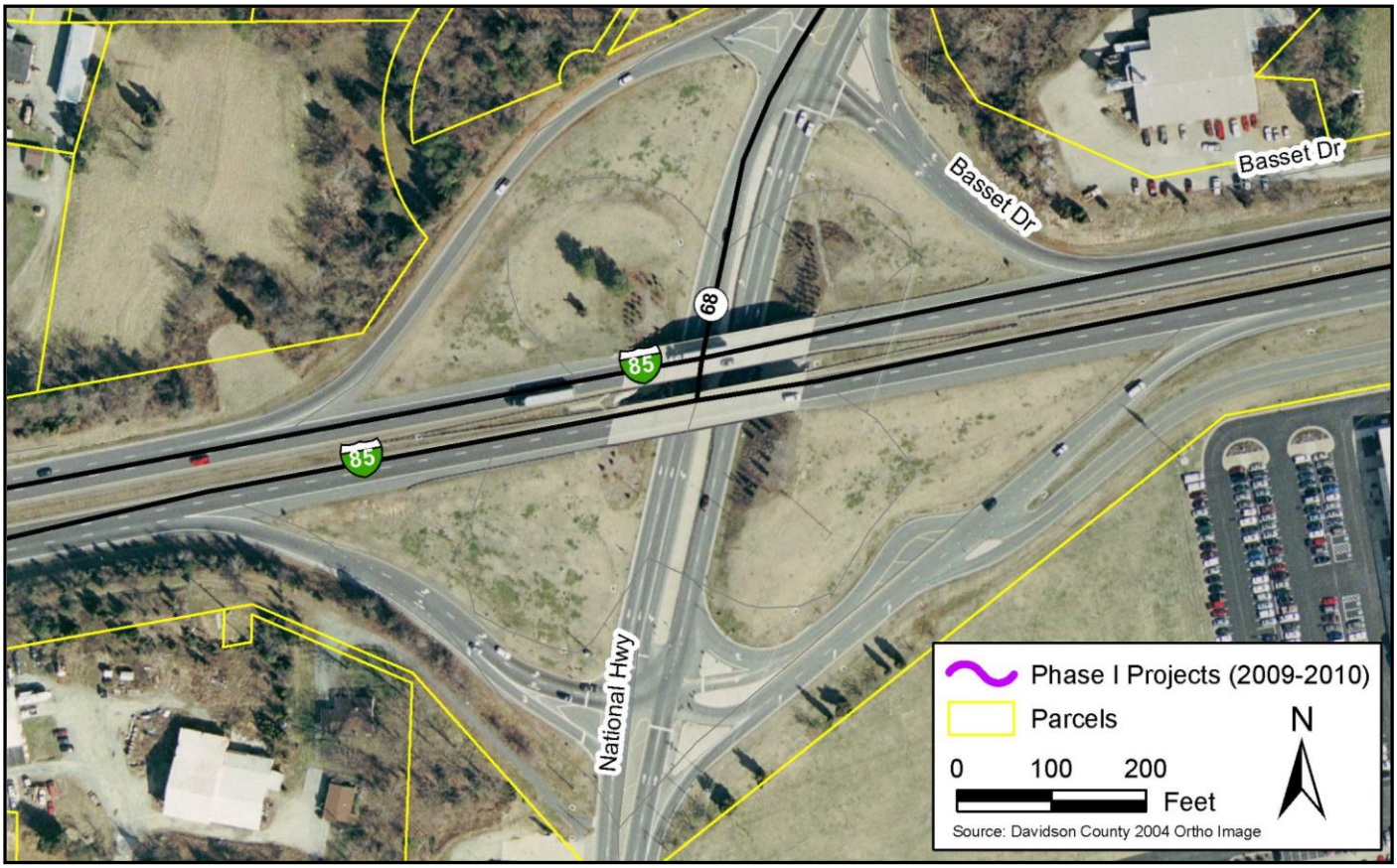


Randolph St and Holly Hill Rd looking north on Randolph St

Randolph St and Holly Hill Rd looking west on Holly Hill Rd

Intersection: National Highway and Business 85 Map ID: I-7

Phase 2 (3-5 Year) Recommendation: The intersection of National Highway and Business 85 is a separated grade interstate diamond interchange. This is currently the best option for bicycling between Thomasville and High Point and is signed as a regional bicycle route. The interchange will require more examination by a traffic engineer, but initial recommendations would be to narrow travel lanes and the center median and provide bicycle lane striping or a wide outside lane for bicyclists. The uphill grade from south to north increases the need for a bicycle facility on the east side of the road. Future work on this road or interstate interchange may allow for a more comprehensive bicycle treatment for this section of roadway.



National Highway looking north on east side of street

National Highway looking north on west side of street

Business 85 and Old Greensboro Road ID: I-3

Later Phase (10-20 Year) Recommendation: There are no immediate treatments identified for crossing Business 85 at the intersection with Old Greensboro Road. The Davidson County Community College is located near this intersection and two bike routes begin at this intersection. An above grade crossing of Business 85 would be appropriate for both bicyclists and motor vehicles. This treatment is expensive and will take some time before it becomes an engineered project in the pipeline. Overpass bridge accommodations should include provisions for bicyclists.

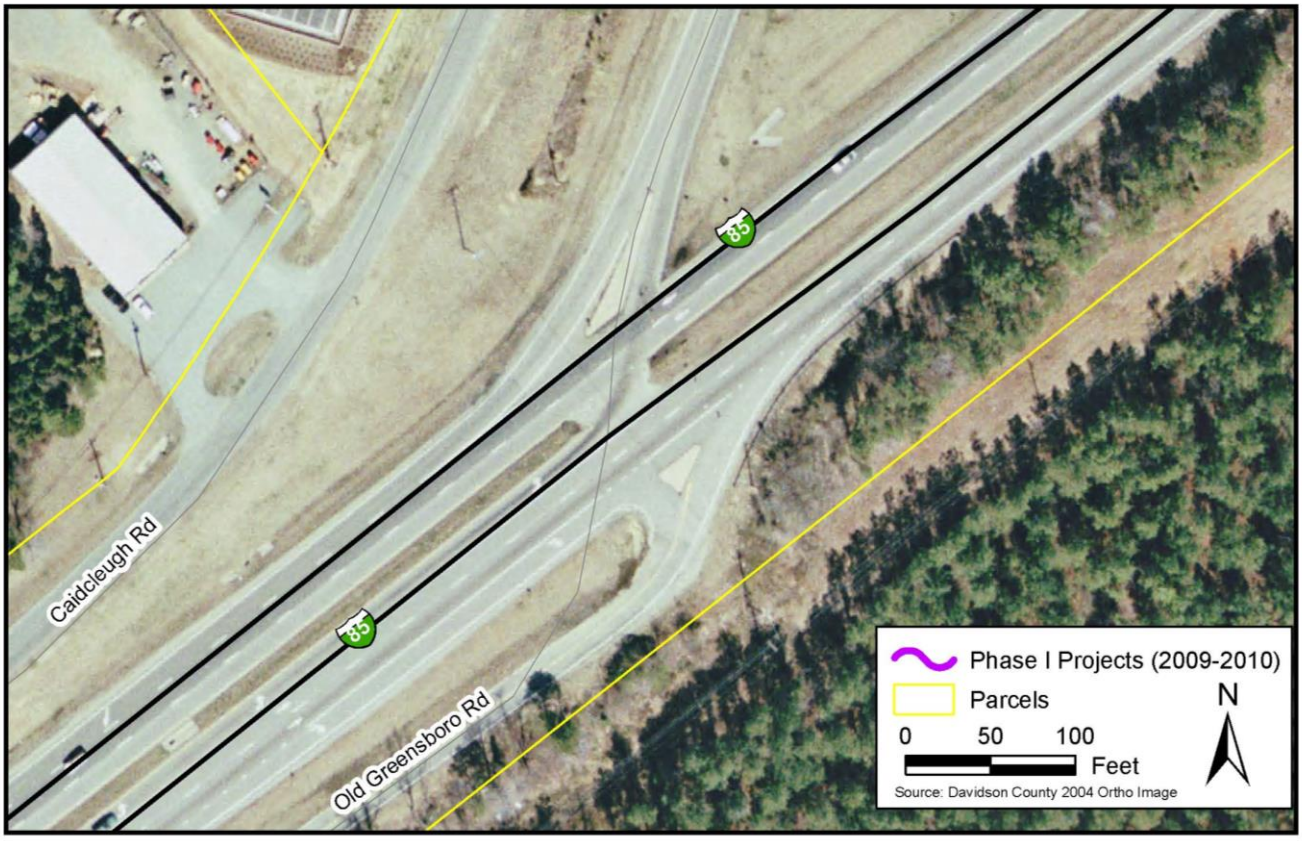


Figure 1Old Greensboro Road looking southwest towards Business 85

Old Greensboro Road looking northeast at entrance to College

CHAPTER 5: BICYCLE FACILITY GUIDELINES

The following bicycle guidelines are intended to assist the City of Thomasville in planning and engineering a safe and comfortable bicycling environment. The guidelines presented are in accordance with standards set by the American Association of State Highway Transportation Officials AASHTO - *Guide for the Development of Bicycle Facilities*, 1999, the Manual for Uniform Traffic Control Devices (MUTCD) *Part 9*, 2003 and the Americans with Disabilities Act (ADA)*. Other resources to consult in designing and developing include the Association of Pedestrian and Bicycle Professionals (APBP) Bicycle *Parking Guidelines and Bicycle Facility Selection* and the NCDOT *Bicycle Facilities Planning and Design Guidelines*, 1994.

The basic principles of walkable and bikeable communities should guide the development of new facilities. These principles enhance access, increase safety and provide comfortable places to bicycle. The new facilities may be built by the City of Thomasville or built as new development occurs by private contractors and individual property owners. The following overall guidelines for facility development are highlighted here:

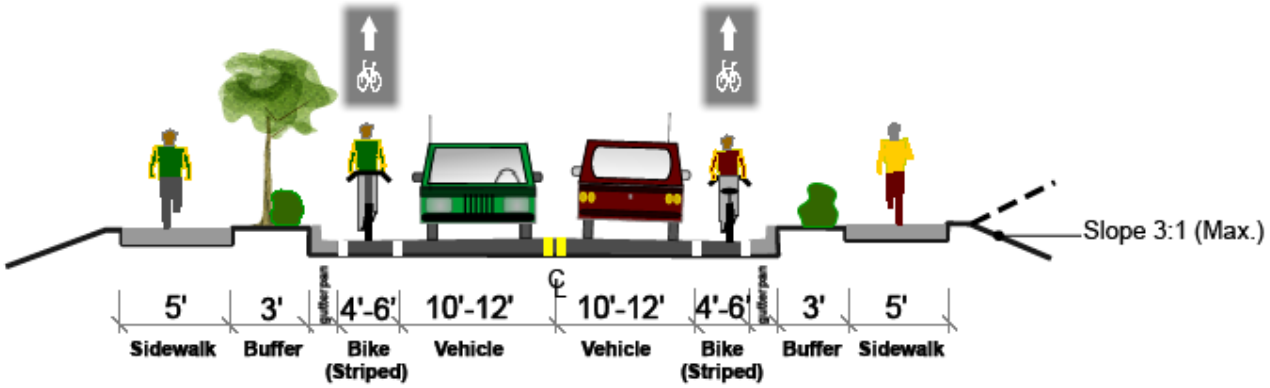
- Give transportation priority to the completion of bicycle routes to schools, neighborhood shopping areas and parks.
- Ensure that the safety and convenience of bicycles are not compromised by transportation improvements aimed at motor vehicle traffic.
- Establish links between bicycle routes, trails, parks, and the rest of the community.
- Retain public access when considering private right-of-way requests.
- Support changes to existing policies that would enhance bicycle travel.
- The bicycle transportation system should connect to residential, commercial, industrial, educational, and recreational areas.
- Off-site street improvements or enhanced multi-use path facilities may be required as a condition of approval for land divisions or other development permits.
- Coordinate transportation planning and efforts with neighboring municipalities.

*One suggested sign design may not be in accordance with all these standards, however it is the author's judgment based on installation in other states that the sign "bicycles use full lane" at certain intersections will be beneficial to the safety of bicyclists.

5.1 BICYCLE LANES

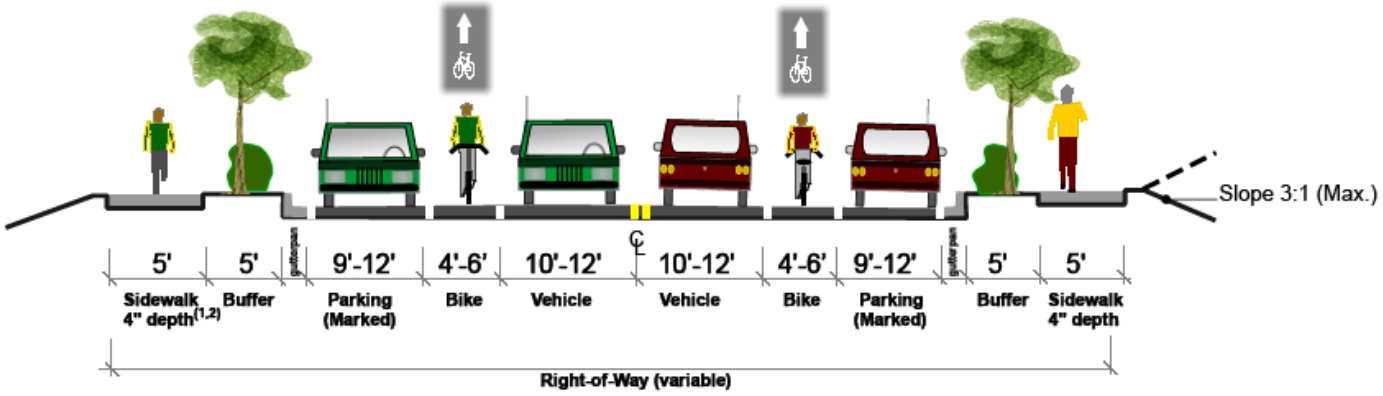
This plan calls for a number of bicycle lane improvements. Bicycle lanes offer a designated bicycle facility in an existing road right-of-way. Bicycle lanes can be installed where existing travel lane width warrants reduction or can be incorporated into new or expanded roads. Figure 5.1.1 and 5.1.2 show a roadway cross section with a bicycle lane installed on a street without on-street parking and with on-street parking, respectively. Figure 5.1.3 on the following page illustrates the on-road pavement markings and dimension for bicycle lanes.

Figure 5.1.1 – Bicycle Lane Without On Street Parking



Bicycle Lane

Figure 5.1.2 – Bicycle Lane With On Street Parking Both Sides

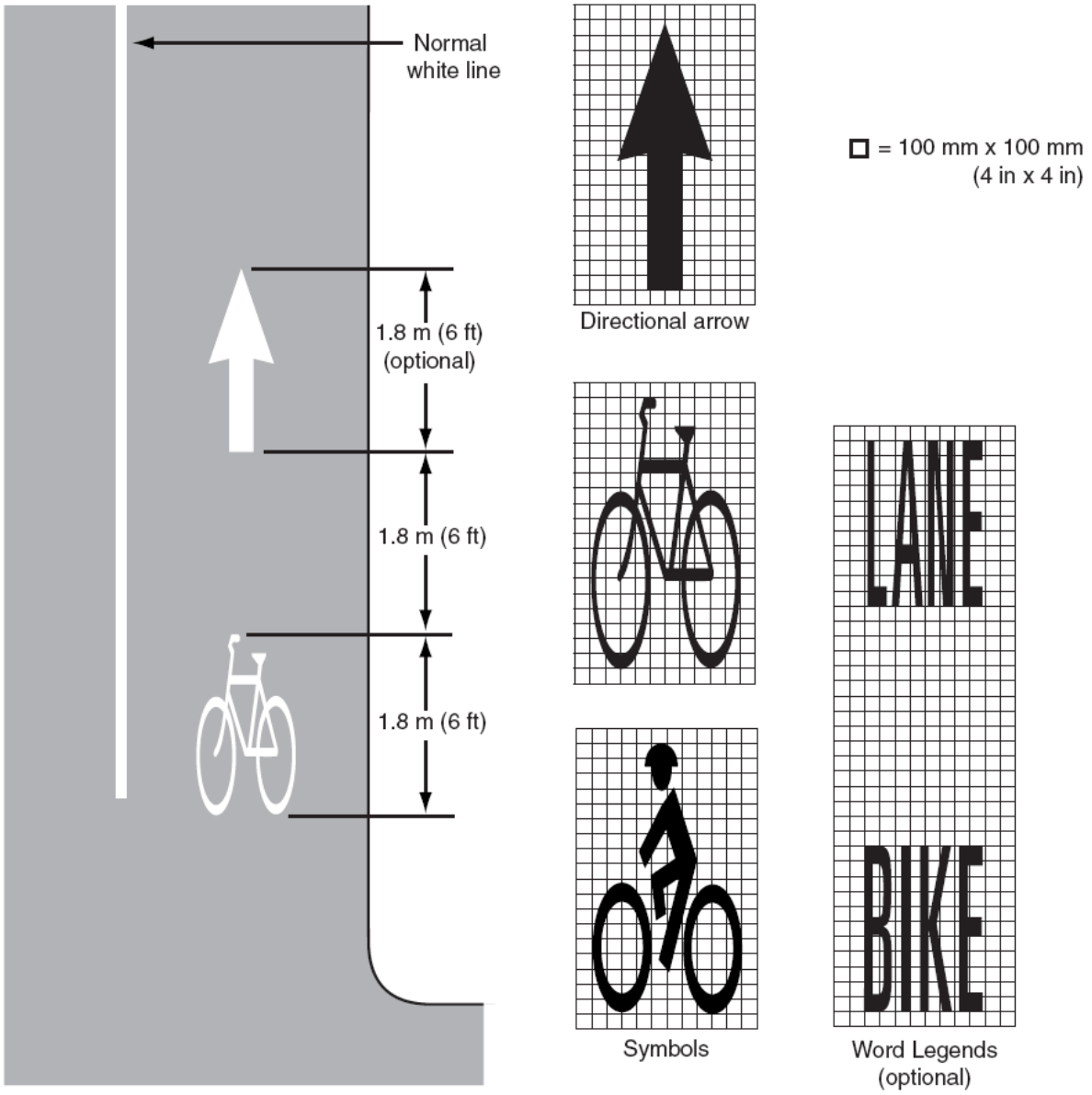


(1) Note: Depth of sidewalk is 4" minimum; 6" at sidewalk crossings and curb ramps.
(2) Note: Slope of sidewalk is .02' / foot towards roadway.

Bicycle Lane, Parking on Both Sides

Source: Louis Berger, Inc.

Figure 5.1.3 - MUTCD Bicycle Lane Markings



Source: MUTCD 2003 Part 9

5.2 SHARED ROADWAY

A number of the streets in Thomasville may not receive near-term installation of bicycle facility improvements. However, a number of existing bicycle routes should have signage improvement, including "Share the Road" signs (MUTCD W11-1 & W16-1) found in Figure 5.2.1 below. In addition, shared roadways will be needed at some intersections where limited right of way is available for bicycle lanes and turn lanes. Fluorescent yellow signs are more visible and should be chosen in place of the traditional yellow color shown below.

Figure 5.2.1 – Shared Roadway Cross-section with Share the Road Signs

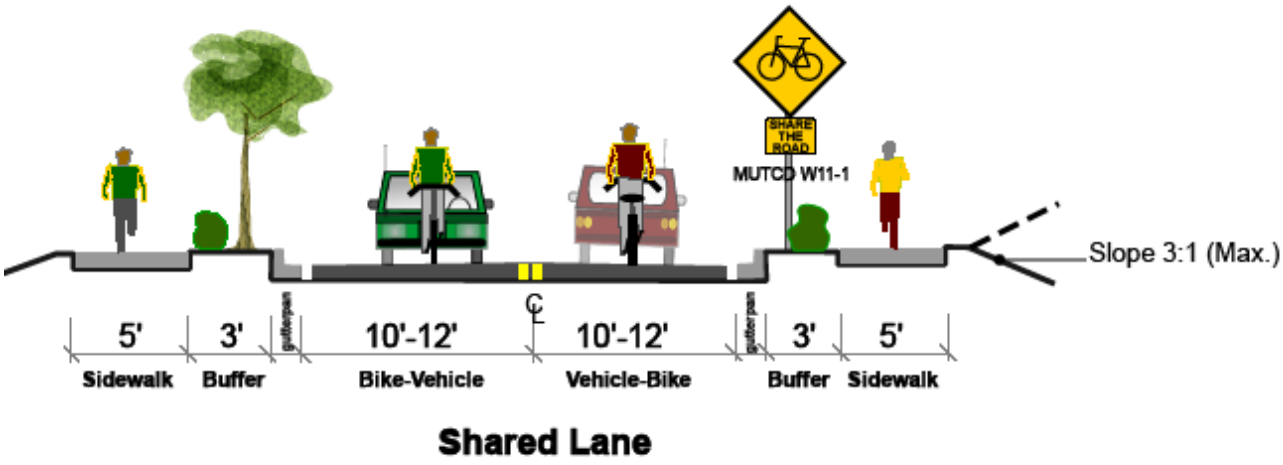
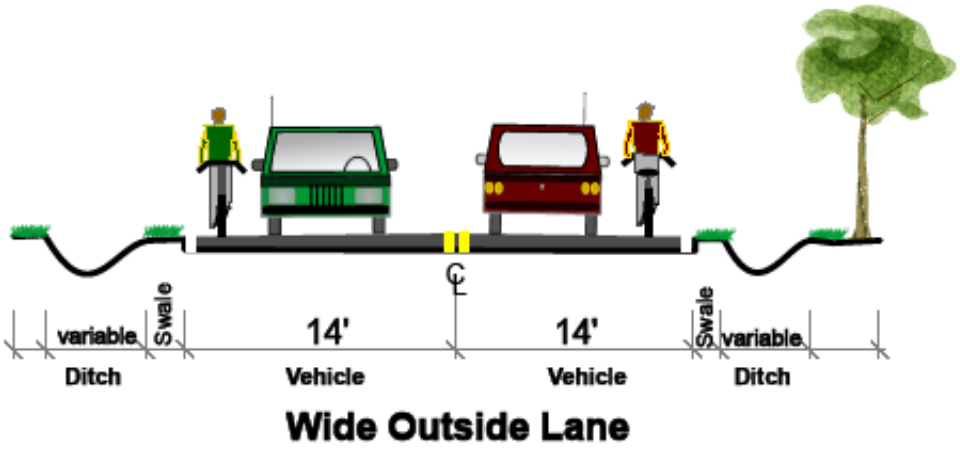


Figure 5.2.2 – Shared Roadway Cross–section with Wide Outside Lane

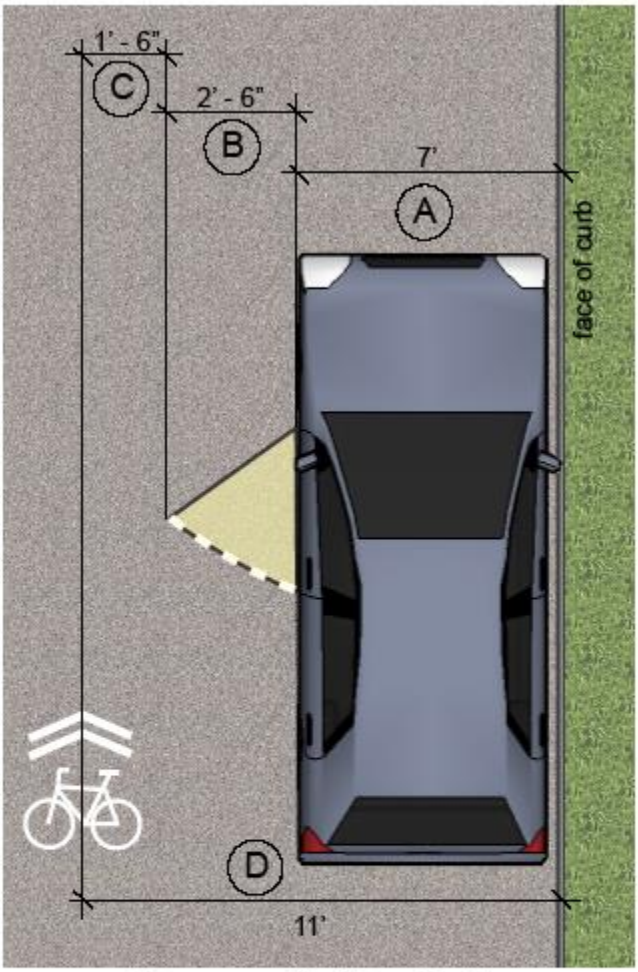


Source: Louis Berger Group, Inc.

Sharrows

A shared roadway marking or sharrow is recommended for downtown Thomasville on Main Street and parts of Salem Street. The sharrow is most commonly recommended on high traffic roads, with adjacent parallel parking. Sharrows should be spaced away from parked cars as indicated in Figure 5.2.3 and spaced at least every 250 feet and after intersections. The design serves as a guide to keeping bicyclists away from the door zone of adjacent parked cars and indicates to motor vehicle drivers that the travel lane should be shared with bicyclists.

Figure 5.2.3 – Shared Roadway Marking Design



Sharrows Marking Design

A=Distance from Driver Side Door to Face of Curb
B=Door Swing Distance
C=Distance from Open Door To Centerline of Sharrow Pavement Marking
D=Distance from Face of Curb to Centerline of Sharrow Pavement Marking

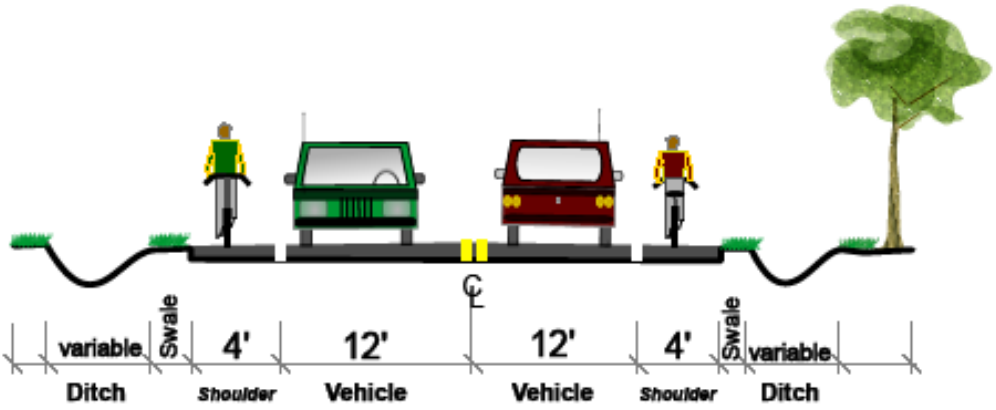
Source: Louis Berger Group, Inc.

New sharrows in northwest Portland, OR (Source: www.bikeportland.org)

5.3 PAVED SHOULDERS

In addition to bicycle lanes, share the road signs, sharrows and multi-use paths, the addition of paved shoulders on existing roadways outside the downtown can improve the safety and comfort of bicyclists and motorisits on the road. At least 4ft of paved shoulder is recommended for the safety of bicyclists, which also improves the safety of automobile drivers by preventing accidents from automobile wheels getting caught in the dirt shoulder and causing "run-off the road" accidents. In addition, pavement edge deterioration is significantly reduced with the installation of paved shoulders.

Figure 5.3.1 – Paved Shoulder Cross-section



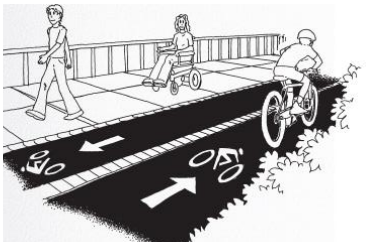
Source: Louis Berger Group, Inc.

If space constraint does not allow 4ft shoulders, the addition of additional paved shoulder width will help improve the roadway for bicycling. In contrast, where space allows for shoulders greater than 4ft in width, this option should be explored.

The primary difference between paved shoulders and bicycle lanes is that a paved shoulder is constructed on roads without curb and gutter and a bicycle lane is placed on streets with curb and gutter. Both facilities provide ample space for bicyclists and automobiles to travel the same corridor. On more rural roads with higher posted speeds, paved shoulders are essential to safe multi-modal travel.

5.4 MULTI-USE PATHS AND GREENWAYS

Multi-use paths benefit, pedestrians, bicyclists, in-line skaters and other non-motorized vehicle users. These facilities are extremely popular when designed and built correctly. Multi-use paths can serve as transportation or recreation and provide a motor-vehicle free walking or bicycling experience. These pathways may run along streams, abandoned railroads or major corridors. Paths can be paved or unpaved, can be along creeks or streams, and can be designed to accommodate a variety of path users.



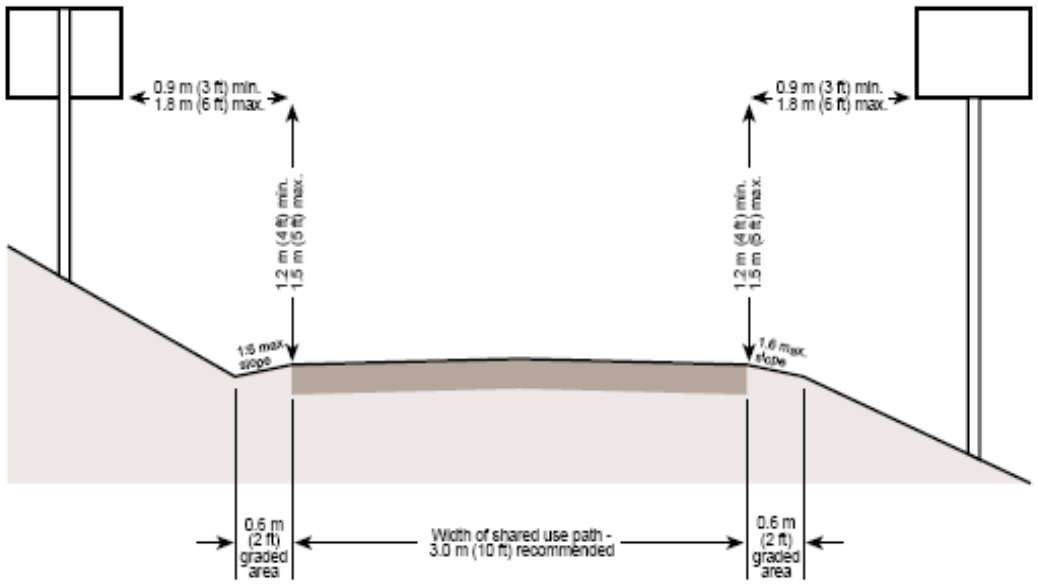
The alignment of these corridors should avoid paralleling road right-of-way whenever possible to minimize intersection and driveway crossings. Because these paths typically do not cross roads at signalized intersections, they should include pedestrian crosswalks, underpasses, culverts, or overpasses at each road crossing for safety (see Figure 5.4.2 for an example).

Design Criteria

Multi-use paths shall be designed with clearance requirements, minimum radii, stopping sight distance requirements, and other criteria — similar to the criteria for roadway design. High standards should be observed when designing these paths.

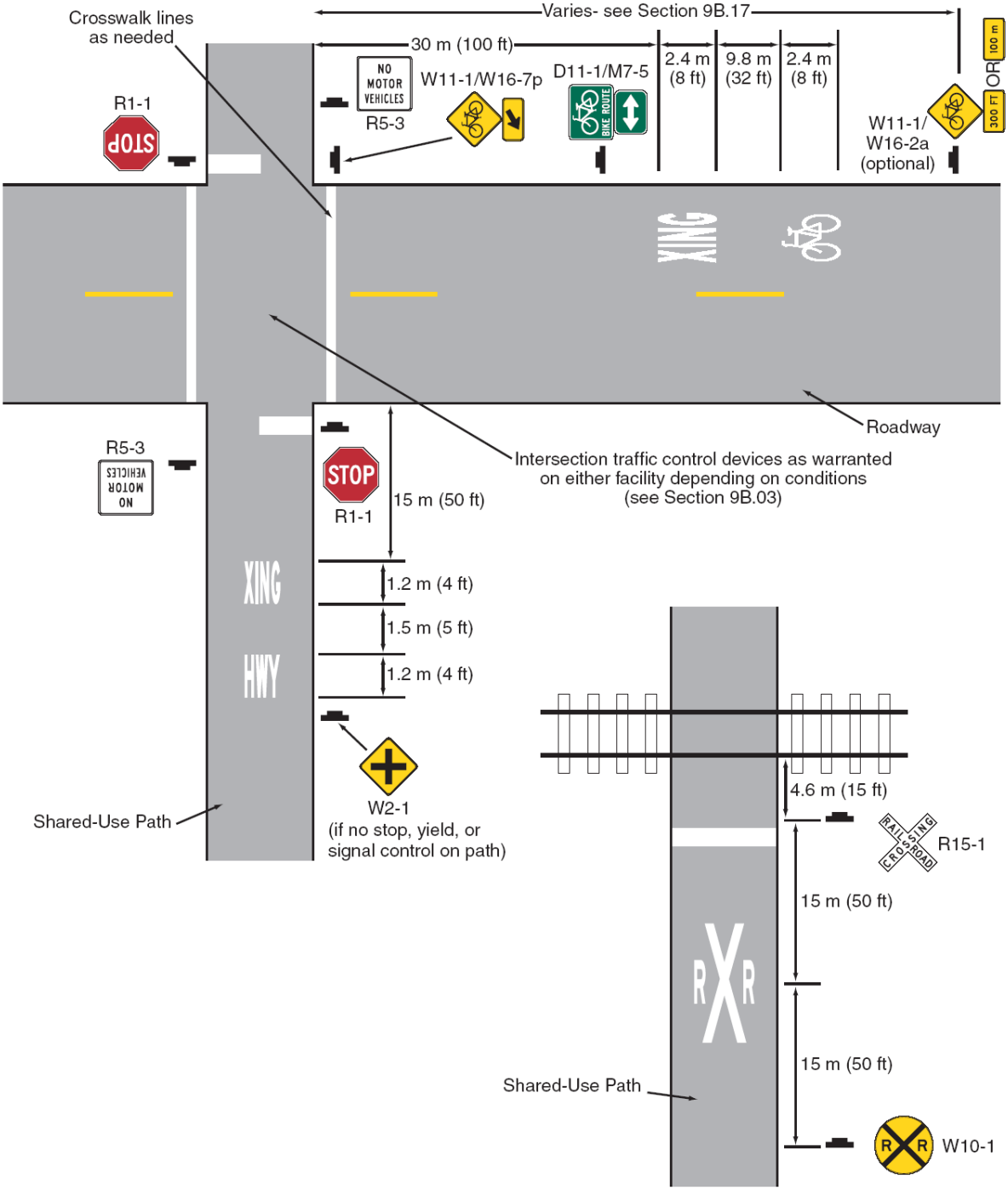
Multi-use paths should be a minimum of 10 feet wide; with minimum 2 foot wide graded shoulders on each side (AASHTO recommends 5 foot shoulders) to protect users from grade differences. These shoulders can be grass, sand, finely crushed rock or gravel, natural groundcover, or other material. Sections of the path where shoulders cannot be provided because of stream crossings or other elevation or grade issues should have protection such as rails or fences.

Figure 5.4.1 - Multi-use Path Cross-section and Overhead View



Source: Guide for the Development of Bicycle Facilities, Copyright 1999 by AASHTO. Used by permission.

Figure 5.4.2 – Multi Use Path Signing for Roadway and Railroad Intersections



Source: MUTCD 2003 Part 9

Additional guidance and standards on multi-use paths can be found at the North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation: http://www.ncdot.org/transit/bicycle/projects/project_types/Multi_Use_Pathways2.pdf .

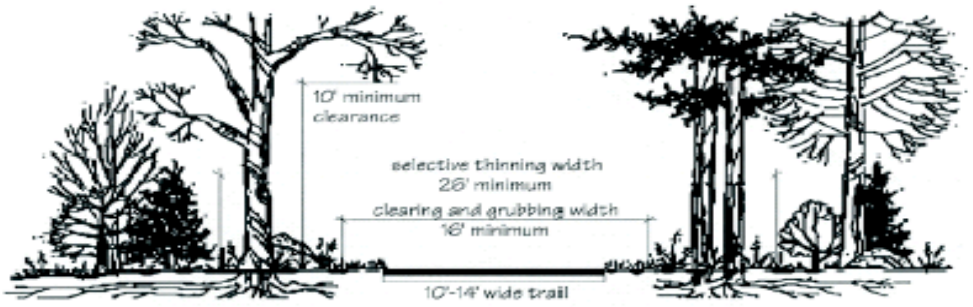
Paths of 12'-14' in width are preferred for areas where high volumes of users are expected. If it is not possible to increase the width, including a divider line down the center for bi-directional traffic can be helpful as a means of increasing safety for path users. Width of a path may be reduced to 8 feet, depending upon physical or right-of-way constraints.

These paths should keep the contour of the land for aesthetic and environmental reasons, but for practicality reasons should not be unnecessarily curved. The minimum radii or curvature recommended by AASHTO is 30-50 feet, and the cross slope should typically be less than 2%. The grade should not be more than 5%, but could reach 11% for short distances according to ADA and AASHTO guidelines. Right angles should be avoided for safety reasons, especially when considering bridge and road crossings.

Vertical and Horizontal Clearance

Selective thinning of vegetation along a path increases sight lines and distances and enhances the safety of the path user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself. A total of 8 to 10 feet of vertical clearance should be provided, see Figure 5.4.3 below.

Figure 5.4.3 – Vegetation Clearing Guidelines

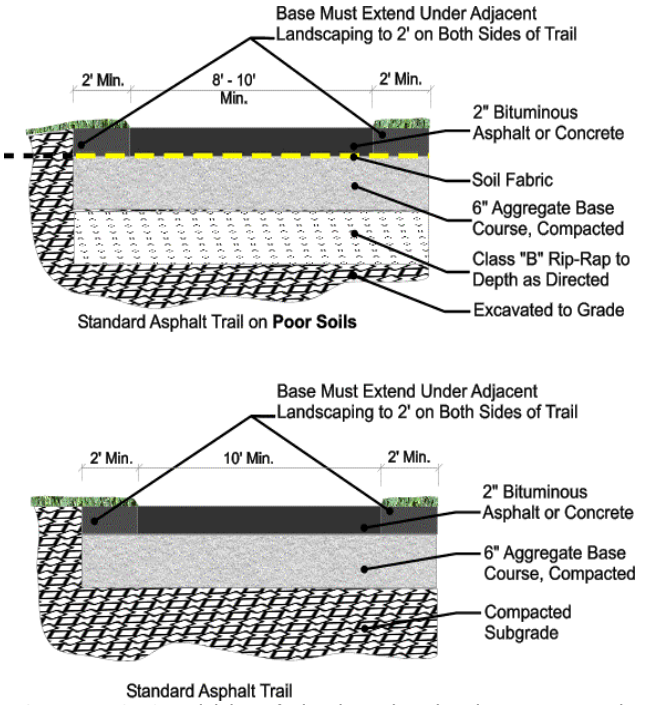


Source: NCDOT Division of Bicycle and Pedestrian Transportation

Pavement Types

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

Figure 5.4.4 – Asphalt Trail Pavement Base Construction



Source: NCDOT Division of Bicycle and Pedestrian Transportation

Typical pavement design for paved, off-road, multi-use paths and greenway paths should be based upon the specific loading and soil conditions for each project. These paths should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles. Pavement types may vary between conventional or pervious concrete, asphalt, crusher fines, dirt or boardwalk.

Conventional Concrete – In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of holding up well against the erosive action of water, root intrusion and sub-grade deficiencies such as soft soils. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed. Installation of concrete is the most costly of all surface types, but, when properly installed, requires less periodic maintenance than asphalt or crusher fines. It is recommended to install 4-inch thickness on compacted 4-inch aggregate base course.

Pervious Concrete – This concrete is a recent invention which allows storm water to percolate, reducing pollutants included in the stormwater runoff, when used over permeable soils, superior traction, unfavorable to rollerblading and skateboarding, higher installation cost.

Asphalt – Asphalt is a flexible pavement and can be installed on virtually any slope. Asphalt is smooth, joint free and softer than concrete, preferred by runners, rollerbladers, cyclists, handicap users, and parents pushing baby buggies. Construction costs significantly less than for concrete. Install a minimum 2-inch I-2 asphalt thickness with 4-inch aggregate base course. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a path. Asphalt pavement is also helpful in supporting a path in poor soils. Asphalt pavement can last up to 20 years with periodic maintenance. One important concern for asphalt paths is the deterioration of path edges. It is important to provide a 2' wide graded shoulder to prevent path edges from crumbling.

Crusher fines – Excellent for running paths, as well as walking, mountain bike and equestrian use. Can be constructed to meet ADA requirements. Paths must be smoothed out and graded several times per year. Constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix.

Dirt – Recommended for mountain bikes and equestrian uses. It is important to grade dirt on steep slopes to avoid erosion.

Boardwalk – A path made of wooden planks constructed for pedestrians or vehicles along beaches or through wetlands, coastal dunes and other sensitive environments.

Environmental Issues

Environmental protection should be a priority with the planning and construction of a path. Path design, construction type, and construction schedule should all reflect environmental considerations. For example, a path offers some leniency with its alignment compared to a sidewalk, offering opportunities for selective clearing of vegetation. Also, asphalt may not be considered a good surface material in wet areas because of its petroleum base.

Greenway paths improve water quality by establishing buffers along creeks and streams. These buffers provide habitat for a diversity of plant and animal species. They serve as natural filters, trapping pollutants from urban runoff, eroding areas and agricultural lands. Stream buffers also reduce the severity of flooding by releasing storm water more gradually, giving the water time to evaporate, or percolate into the ground and recharge aquifers, or be absorbed and transpired by plants. In addition, paths provide more transportation choices for people who wish to walk or bicycle. By doing so, they help to decrease dependence upon automobiles and thus contribute to improved air quality. All proposed paths and other improvements should be designed, constructed and maintained with their ecological value in mind. Any disturbance of natural features should be kept to a minimum and conform to all jurisdictional environmental policies and ordinances.

The protection of streams by easement and the creation of paths along a greenway easement can help to ensure that no dumping occurs in the waterway, as users of this facility would report dumping to authorities. There is a need to help preserve these resources by ensuring that there is sufficient space between the greenway and the waterway, by avoiding building in the path of trees, and by avoiding construction on rock features, such as escarpments.

Path Amenities and Accessibility

Though paths should be thought of as roadways for geometric and operational design purposes, they require much more consideration for amenities than do roadways. Shade and rest areas with benches and water sources should be designed along multi-use paths. Where possible, vistas should be preserved. Way finding signs (e.g., how far to the library or the next rest area, or directions to restrooms) are important for non-motorized users.

Path amenities should be just as accessible as the paths themselves. Periodic rest areas off to the side of accessible paths are important features as well, and should be level and placed

after a long ascent.

These paths should be open at all hours so that it can serve as a reliable transportation route. Lighting in some situations should be avoided along greenways, as it would disrupt the atmosphere surrounding the path. A reflective stripe or markers would help to make this path navigable in limited light. Lighting the path itself can restrict the visibility of areas beyond the path. Existing street and structure lighting in urban areas can effectively and adequately light the adjacent path. For safety reasons, requiring that all bicycles and roller-bladers carry lights and all pedestrians wear reflective clothing during non-daylight hours would be recommended.

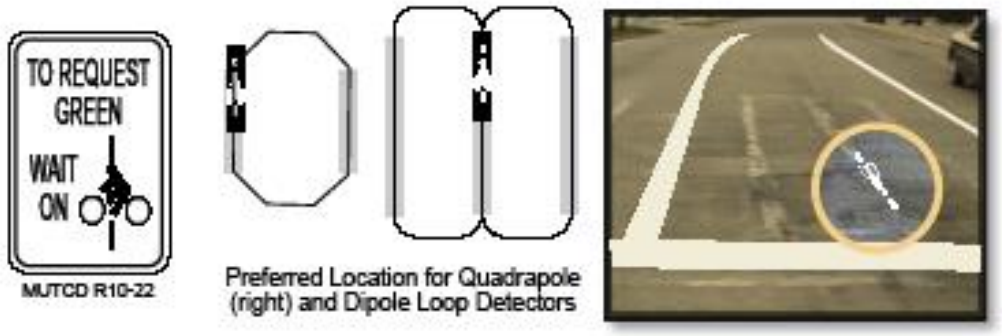
Sidepaths/Wide Sidewalks

A sidepath is essentially a multi-use path that is oriented alongside a road. The AASHTO bike guide and North Carolina Design Guidelines strongly caution those communities contemplating the construction of a sidepath (or wide sidewalk) facility to investigate various elements of the roadway corridor environment and right-of-way before committing to its construction.

5.5 INTERSECTION TREATMENTS

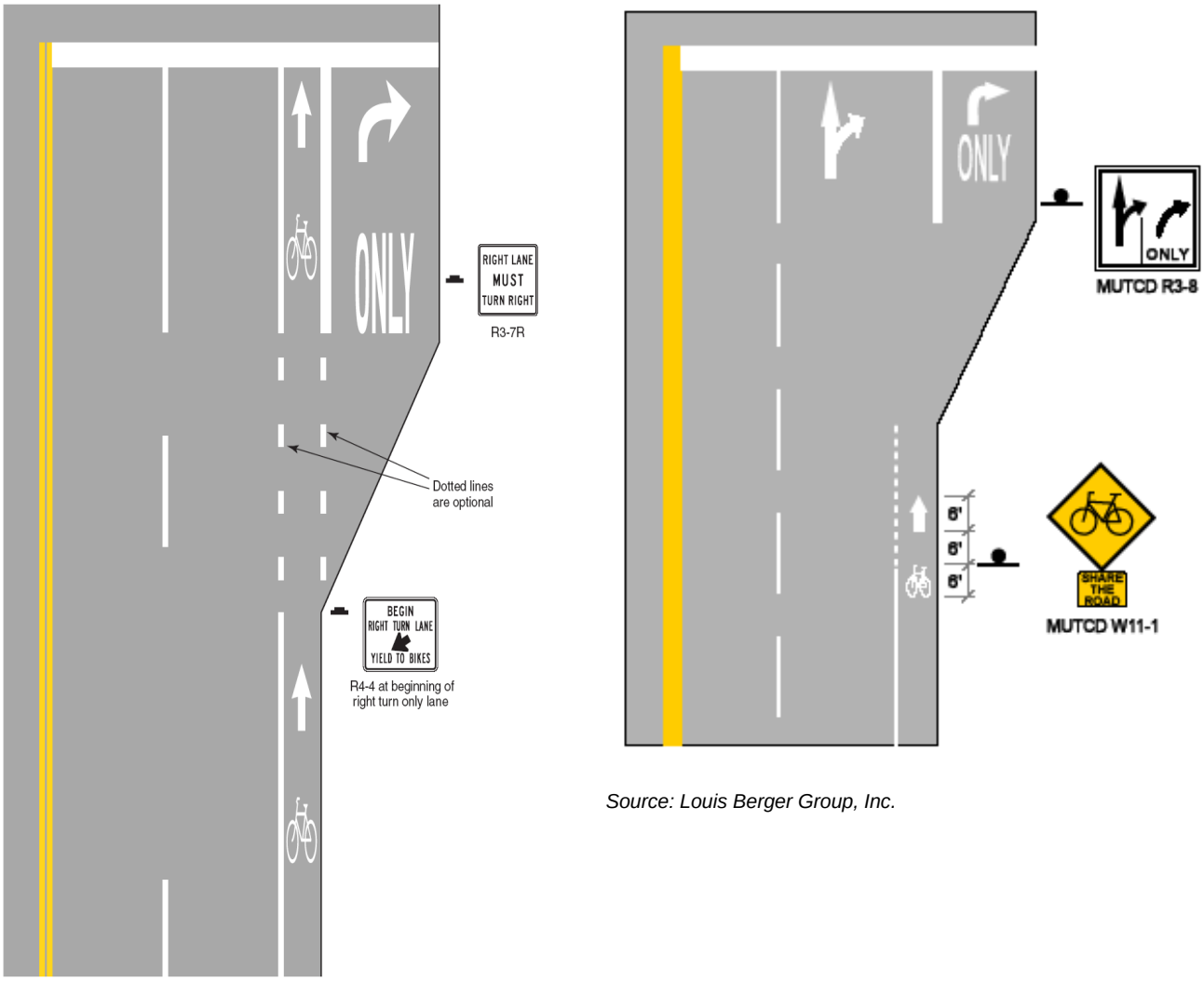
This section shows treatments for bicyclists at intersections. Intersections are a common place for bicycle or pedestrian crashes. Bicycle design treatments that provide accommodation and safety for bicyclists at intersections include bicycle loop detector stencils, bicycle lane striping through intersections and signage for bicyclists' use of the full lane.

Figure 5.5.1 – Traffic Signal Bicycle Loop Detectors



Source: Louis Berger Group, Inc.

Figure 5.5.2 – Intersection Design for Bicycle Lanes with Right Turn Only Lanes



Source: Louis Berger Group, Inc.

Source: MUTCD Manual Part 9

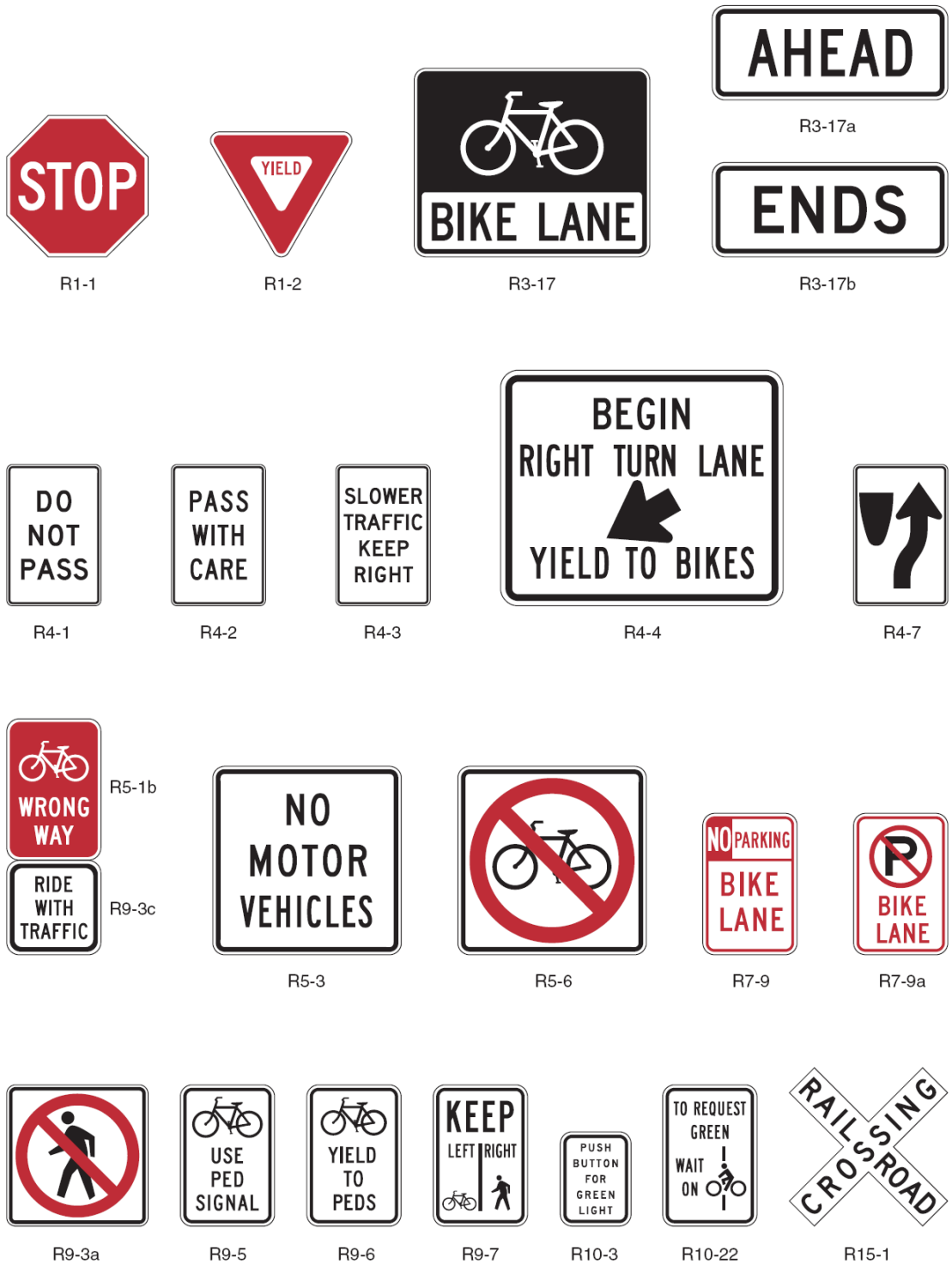
Figure 5.5.3 Use Full Lane Sign for Intersections

Source: http://home.swbell.net/mpion/bikesusefulllane.html

5.6 MUTCD SIGNS FOR BICYCLISTS

This section shows many of the common signs used for on road and off-road bicycle facilities. All figures in this section are found in Part 9 of the MUTCD Manual.

Figure 5.6.1 – Regulatory Signs for Bicyclists



Source: MUTCD 2003 Part 9

Figure 5.6.2 - Common MUTCD Warning and Informational Signs for Bicyclists

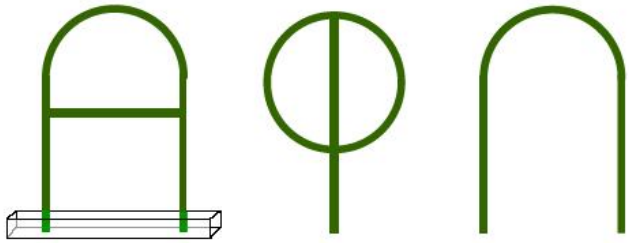
Source: MUTCD 2003 Part 9

5.7 BICYCLE PARKING DESIGN GUIDELINES

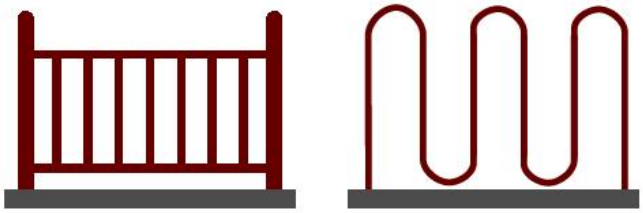
Some designs for bicycle parking are included in this section, however, the Association of Pedestrian and Bicycle Professionals resource for Bicycle Parking Guidelines should be consulted where bicycle parking is being considered. Bicycle parking needs to be functional, however some cities have had success in designing creative bicycle parking, that is both functional and aesthetic.

Source: http://www.ctcyorkshirehumber.org.uk/images

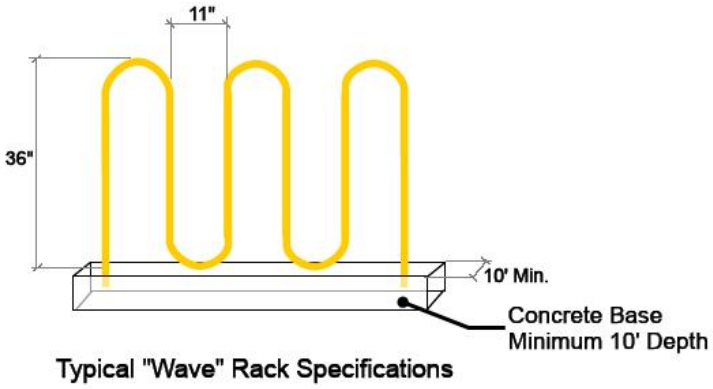
Source: http://www.treehugger.com/another-interesting-bike-rack-design.jpg



Preferred



Not Preferred



Typical "Wave" Rack Specifications

Source:Louis Berger Group

APPENDIX A: FUNDING OPPORTUNITIES

Local, state, federal, and private funding is available to support the planning, construction, right of way acquisition and maintenance of bicycle and pedestrian facilities. Available funding sources are related to a variety of purposes including transportation, water quality, hazard mitigation, recreation, air quality, wildlife protection, community health, and economic development. This appendix identifies a list of some of the bicycle and pedestrian facility funding opportunities available through federal, state, nonprofit and corporate sources. An important key to obtaining funding is for local governments to have adopted plans for greenway, bicycle, pedestrian or trail systems in place prior to making an application for funding.

Funding Allocated by State Agencies

Funding Opportunities Through NCDOT:

Bicycle and Pedestrian Independent Projects Funded Through the Transportation Improvement Program (TIP):
In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) manages the Transportation Improvement Program (TIP) selection process for bicycle and pedestrian projects.

Projects programmed into the TIP are independent projects – those which are not related to a scheduled highway project. Incidental projects – those related to a scheduled highway project – are handled through other funding sources described in this section.

The division has an annual budget of $6 million. Eighty percent of these funds are from STP-Enhancement funds[2], while the State Highway Trust provides the remaining 20 percent of the funding.

a. Each year, the DBPT regularly sets aside a total of $200,000 of TIP funding for the department to fund projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide. Those interested in learning about training workshops, research and other opportunities should contact the DBPT for information.

b. A total of $5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project

[2] After various administrative adjustments for programs within the Surface Transportation Program, or "STP", there is a 10% set-aside for Transportation Enhancements. The 10% set-aside is allocated within NCDOT to internal programs such as the Bicycle/Pedestrian Division, the Rail Division, the Roadside Environmental Unit, and others. The Enhancement Unit administers a portion of the set-aside through the Call for Projects process.

selection process, visit: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html. Another $500,000 of the division's funding is available for miscellaneous projects.

Incidental Projects – Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds.

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

Governor's Highway Safety Program (GHSP) – The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: www.ncdot.org/programs/ghsp/.

Funding Available Through North Carolina Metropolitan Planning Organizations (MPOs)

MPOs in North Carolina which are located in air quality nonattainment or maintenance areas have the authority to program Congestion Mitigation Air Quality (CMAQ) funds. CMAQ funding is intended for projects that reduce transportation related emissions. Some NC MPOs have chosen to use the CMAQ funding for bicycle and pedestrian projects. Local governments in air quality nonattainment or maintenance area should contact their MPO for information on CMAQ funding opportunities for bicycle and pedestrian facilities.

Transportation Enhancement Call for Projects, EU, NCDOT

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

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

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

The Call process takes place on even numbered years or as specified by the Secretary of Transportation. The Next Call is anticipated to take place in 2009. For more information, visit: www.ncdot.org/financial/fiscal/Enhancement/

Bicycle and Pedestrian Planning Grant Initiative, managed by NCDOT, DBPT
To encourage the development of comprehensive local bicycle plans and pedestrian plans, the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) and the Transportation Planning Branch (TPB) have created a matching grant program to fund plan development. This program was initiated through a special allocation of funding approved by the North Carolina General Assembly in 2003 along with federal funds earmarked specifically for bicycle and pedestrian planning by the TPB. The planning grant program was launched in January 2004, and it is currently administered through NCDOT-DBPT and the Institute for Transportation Research and Education (ITRE) at NC State University. Over the past three grant cycles, 48 municipal plans have been selected and funded from 123 applicants. A total of $ 1,175,718 has been allocated. Funding is secured for 2007 at $400,000. Additional annual allocations will be sought for subsequent years. For more information, visit
www.itre.ncsu.edu/ptg/bikeped/ncdot/index.html

Safe Routes to School Program, managed by NCDOT, DBPT
The NCDOT Safe Routes to School Program is a federally funded program that was initiated by the passing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which establishes a national SRTS program to distribute funding and institutional support to implement SRTS programs in states and communities across the country. SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. The Division of Bicycle and Pedestrian Transportation at NCDOT is charged with disseminating SRTS funding.

The state of North Carolina has been allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects.

All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit http://www.ncdot.org/Transit/bicycle/saferoutes/SafeRoutes.html.

Small Urban Funds managed by NCDOT Highway Division Offices
Small Urban Funds are available for small improvement projects in urban areas. Each NCDOT Highway Division has $2 million of small urban funds available annually. Although not commonly used for bicycle facilities, local requests for small bicycle projects can be directed to the NCDOT Highway Division office for funding through this source. A written request should be submitted to the Division Engineer providing technical information such as location, improvements being requested, timing, etc. for thorough review.

Hazard Elimination Program by NCDOT Highway Division Offices
This program focuses on projects intended for locations that should have a documented history of previous crashes. Bicycle and pedestrian projects are eligible for this program, although the funds are not usually used for this purpose. This program is administered through the NCDOT Division of Highways. Similar to the Small Urban Funds, it is a significantly limited funding source.

The North Carolina Conservation Tax Credit (managed by NCDENR)
This program, managed by the North Carolina Department of Environment and Natural Resources, provides an incentive (in the form of an income tax credit) for landowners that donate interests in real property for conservation purposes. Property donations can be fee simple or in the form of conservation easements or bargain sale. The goal of this program is to manage stormwater, protect water supply watersheds, retain working farms and forests, and set-aside greenways for ecological communities, public trails, and wildlife corridors. For more information, visit: www.enr.state.nc.us/conservationtaxcredit/.

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

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and

land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources. Since 1965, the LWCF program has built a permanent park legacy for present and future generations. In North Carolina alone, the LWCF program has provided more than $63 million in matching grants to protect land and support more than 800 state and local park projects. More than 37,000 acres have been acquired with LWCF assistance to establish a park legacy in our state. For more information, visit:
http://ils.unc.edu/parkproject/lwcf/home1.html

NC Adopt-A-Trail Grant Program
This program, operated by the Trails Section of the NC Division of State Parks, offers annual grants to local governments to build, renovate, maintain, sign and map and create brochures for pedestrian trails. Grants are generally capped at about $5,000 per project and do not require a match. A total of $108,000 in Adopt-A-Trail money is awarded annually to government agencies. Applications are due during the month of February. For more information, visit : http://ils.unc.edu/parkproject/trails/grant.html.

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

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

North Carolina Parks and Recreation Trust Fund (PARTF)
The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. Applicable projects require a 50/50 match from the local government. Grants for a maximum of $500,000 are awarded yearly to county governments or incorporated municipalities. The fund is fueled by money from the state's portion of the real estate deed transfer tax for property sold in North Carolina.

The trust fund is allocated three ways:

- 65 percent to the state parks through the N.C. Division of Parks and Recreation.
- 30 percent as dollar-for dollar matching grants to local governments for park and recreation purposes.
- 5 percent for the Coastal and Estuarine Water Access Program.

For information on how to apply, visit:: www.partf.net/learn.html

Powell Bill Program
Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Funding for this program is collected from fuel taxes. Amount of funds are based on population and mileage of town-maintained streets. For more information, visit
www.ncdot.org/financial/fiscal/ExtAuditBranch/Powell_Bill/powellbill.html.

Clean Water Management Trust Fund
This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection. At the end of each fiscal year, 6.5 percent of the unreserved credit balance in North Carolina's General Fund, or a minimum of $30 million, is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds may be used to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. The fund has provided funding for land acquisition of numerous greenway projects featuring trails, both paved and unpaved. For a history of awarded grants in North Carolina and more information about this fund and applications, visit www.cwmtf.net/.

Natural Heritage Trust Fund
This trust fund, managed by the NC Natural Heritage Program, has contributed millions of dollars to support the conservation of North Carolina's most significant natural areas and cultural heritage sites. The NHTF is used to acquire and protect land that has significant habitat value. Some large wetland areas may also qualify, depending on their biological integrity and characteristics. Only certain state agencies are eligible to apply for this fund, including the Department of Environment and Natural Resources, the Wildlife Resources Commission, the Department of Cultural Resources and the Department of Agriculture and Consumer Services. As such, municipalities must work with State level partners to access this fund. Additional information is available from the NC Natural Heritage Program. For more information and grant application information, visit www.ncnhtf.org/.

North Carolina Conservation Tax Credit Program
North Carolina has a unique incentive program to assist land-owners to protect the environment and the quality of life. A credit is allowed against individual and corporate income taxes when real property is donated for conservation purposes. Interests in property that promote specific public benefits may be donated to a qualified recipient. Such conservation donations qualify for a substantial tax credit. For more information, visit: www.enr.state.nc.us/conservationtaxcredit/.

Urban and Community Forestry Assistance Program
This program offers small grants that can be used to plant urban trees, establish a community arboretum, or other programs that promote tree canopy in urban areas. The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. To qualify for this program, a

community must pledge to develop a street-tree inventory, a municipal tree ordinance, a tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources. For more information and a grant application, contact the NC Division of Forest Resources and/or visit http://www.dfr.state.nc.us/urban/urban_grantprogram.htm.

Ecosystem Enhancement Program
Developed in 2003 as a new mechanism to facilitate improved mitigation projects for NC highways, this program offers funding for restoration projects and for protection projects that serve to enhance water quality and wildlife habitat in NC. Information on the program is available by contacting the Natural Heritage Program in the NC Department of Environment and Natural Resources (NCDENR). For more information, visit www.nceep.net/pages/partners.html or call 919-715-0476.

Conservation Reserve Enhancement Program (CREP)
This program is a joint effort of the North Carolina Division of Soil and Water Conservation, the NC Clean Water Management Trust Fund, the Ecosystem Enhancement Program (EEP), and the Farm Service Agency - United States Department of Agriculture (USDA) to address water quality problems of the Neuse, Tar-Pamlico and Chowan river basins as well as the Jordan Lake watershed area.

CREP is a voluntary program that seeks to protect land along watercourses that is currently in agricultural production. The objectives of the program include: installing 100,000 acres of forested riparian buffers, grassed filter strips and wetlands; reducing the impacts of sediment and nutrients within the targeted area; and providing substantial ecological benefits for many wildlife species that are declining in part as a result of habitat loss. Program funding will combine the Federal Conservation Reserve Program (CRP) funding with State funding from the Clean Water Management Trust Fund, Agriculture Cost Share Program, and North Carolina Wetlands Restoration Program.

The program is managed by the NC Division of Soil and Water Conservation. For more information, visit www.enr.state.nc.us/dswc/pages/crep.html

Agriculture Cost Share Program
Established in 1984, this program assists farmers with the cost of installing best management practices (BMPs) that benefit water quality. The program covers as much as 75 percent of the costs to implement BMPs. The NC Division of Soil and Water Conservation within the NC Department of Environment and Natural
Resources administers this program through local Soil and Water Conservation Districts (SWCD). For more information, visit
www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html or call 919-733-2302.

Water Resources Development Grant Program
The NC Division of Water Resources offers cost-sharing grants to local governments on projects related to water resources. Of the seven project application categories available, the category which relates to the establishment of greenways is "Land Acquisition and Facility Development for Water-Based Recreation Projects." Applicants may apply for funding for a greenway as long as the greenway is in close proximity to a water body. See www.ncwater.org/Financial_Assistance or call 919-733-4064.

Small Cities Community Development Block Grants
State level funds are allocated through the NC Department of Commerce, Division of Community Assistance to be used to promote economic development and to serve low-income and moderate-income neighborhoods. Greenways that are part of a community's economic development plans may qualify for assistance under this program. Recreational areas that serve to improve the quality of life in lower income areas may also qualify. Approximately $50 million is available statewide to fund a variety of projects. For more information, visit
www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/ or call 919-733-2853.

North Carolina Health and Wellness Trust Fund
The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period. Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) announces the establishment of Fit Community, a designation and grant program that recognizes and rewards North Carolina communities' efforts to support physical activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue.

All North Carolina municipalities and counties are eligible to apply for a Fit Community designation, which will be awarded to those that have excelled in supporting the following:

- physical activity in the community, schools, and workplaces
- healthy eating in the community, schools, and workplaces
- tobacco use prevention efforts in schools

Designations will be valid for two years, and designated communities may have the opportunity to reapply for subsequent two-year extensions. The benefits of being a Fit Community include:

- heightened statewide attention that can help bolster local community development and/or economic investment initiatives (highway signage and a plaque for the Mayor's or County Commission Chair's office will be provided)
- reinvigoration of a community's sense of civic pride (each Fit Community will serve as a model for other communities that are trying to achieve similar goals)
- use of the Fit Community designation logo for promotional and communication purposes.

The application for Fit Community designation is available on the
Fit Together Web site: www.FitTogetherNC.org/FitCommunity.aspx.

Fit Community grants are designed to support innovative strategies that help a community meet its goal to becoming a Fit Community. Eight to nine two-year grants of

up to $30,000 annually will be awarded to applicants that have a demonstrated need, proven capacity, and opportunity for positive change in addressing physical activity and/or healthy eating.For more information, visit: www.healthwellnc.com/

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

Funding Allocated by Federal Agencies

Wetlands Reserve Program
This federal funding source is a voluntary program offering technical and financial assistance to landowners who want to restore and protect wetland areas for water quality and wildlife habitat. The US Department of Agriculture's Natural Resource Conservation Service (USDA-NRCS) administers the program
and provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. For more information, visit http://www.nrcs.usda.gov/PROGRAMS/wrp/.

The Community Development Block Grant (HUD-CDBG)
The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate income areas. Several communities have used HUD funds to
develop greenways, including the Boulding Branch Greenway in High Point, North Carolina. Grants from this program range from $50,000 to $200,000 and are either made to municipalities or non-profits. There is no formal application process. For more information, visit: www.hud.gov/offices/cpd/communitydevelopment/programs/.

USDA Rural Business Enterprise Grants
Public and private nonprofit groups in communities with populations under 50,000 are eligible to apply for grant assistance to help their local small business environment. $1 million is available for North Carolina on an annual basis and may be used for sidewalk and other community facilities. For more information from the local USDA Service Center, visit: http://www.rurdev.usda.gov/rbs/busp/rbeg.htm

Rivers Trails and Conservation Assistance Program (RTCA)
The Rivers, Trails, and Conservation Assistance Program, also known as the Rivers & Trails Program or RTCA, is the community assistance arm of the National Park Service. RTCA staff provide technical assistance to community groups and local, State, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. The RTCA program implements the natural resource conservation and outdoor recreation mission of the National Park Service in communities across America

Although the program does not provide funding for projects, it does provide valuable on-the-ground technical assistance, from strategic consultation and partnership development to serving as liaison with other government agencies. Communities must apply for assistance. For more information, visit: www.nps.gov/ncrc/programs/rtca/ or

call Chris Abbett, Program Leader, at 404-562-3175 ext. 522.

Public Lands Highways Discretionary Fund
The Federal Highway Administration administers discretionary funding for projects that will reduce congestion and improve air quality. The FHWA issues a call for projects to disseminate this funding. The FHWA estimates that the PLHD funding for the 2007 call will be $85 million. In the past, Congress has earmarked a portion of the total available funding for projects. For information on how to apply, visit:
http://www.fhwa.dot.gov/discretionary/

Local Funding Sources

Municipalities often plan for the funding of pedestrian facilities or improvements through development of Capital Improvement Programs (CIP). In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from $100,000 to $500,000, administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each of these categories are described below.

Capital Reserve Fund
Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants and donations for the specified use.

Capital Project Ordinances
Municipalities can pass Capital Project Ordinances that are project specific. The ordinance identifies and makes appropriations for the project.

Municipal Service District
Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the citywide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts.

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

majority of states have enabling legislation for tax increment financing.

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

Taxes

Many communities have raised money through self-imposed increases in taxes and bonds. For example, Pinellas County residents in Florida voted to adopt a one-cent sales tax increase, which provided an additional $5 million for the development of the overwhelmingly popular Pinellas Trail. Sales taxes have also been used in Allegheny County, Pennsylvania, and in Boulder, Colorado to fund open space projects. A gas tax is another method used by some municipalities to fund public improvements. A number of taxes provide direct or indirect funding for the operations of local governments. Some of them are:

Sales Tax

In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities. Any increase in the sales tax, even if applying to a single county, must gain approval of the state legislature. In 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit.

Property Tax

Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance greenway system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund greenways could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular
with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

Excise Taxes

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for

promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Occupancy Tax

The NC General Assembly may grant towns the authority to levy occupancy tax on hotel and motel rooms. The act granting the taxing authority limits the use of the proceeds, usually for tourism-promotion purposes.

Fees

Three fee options that have been used by local governments to assist in funding pedestrian and bicycle facilities are listed here:

Stormwater Utility Fees

Greenway sections may be purchased with stormwater fees, if the property in question is used to mitigate floodwater or filter pollutants.

Stormwater charges are typically based on an estimate of the amount of impervious surface on a user's property. Impervious surfaces (such as rooftops and paved areas) increase both the amount and rate of stormwater runoff compared to natural conditions. Such surfaces cause runoff that directly or indirectly discharge into public storm drainage facilities and creates a need for stormwater management services. Thus, users with more impervious surface are charged more for stormwater service than users with less impervious surface. The rates, fees, and charges collected for stormwater management services may not exceed the costs incurred to provide these services. The costs that may be recovered through the stormwater rates, fees, and charges includes any costs necessary to assure that all aspects of stormwater quality and quantity are managed in accordance with federal and state laws, regulations, and rules.

Streetscape Utility Fees

Streetscape Utility Fees could help support streetscape maintenance of the area between the curb and the property line through a flat monthly fee per residential dwelling unit. Discounts would be available for senior and disabled citizens. Non-residential customers would be charged a per foot fee based on the length of frontage on streetscape improvements. This amount could be capped for non-residential customers with extremely large amounts of street frontage. The revenues raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

Impact Fees

Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of

these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional needs of a growing community. These charges are set in a fee schedule applied uniformly to all new development. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements. If Holly Springs is interested in pursuing open space impact fees, it will require enabling legislation to authorize the collection of the fees.

Exactions

Exactions are similar to impact fees in that they both provide facilities to growing communities. The difference is that through exactions it can be established that it is the responsibility of the developer to build the greenway or pedestrian facility that crosses through the property, or adjacent to the property being developed.

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate on-site greenway sections that would serve their development, some communities provide a choice of paying a front-end charge for off-site protection of pieces of the larger system. Payment is generally a condition of development approval and recovers the cost of the off-site land acquisition or the development's proportionate share of the cost of a regional facility serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

Bonds and Loans

Bonds have been a very popular way for communities across the country to finance their pedestrian and greenway projects. A number of bond options are listed below. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an
education and awareness program should be implemented prior to any vote. Billings, Montana used the issuance of a bond in the amount of $599,000 to provide the matching funds for several of their TEA-21 enhancement dollars. Austin, Texas has also used bond issues to fund a portion of their bicycle and trail system.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds, pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

General Obligation Bonds

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of land acquisition and greenway development and make funds available for immediate purchases and projects. Voter approval is required.

Special Assessment Bonds

Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

State Revolving Fund (SRF) Loans

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans
typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

Other Local Options

Facility Maintenance Districts

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

The municipality can manage maintenance responsibilities either through its own staff or through private contractors.

Partnerships
Another method of funding pedestrian systems and greenways is to partner with public agencies and private companies and organizations. Partnerships engender a spirit of cooperation, civic pride and community participation. The key to the involvement of private partners is to make a compelling argument for their participation. Major employers and developers should be identified and provided with a "Benefits of Walking"-type handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners' monetary support following a successful master planning effort. Potential partners include major employers which are located along or accessible to pedestrian facilities such as multi-use paths or greenways. Name recognition for corporate partnerships would be accomplished through signage trail heads or interpretive signage along greenway systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

Local Trail Sponsors
A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of
a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Volunteer Work
It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

Private Foundations and Organizations

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are a few examples of private funding opportunities available in North Carolina.

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

special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and
greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. For more information, visit http://www.landfortomorrow.org/

The Trust for Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. TPL's legal and real estate specialists work with landowners, government agencies, and community groups to:

- Create urban parks, gardens, greenways, and riverways
- Build livable communities by setting aside open space in the path of growth
- Conserve land for watershed protection, scenic beauty, and close-to home recreation safeguard the character of communities by preserving historic landmarks and landscapes.

The following are TPL's Conservation Services:

- Conservation Vision: TPL helps agencies and communities define conservation priorities, identify lands to be protected, and plan networks of conserved land that meet public need.
- Conservation Finance: TPL helps agencies and communities identify and raise funds for conservation from federal, state, local, and philanthropic sources.
- Conservation Transactions: TPL helps structure, negotiate, and complete land transactions that create parks, playgrounds, and protected natural areas.
- Research & Education: TPL acquires and shares knowledge of conservation issues and techniques to improve the practice of conservation and promote its public benefits.

Since 1972, TPL has worked with willing landowners, community groups, and national, state, and local agencies to complete more than 3,000 land conservation projects in 46 states, protecting more than 2 million acres. Since 1994, TPL has helped states and communities craft and pass over 330 ballot measures, generating almost $25 billion in new conservation-related funding. For more information, visit http://www.tpl.org/.

Z. Smith Reynolds Foundation

This Winston-Salem based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. The foundation has two grant cycles per year and generally does not fund land acquisition. However, the foundation may be able to support municipalities in other areas of greenways development. More information is available at www.zsr.org.

North Carolina Community Foundation

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions

throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. In addition, the foundation manages various scholarship programs statewide. Web site: http://nccommunityfoundation.org/

National Trails Fund

In 1998, the American Hiking Society created the National Trails Fund, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Each year, 73 million people enjoy foot trails, yet many of our favorite trails need major repairs due to a $200 million in badly needed maintenance. National Trails Fund grants give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. For 2005, American Hiking distributed over $40,000 in grants thanks to the generous support of Cascade Designs and L.L.Bean, the program's Charter Sponsors. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

What types of projects will American Hiking Society consider? Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements. Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage. Constituency building surrounding specific trail projects - including volunteer recruitment and support. Web site:www.americanhiking.org/alliance/fund.html.

Bikes Belong Foundation

The Bikes Belong Grants Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths, lanes, and routes, as well as bike parks, mountain bike trails, BMX facilities, and large-scale bicycle advocacy initiatives.

Since 1999, Bikes Belong has awarded 166 grants to municipalities and grassroots groups in 44 states and the District of Columbia, investing nearly $1.3 million in community bicycling projects and leveraging more than $476 million in federal, state, and private funding.

APPENDIX B: BICYCLE USER SURVEY RESULTS

Thomasville Comprehensive Bicycle Transportation Plan

Survey Summary
August 2008

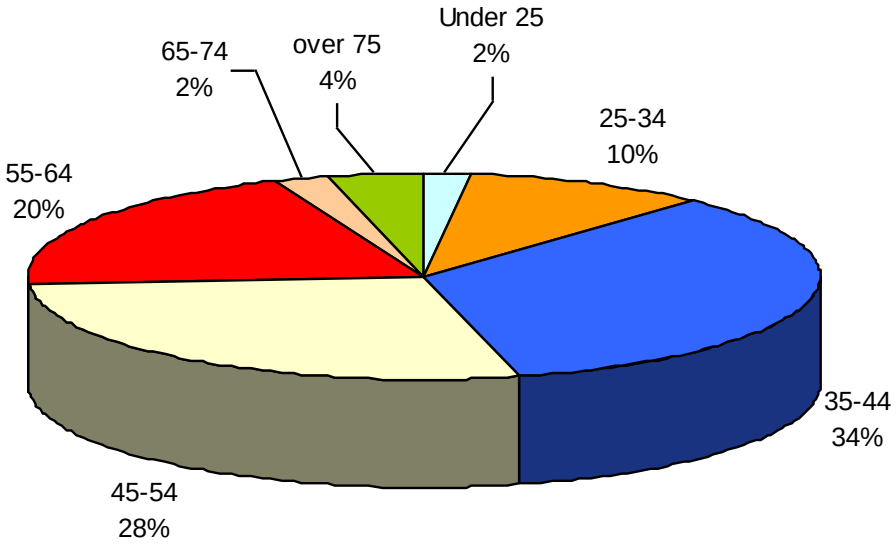
The Thomasville Bicycle Transportation Plan survey was conducted from May 2008 through July 2008. The survey was composed of 10 questions, not including demographic information. Surveys were distributed via email, the Ped Power website and in paper format at public and civic meetings and also distributed to local municipal buildings. The local newspaper, the Thomasville Times ran a story about the plan and provided a link to the online survey.

Online and paper responses were compiled after the survey closed July 31 and there were a total of 52 responses. Results of the entire survey are included below.

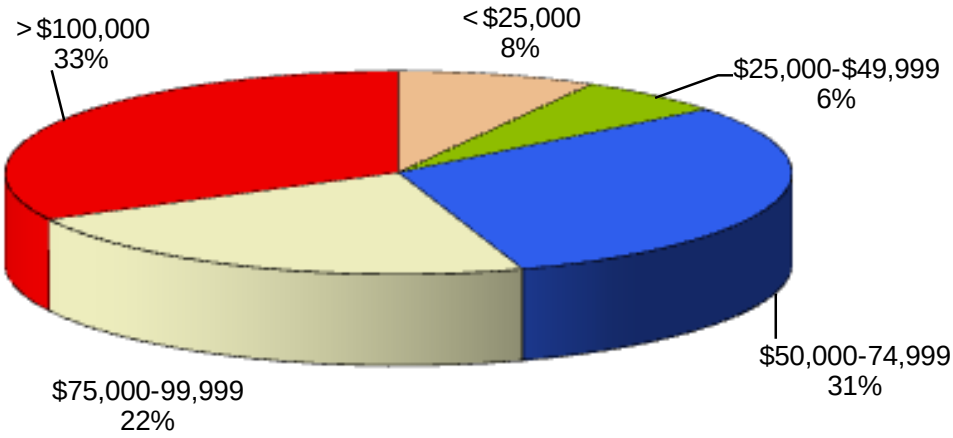
Survey Highlights:

- 94% of respondents think a 'bicycle-friendly' community is important or very important;
- 66% of respondents ride '5+ times per week' (25%) or a 'few times per week' (41%);
- 4% of respondents were bicycle 'commuters'; 53% were 'regular on-road recreational cyclists';
- 'Trails and greenways' were ranked as the #1 (71% ranked it #1) bicycling destination by respondents (can rank multiple factors as #1);
- 54% of respondents prefer bicycling on 'trails', while 46% of respondents prefer bicycling on 'streets' (18% thoroughfares, 14% collector streets and 14% neighborhood streets);
- 33% of respondents rank 'lack of roadways with bicycle lanes' and 27% rank 'aggressive motorist behavior' as the biggest factors discouraging riding;
- 45% of respondents rank 'more on-street bicycle lanes' and 41% rank 'more greenway trails' as the biggest factor to increase bicycling in Thomasville (can rank multiple factors as #1);
- 32% of respondents rank #1 a 'bond referendum' and 29% rank #1 'public/private partnerships' as a means to fund bicycle lane, shoulder and trail improvements (excluding grants) (can rank multiple factors as #1); and
- 85% of survey respondents live or work in the City of Thomasville, while 15% live and work outside the Thomasville City limits.

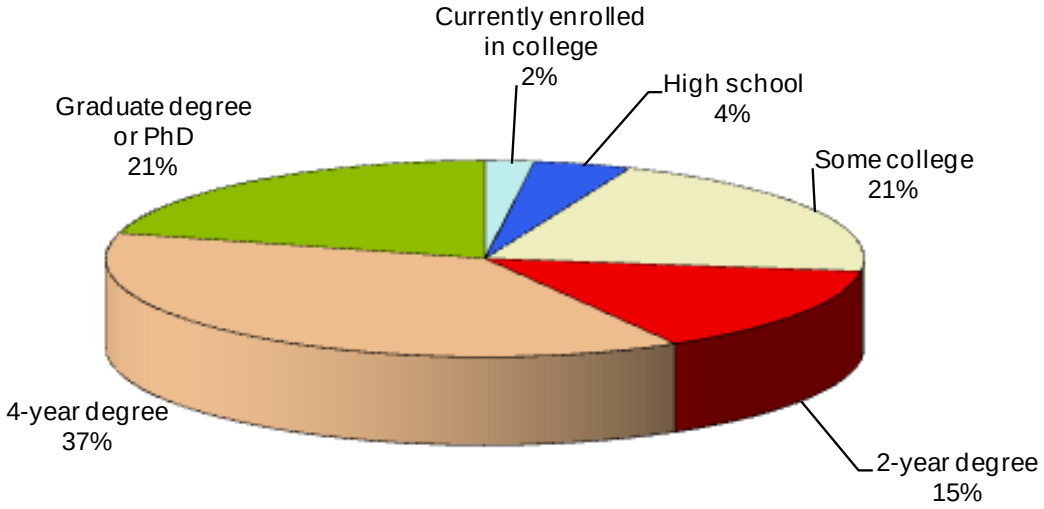
Respondent Age



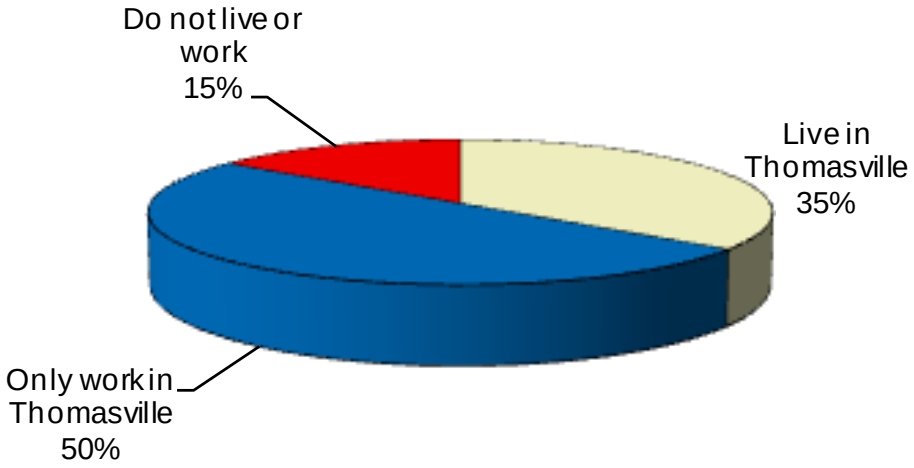
Respondent Household Income



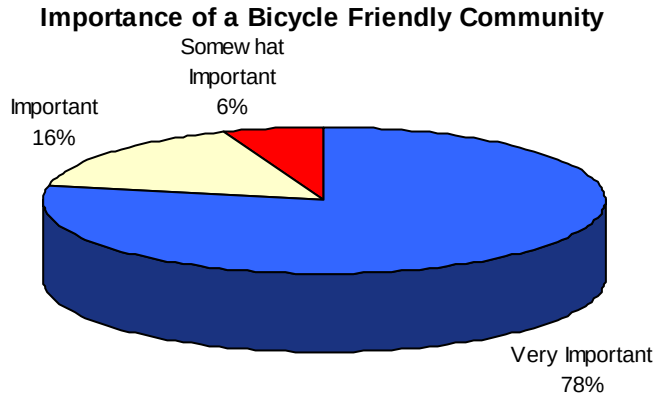
Respondent Education Level



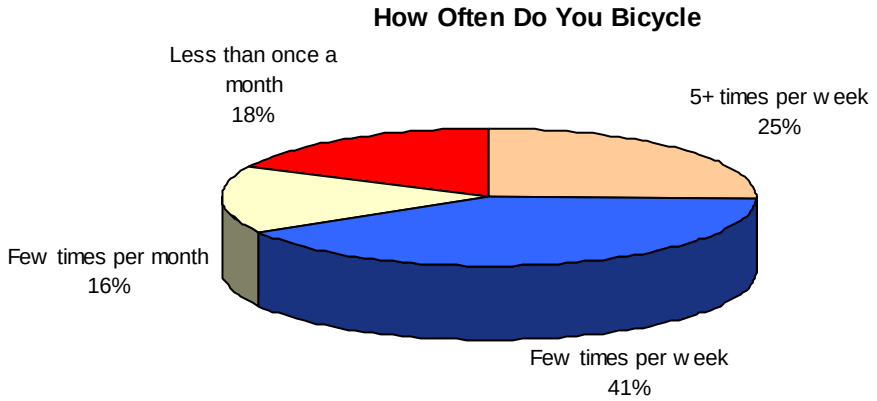
Respondents Who Live or Work in Thomasville



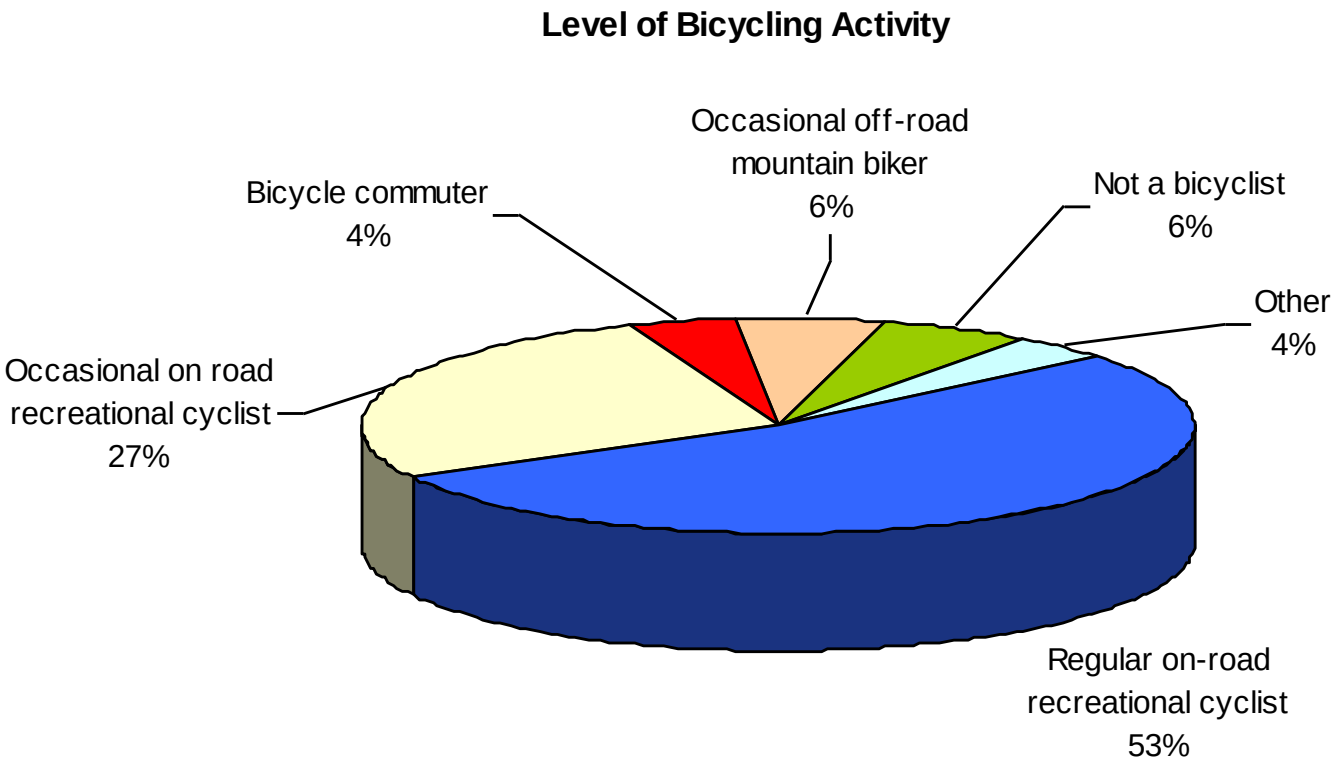
1. How important to you is the goal of creating a bicycle-friendly community? (select one)		
Answer Options	**Response Percent**	**Response Count**
Very Important	78%	40
Important	16%	8
Somewhat Important	6%	3
	answered question	**51**
	skipped question	**1**



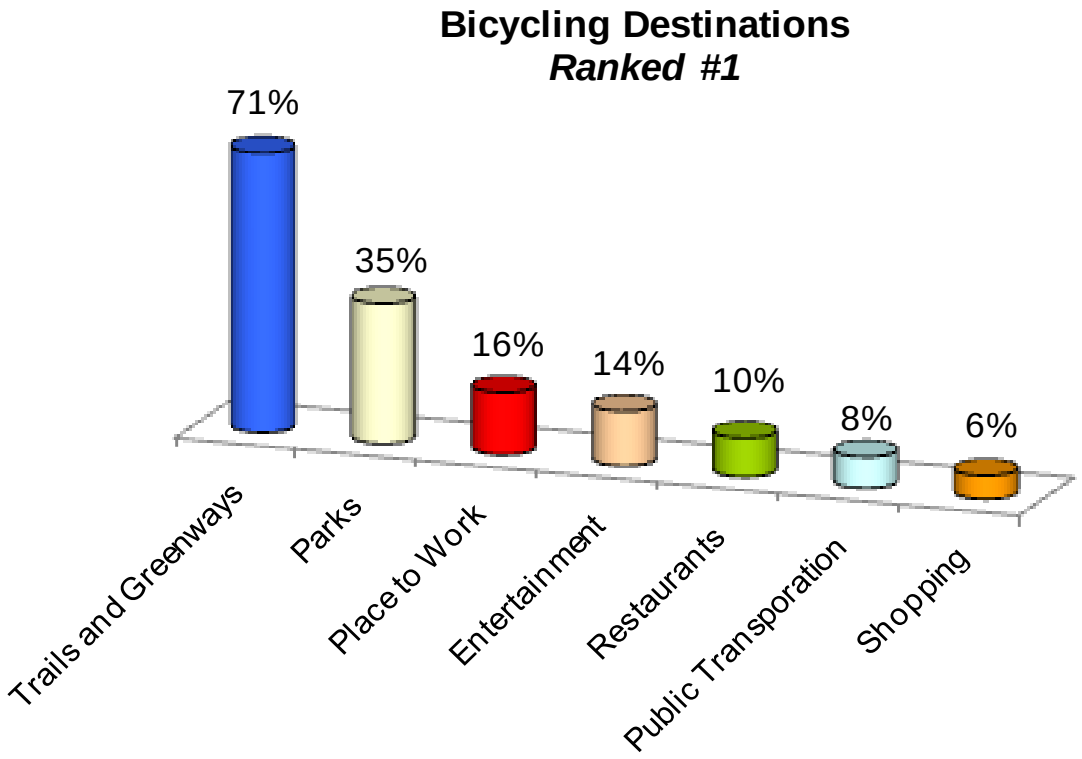
2. How often do you bicycle? (select one)		
Answer Options	**Response Percent**	**Response Count**
5+ times per week	25%	13
Few times per week	41%	21
Few times per month	16%	8
Less than once a month	18%	9
	answered question	**51**
	skipped question	**1**



3. What terms best describe your level of bicycling activity? (select one)		
Answer Options	**Response Percent**	**Response Count**
Regular on-road recreational cyclist	53%	27
Occasional on road recreational cyclist	27%	14
Bicycle commuter	4%	2
Occasional off-road mountain biker	6%	3
Not a bicyclist	6%	3
Other	4%	2
(please specify)		3
answered question		**51**
skipped question		**1**

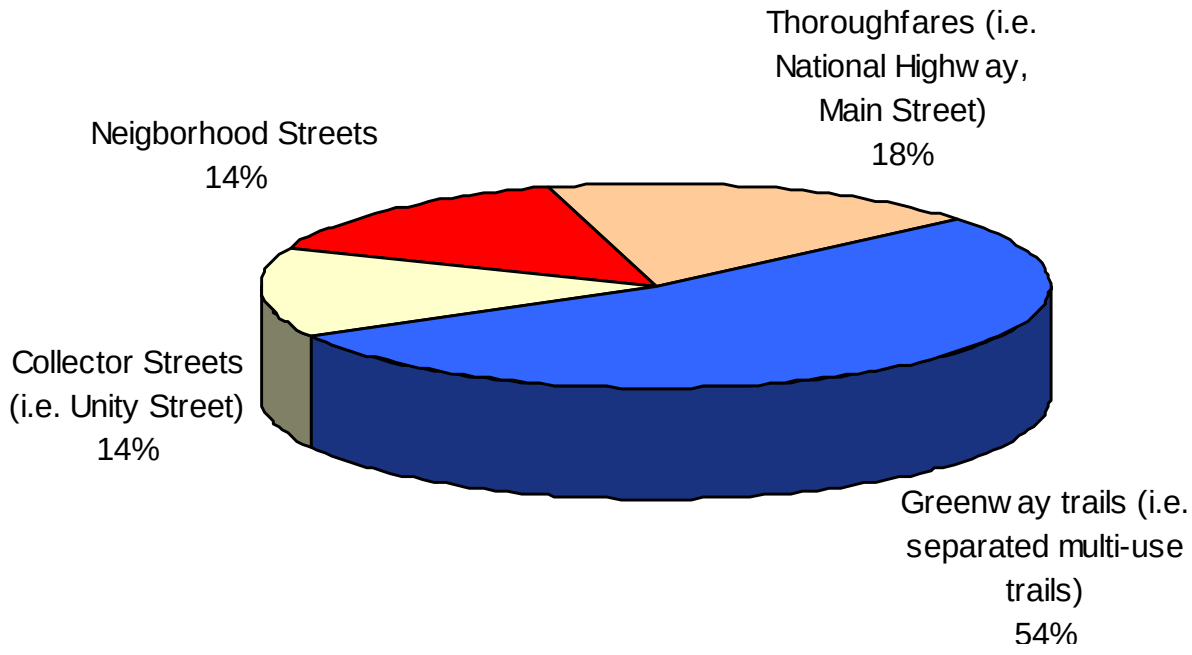


4. What bicycling destinations would you most like to get to? (Please rank your top 5, 1 being most desirable and 5 being least desirable)							
Answer Options	**Most 1**	**2**	**3**	**4**	**Least 5**	**Rating Average**	**Response Count**
Trails and Greenways	36	7	6	0	0	1.387755	49
Parks	18	21	4	3	1	1.893617	47
Place to Work	8	5	13	8	3	2.810811	37
Shopping	3	5	10	3	12	3.484848	33
Entertainment	7	7	12	7	7	3	40
Restaurants	5	8	12	11	5	3.073171	41
Public Transportation	4	7	6	7	6	3.133333	30
						answered question	**51**
						skipped question	**1**

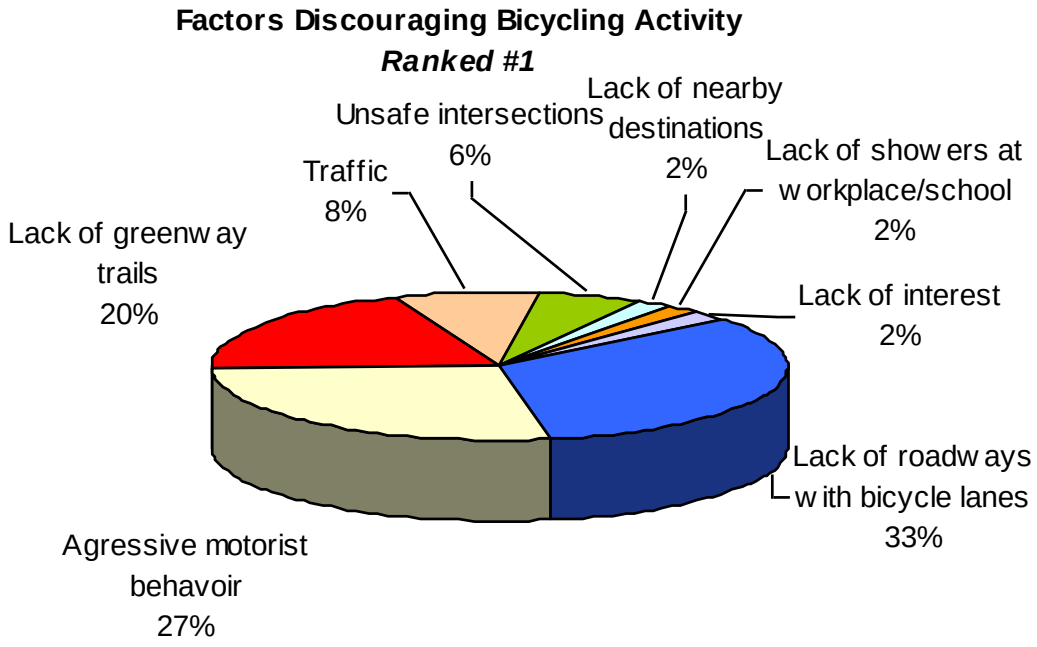


5. What types of facilities would you most like to bicycle on? (Please rank your top 4, 1 being most desirable and 4 being least desirable)							
Answer Options	**1 Most**	**2**	**3**	**4**	**5 Least**	**Rating Average**	**Response Count**
Greenway trails (i.e. separated multi-use trails)	26	12	2	6	1	1.808511	47
Collector Streets (i.e. Unity Street)	7	14	17	5	1	2.522727	44
Neigborhood Streets	7	13	16	6	0	2.5	42
Thoroughfares (i.e. National Highway, Main Street)	9	6	7	14	6	3.047619	42
Other (please specify)							2
answered question							50
skipped question							2

Facilities Respondents Like to Bicycle On
Ranked #1

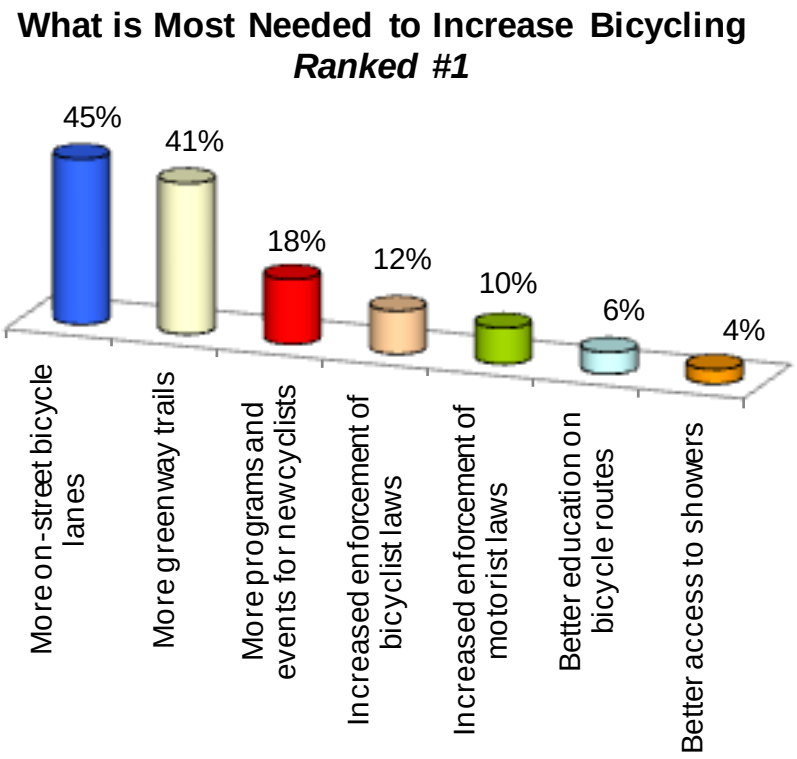


6. What are the biggest factors that discourage bicycling activity? (Please rank your top 5, 1 most discouraging and 5 least discouraging)							
Answer Options	**1 Most**	**2**	**3**	**4**	**5 Least**	**Rating Average**	**Response Count**
Lack of roadways with bicycle lanes	17	13	7	7	0	2.090909	44
Agressive motorist behavoir	14	12	8	6	4	2.409091	44
Lack of nearby destinations	1	3	2	5	6	3.705882	17
Lack of showers at workplace/school	1	0	2	4	2	3.666667	9
Traffic	4	13	12	2	4	2.685714	35
Unsafe intersections	3	0	6	11	6	3.653846	26
Lack of greenway trails	10	3	6	8	5	2.84375	32
Lack of interest	1	0	0	3	6	4.3	10
Other (please specify)							1
						answered question	**51**
						skipped question	**1**



7. What do you think is the most needed to increase cycling in Thomasville? (Please rank your top 5, 1 being most needed and 5 being least needed)*							
Answer Options	**Most 1**	**2**	**3**	**4**	**Least 5**	**Rating Average**	**Response Count**
More on-street bicycle lanes	23	10	8	3	2	1.934783	46
Increased enforcement of motorist laws	5	9	9	5	8	3.055556	36
More programs and events for new cyclists	9	5	7	3	12	3.111111	36
Better education on bicycle routes	3	5	8	6	5	3.185185	27
Increased enforcement of bicyclist laws	6	2	5	6	3	2.909091	22
Better access to showers	2	1	1	2	1	2.857143	7
More greenway trails	21	9	5	4	2	1.95122	41
						Other (please specify)	1
						answered question	**51**
						skipped question	**1**

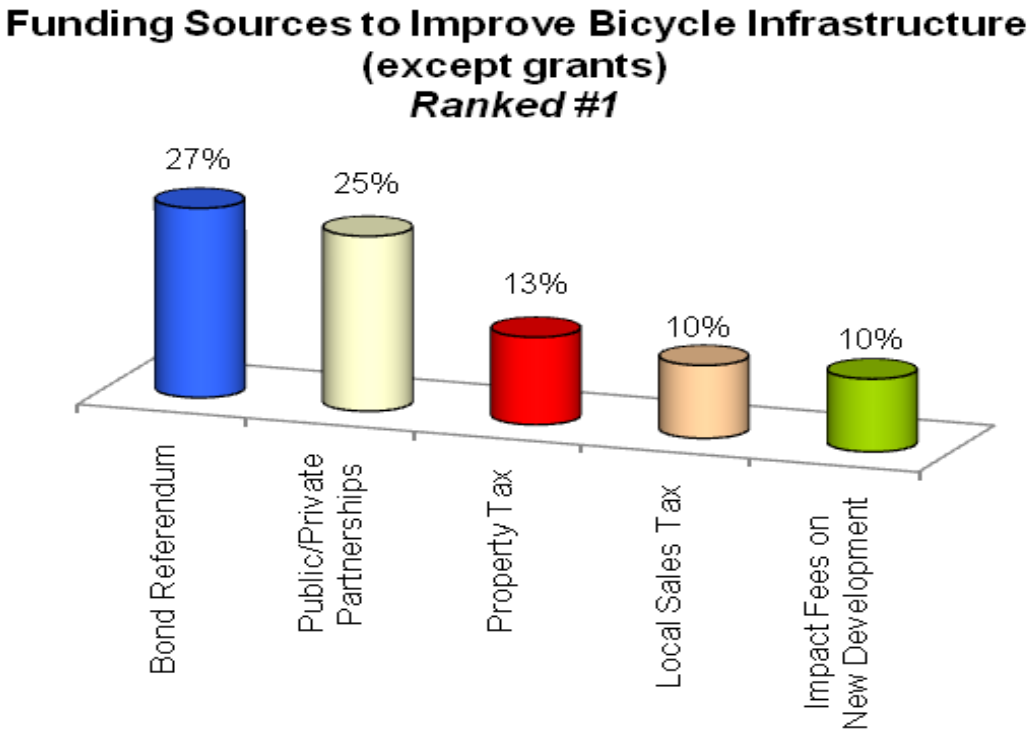
*Respondents can enter the same rank on multiple factors (e.g. More on-street bicycle lanes and Increased enforcement of motorist laws can both receive a #1 ranking)



*The sum of responses total more than 100%, because respondents can enter the same rank on multiple factors (e.g. More on-street bicycle lanes and Increased enforcement of motorist laws can both receive a #1 ranking)

8. Please rank your interest in using the following funding sources to improve bicycle lanes, shoulders and multi-use trails in Thomasville (Please rank all sources, 1 being most interested and 6 being least interested)								
Answer Options	**1 Most**	**2**	**3**	**4**	**5**	**6 Least**	**Rating Average**	**Response Count**
Bond Referendum	13	9	9	5	4	4	2.772727	44
Local Sales Tax	5	1	8	10	8	10	4.071429	42
Public/Private Partnerships	12	11	14	5	1	1	2.431818	44
Impact Fees on New Development	5	10	11	6	5	3	3.125	40
Grants	26	9	6	1	3	1	1.891304	46
Property Tax	6	2	5	5	11	10	4.102564	39
							answered question	**48**
							skipped question	**4**

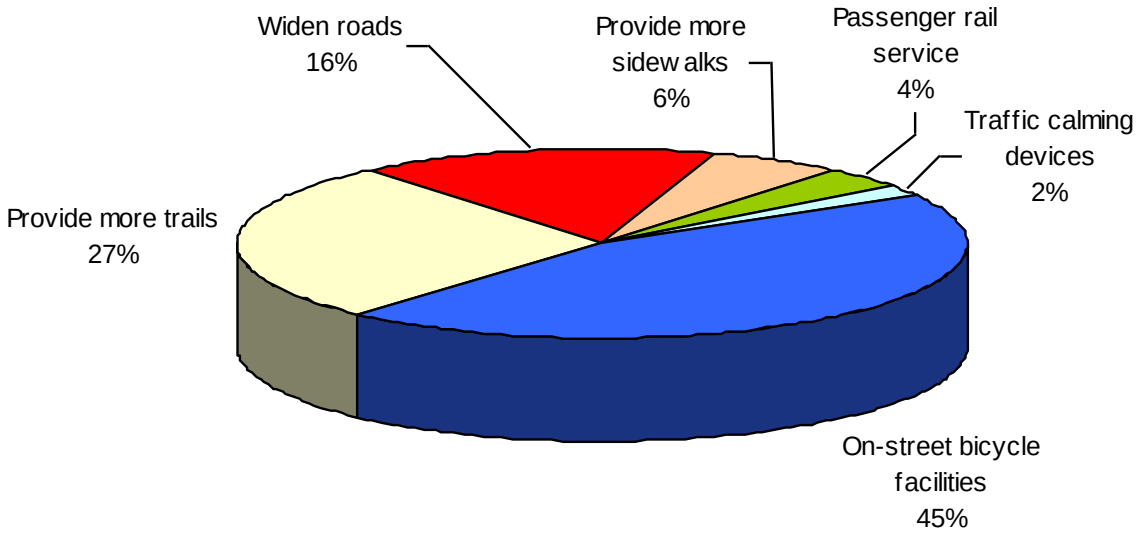
*Respondents can enter the same rank on multiple factors (e.g. Bond Referendum and Grants can both receive a #1 ranking)



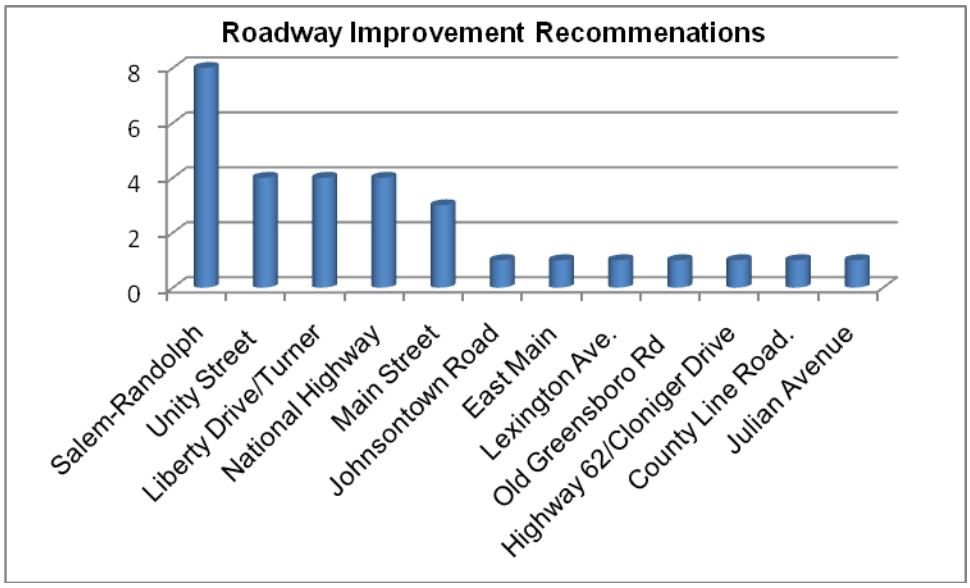
*54% chose grants and the sum responses total more than 100%, can enter the same rank on multiple factors (e.g. Bond Referendum and Grants can both receive a #1 ranking)

9. Please rank the importance of the following transportation improvements. (Please rank your top 5, 1 most needed and 5 least needed)							
Answer Options	**1 Most**	**2**	**3**	**4**	**5 Least**	**Rating Average**	**Response Count**
On-street bicycle facilities	23	13	4	4	1	1.822222	45
Passenger rail service	2	5	3	3	7	3.4	20
Add more turn lanes at intersections	0	2	6	4	6	3.777778	18
Provide more sidewalks	3	4	6	3	9	3.44	25
Provide more trails	14	11	8	3	1	2.081081	37
Improve transit service	0	4	4	9	2	3.473684	19
Widen roads	8	4	10	8	8	3.105263	38
Traffic calming devices	1	4	5	6	4	3.4	20
Other (please specify)							0
						answered question	**51**
						skipped question	**1**

Importance of Transportation Improvements
Ranked #1



10. What do you think are the top priority roadway corridors most needing bicycle lane or shoulder improvements? Please be specific, include cross streets or landmarks where possible. Example: Salem Street northbound at intersection with Leonard Street. Use additional sheets if necessary.



There were very few responses to this questions, however many of the streets called for improvement here are included in the recommendations.

APPENDIX C: REFERENCES

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1999
http://bookstore.transportation.org

Americans with Disabilities - Department of Justice
http://www.ada.gov/srchfoia.htm

Association of Pedestrian and Bicycle Professionals Bicycle Parking Guidelines
http://www.apbp.org/?page=Publications

Bikeability Checklist
http://www.bicyclinginfo.org/pdf/bikabilitychecklist.pdf

Davidson, NC Bicycle Plan, Greenways, Inc., 2008
Designing Sidewalks and Trails for Access
http://www.fhwa.dot.gov/environment/sidewalk2/pdf.htm

Manual of Uniform Traffic Control Devices, FHWA, 2003
http://mutcd.fhwa.dot.gov/

New Bern, NC Bicycle Plan, Kimley-Horn and Toole Design Group, 2005

North Carolina DOT Division of Bicycle and Pedestrian Transportation Bicycle Facilities Planning and Design Guidelines
http://www.ncdot.org/transit/bicycle/projects/resources/projects_facilitydesign.html

North Carolina DOT Division of Bicycle and Pedestrian Transportation Bicycle Laws Guidebook
http://www.ncdot.org/transit/bicycle/laws/resources/lawsguidebook.html

North Carolina DOT Division of Bicycle and Pedestrian Transportation – Helpful Links
http://www.ncdot.org/transit/bicycle/safety/safety_links.html

North Carolina DOT Division of Bicycle and Pedestrian Transportation Shared-use Pathway Design Manual
http://www.ncdot.org/transit/bicycle/projects/project_types/Multi_Use_Pathways2.pdf

North Carolina DOT Safe Routes to School Program
http://www.ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html

Pedestrian and Bicycling Information Center - Developing Pedestrian Plans and Policies
www.walkinginfo.org/develop/

PEDSAFE – Pedestrian and Bicycling Information Center
www.walkinginfo.org/pedsafe/

Project for Public Spaces
www.pps.org

SCTA Countywide Bicycle & Pedestrian Master Plan, Sonoma County, CA

University of North Carolina Greensboro Bicycle Master Plan, Louis Berger Group, 2008

APPENDIX D: PROJECT RANKING METHODOLOGY

The following prioritization factors have been weighted and are used to determine the prioritization of on-road bicycle corridor projects. The total maximum score possible from the following factors is 18 and the results of the prioritization can be found in Figure 3.2 – Bicycle Transportation System Project Recommendations. Figure D.1 shows each project ranking and score by weighted factor using the scoring system below.

Access to a Park
Receives a score of 2 points if the project ties in directly with a park and 1 point if a portion of the project lies within ½ mile of a park or recreation facility.

Access to a School
Receives a score of 3 points if the project ties in directly with any school and 2 points if the project lies within ½ mile of any school.

Average Daily Traffic (ADT)
Receives a score of 3 points if the ADT on the project corridor is > 12,000 vehicles, 2 points if the ADT is between 8,000 and 12,000 and 1 point if the ADT is between 4,000 and 8,000 vehicles.

Speed Limit
Receives a score of 3 points if the speed limit on the project corridor is 55mph or over, 2 points if the limit is between 45-54 mph and 1 point if the limit is between 35-44 mph.

Crashes
Receives a score of 2 points if 1 or more pedestrian/vehicle or bicycle/vehicle crashes occurred along the project corridor. The crashes are based on the Thomasville Police Department records for 2000-2007.

Connect to a Proposed or Existing greenway
Receives a score of 2 points if the project intersects with an existing multi-use path. If the project ties in with a proposed greenway the project receives a score of 1 point.

Follows Existing Bike Route
Receives 1 point if the project occurs along an existing local or State bicycle route.

Access to High Employment Center
Receives 1 point if the project provides access to a high employment center with more than 50 employees.

Access to a Commercial District
Receives 2 points if the project runs along land use that is either downtown business district, commercial or institutional.

Figure D.1 – On-Road Project Ranking Score by Weighted Factor

Map ID (See Recommendations Map)	Improvement*	Street	From To	Lane Width	Number of Lanes	Facility Width (ft)	Direct Access to a Park/Greenspace	Direct Access to a School	2007 Average Daily Traffic (ADT); 1 (4k-8k); 2 (8k-12k); 3 (>12k)	Speed Limit - 1 (35-44), 2 (45-54) and 3 (>=55)	Crashes	Connects to Proposed or Existing Greenway 1 (Proposed); 2 (Existing)	Existing Bike Route	Access to High Employment Center	Direct Access to Commercial/Retail District		Score Total (Higher score = better ranking)
1	L	Salem St	Unity St to Forsyth St	18 to 20	2	5	2	2	2	1	2	1	1	1	2		14
1B	SH	Salem St	Forsyth St to Main St	15	2	NA											
2	L	National Hwy	Main St to Business 85	10 to 13	4	5	1	2	3	2	2	1	1	0	2		14
3	L	Liberty Dr	Trinity St to E Holly Hill Rd	10 to 23	3	5	1	3	2	1	2	1	1	1	2		14
4	L	Liberty Dr_Turner St	Unity St to Trinity St	16 to 17	2	5	2	2	2	1	2	1	0	1	2		13
5	L	Unity St	Salem St to National Hwy	12 to 15	4	5	1	3	1	1	2	2	1	0	2		13
6	S	Lake Rd	Ferry Rd	12 to 13	2	4	1	3	2	1	2	1	0	1	2		13
7	S	Trinity St	Liberty Dr to City Limits	12	2	4	1	2	1	3	0	1	1	1	2		12
8	S	Liberty Dr_Kennedy Rd	Arthur Dr to ETJ Line	13	4	4	0	0	3	2	2	1	1	1	2		12
9	L	E Main Street_Blair St	Taylor St to Trinity St	13 to 20	3	5	2	0	1	1	2	1	1	1	2		11
10	SH	Main St (N)	Highland Ave to Park Ave	12 to 20	3	NA	2	0	1	1	2	1	1	1	2		11
11	L	National Hwy	Hasty Sch Rd to Bus-85	13	5	5	1	0	3	2	0	1	1	1	2		11
12	L	Lexington Ave_ WMain	Old Lex Rd to Highland Ave	12 to 15	3	5	1	0	2	1	2	1	1	1	2		11
13	S	and Lake Rd	Childrens Home Rd	9 to 12	2	4	1	3	1	2	2	1	1	0	0		11
14	S	Hasty School Rd	Hwy 68 to City Limits	12	2	4	1	3	2	2	0	1	0	0	2		11
15	L	Liberty Dr	Holly Hill Rd to Arthur Dr	9 to 13	2 to 4	5	1	2	2	1	2	1	1	0	0		10
16	L	Holly Hill Rd	Liberty Dr to Randolph St	10	2	5	1	2	1	1	0	1	1	1	2		10
17	S	Holly Hill Rd	Rd	10	2	4	2	0	2	2	0	1	1	0	2		10
18	L	Martin Luther King Jr Dr	Bus-85 to Lexington Ave	18	2	5	2	0	1	1	0	1	1	1	2		9
19	L	Unity St	National Hwy to Blair St	10	3	5	1	2	1	1	0	1	0	1	2		9
20	L	Peace St	Lexington Ave to Idol St	13	3	5	1	0	1	1	2	1	0	1	2		9
21	L	Randolph St	Main St to Holly Hill Rd	20	3 to 5	5	1	0	3	2	0	1	0	0	2		9
22	S	Holly Hill Rd	Childrens Home Rd	9 to 11	2	4	1	0	1	3	2	1	1	0	0		9
23	S	Lexington Ave	Bus 85 Ramp to Bike Lane	12 to 15	3	3	0	0	2	2	0	1	0	1	2		8
24	SH	Main St (S)	Fisher Ferry Rd to Taylor St	13 to 20	2	NA	2	0	0	1	2	1	0	0	2		8
25	S	Cedar Lodge_Fleet Rd	Liberty Dr to Lambeth Rd	9 to 12	2	4	0	3	2	2	0	1	0	0	0		8
26	L	Fisher Ferry St	W Main St to W Holly Hill Rd	14	2	5	1	0	1	1	2	1	0	0	2		8
27	L	Memorial Park Dr_Culbreth Ave	Unity Street to Stadium Dr	18	2	6	2	2	0	0	0	2	1	0	0		7
28	L	Trinity St	E Main St to Liberty Dr	12 to 14	2	5	1	2	0	1	0	1	1	1	0		7
29	S	Pleasant Grove Church Rd	National Hwy to County Line	9 to 10	2	4	1	0	0	1	0	1	1	1	2		7
30	S	W Cooksey Dr	Salem St to MLK Dr	9 to 12	2	4	0	0	0	1	2	1	0	1	2		7
31	SP	Border Street	Park	NA	NA	10	2	3	0	1	0	1	0	0	0		7
32	SP	Memorial Park Dr	Salem St to Culbreth Ave	NA	NA	10	2	2	0	1	0	1	1	0	0		7
33	L	Julian Ave	E Main St to E Holly Hill Rd	13 to 17	4	5	1	0	2	1	0	1	0	1	0		6
34	S	Lambeth Rd	Fleet Rd to Kennedy Rd	9	2	4	0	3	1	1	0	1	0	0	0		6
35	S	Ball Park Ave	Hasty Hill Rd to National Hwy	11	2	4	2	0	0	1	0	1	0	0	2		6
36	L	Blair St	Trinity St to Conrad St	14 to 18	2	5	1	0	1	1	0	1	0	1	0		5
37	S	Hasty Hill Rd	Ball Park Rd to Hasty Sch Rd	NA	2	4	0	2	0	2	0	1	0	0	0		5
38	S	Fairgrove Rd and Forest Dr	Fisher Ferry Rd to Cedar Lodge Rd	9 to 14	2	4	0	2	1	1	0	1	0	0	0		5
39	SP	Holly Hill Rd	N Hamby Creek to Hamby Creek	NA	NA	10	0	0	1	2	0	1	1	0	0		5
40	L	Blair St	Conrad St to Penny Circle	9 to 16	2	5	0	0	1	1	0	1	0	1	0		4
41	S	Johnsontown Rd	S Peace St to Pilot Sch Rd	12	2	4	2	0	0	1	0	1	0	0	0		4
42	S	Ferndale Dr_Hillcrest Rd	W Holly Hill Rd to Forest Dr	12 to 14	2	4	2	0	0	1	0	1	0	0	0		4
43	S	Holly Grove Rd	Fisher Ferry Rd to City Limits	11	2	4	0	0	0	3	0	1	0	0	0		4
44	S	Blair St	Penny Circle to City Limits	16	2	4	0	0	2	1	0	0	0	1	0		4
45	S	Lexington Ave	Pilot Elem to Bus 85 Ramp	12 to 15	2	4	0	3	0	1	0	0	0	0	0		4
46	S	Fisher Ferry Rd	Fairgrove Rd to Cedar Lodge Rd	11 to 13	2	4	0	0	1	1	0	1	0	0	0		3
47	SP	Business 85	Service Roads Ball Park Ave to National Hwy	NA	NA	10	0	0	0	1	0	1	0	1	0		3

APPENDIX E: STEERING COMMITTEE NOTES

Thomasville Comprehensive Bicycle Transportation Plan

NOTES

Steering Committee Meeting #1
March 19, 2008

Call to Order: The meeting was called to order by Mr. Jesse Day, Regional Planner with the Piedmont Triad Council of Governments at 3:01 pm.

Attendees: Helen Chaney Mike Cranford, Kelly Craver, Jo Ellen Edwards, Billy Freeman, Ken Helper, David Hyder, Mitchell McGuire, Ernest Perkins, David Tilley, Phillip L. Vereen, John Warner.

Summary: The first meeting of the Thomasville Comprehensive Bicycle Transportation Plan was at the Parks and Recreation Building, 1 East Main Street in Thomasville. Mr. Day welcomed everyone in attendance and requested individual introductions by everyone.

Mr. Day opened the meeting by discussing the scope of work for the project. He discussed the background of Greenway planning across the region including those in Thomasville, Davidson County and High Point. Mr. Day highlighted the purpose of the plan, planning process and timelines and role the steering committee will play in the overall implementation of the plan. A handout summarizing this information was distributed

Mr. Day delivered a PowerPoint presentation on bicycle-friendly communities to provide ideas to the committee on how to proceed in fulfilling the goals and objectives of the plan. A handout packet including all the information from the presentation was distributed.

A workshop commenced during the last 25 minutes in which committee members wrote down and discussed bicycle system vision and goals for the next 1, 5, 10, 15 & 20 years. Ideas that were discussed can be found in the workshop results below.

The next meeting is scheduled for April 16, 2008 in Thomasville. The meeting concluded at 4:33.

VISION AND GOAL WRITING WORKSHOP RESULTS

In the year 2030 the City of Thomasville will have a bicycle transportation system that…

- Is a safe alternative mode of transportation linking neighborhoods, schools, golf courses, commerce, recreational facilities, Downtown and other points of interest. (3)
- Will allow the citizens of Thomasville to travel by way of bicycle throughout the City.
- Is a system that allows people to ride safely to all parts of the City.
- Brings visitors to explore and support our unique local businesses
- Enables local workers and students of all ages to safely ride to work and school.
- Establish off-road connections and loops with Lexington, Davidson County, High Point, the Mountains to Sea Trail, Triad Park, Bicentennial Greenway; etc.
- Is an example for other towns of similar size.
- Has greenways extending from Thomasville to City Lake.
- Has bicycle lanes on major roads.
- Connects various residential subdivisions in both Lexington and Thomasville to one main corridor route through Lake Thom-A-Lex that is primarily off-road.
- Connects with other City and County systems to complement a statewide system.

Draft Vision Statement

In the Year 2030, the City of Thomasville will have a bicycle transportation system that is a safe alternative mode of transportation in all parts of the City. The downtown is linked with neighborhoods, schools, recreation, commerce and other points of interest via greenways and bicycle lanes. Greenways in Thomasville will connect residents to Lake Thom-a-A-Lex and other regional and statewide trail systems in Davidson County and neighboring counties including the Mountains-to-Sea Trail, Triad Park and the Bi-Centennial Greenway. The bicycle transportation system is a model for the Piedmont Triad and enables residents to safely ride to work and school, while encouraging visitors to explore and support local businesses.

Key ***bicycle*** system goals for Thomasville over the next 5, 10 to 20 years include:

1 Year

- Stripe wider streets for bicycle lanes. (3)
- Establish ongoing education programs on bicycle safety, benefits and what the changes will be. (2)
- Have plan adopted by Council and build a project and promote a signature project for people to rally around.
- Begin acquiring easements on key existing railways and easements.
- Bicycle riding classes for youths.
- Install bicycle racks in key areas.
- Encourage ridership through campaigns, rides and
- Establish ordinance to encourage implementation of trail development as part of the development process.

2-5 Years

- Establish funding sources and a plan to fund future segments. (2)
- Continue planning sound projects that have a high probability of being completed and seek funding (grants, foundations, donations, etc) to pay for projects.
- Implement first phases of plan including, lanes, land acquisition along priority railways and easements.
- Two key greenway segments completed or in the construction process.

6-10 Years

- Seek large private and public grants to extend existing system.
- Community regularly supports with donations.
- County-wide map of bicycle and greenway routes is produced and placed in visitor centers with updated routes.
- Continue to add bicycle lanes that connect existing routes.
- Expand system to connect to Lake Thom-A-Lex.

11-20 Years

- Plan is 75% complete in 11 years and 100% complete in 20 years.
- Require bike lanes to be built in all new subdivisions.

Thomasville Comprehensive Bicycle Transportation Plan
NOTES

Steering Committee Meeting #2 April 16, 2008 3pm-4:30pm

Call to Order: The meeting was called to order by Mr. Jesse Day, Regional Planner with the Piedmont Triad Council of Governments at 3:01 pm at the Thomasville Parks & Recreation Building located at 1 East Main Street in Thomasville. .
Attendees: Allen Brown, Helen Chaney Mike Cranford, Jo Ellen Edwards, Billy Freeman, Ken Helper, Sue Hunter, Richard Lawrence, Mitchell McGuire, Ernest Perkins, Phillip L. Vereen, Johnny Warner.

Mr. Day welcomed everyone in attendance. After individual introductions, Mr. Day opened the meeting by reviewing the vision statement and project goals discussed at the kickoff meeting in March. Mr. Day went through the vision statement and goals to ensure all suggestions and input from committee members was received to be included in the draft plan. Mr. Day also discussed a handout summarizing existing conditions for bicycling with steering committee members. The summary included a demographical profile of the city and overview of existing conditions.

During the second half of the meeting, committee members spilt into two groups. The two groups identified the following:

A few of the areas hazardous for bicycling identified were:
- National Highway between Unity Street and Business 85/US 29-70.
- Bus. I-85 & Clinard Road Area
- Old Greensboro Road (Speeding Problem)
- Lexington Avenue/Main Street (Speeding Problem, no room for bikes)
- NC 109 (Salem Street North of Downtown)

A few of the areas committee members identified as wanting to bike include:
- NC 109 (Salem Street north of Downtown)
- Fisher Ferry Road
- Lake Road
- Johnsontown Road

Finally, a few of the areas currently used for biking by committee members include:
- Old US 29 west of town
- Midway School & Hasty School Road Areas
- Winter Berry Drive, Holly Grove Road Areas
- Main Street/Lexington Avenue
- Old Greensboro Road

The meeting was adjourned at 4:23. The next meeting of the will be May 20, 2008 at the Thomasville Recreation Building.

Thomasville Comprehensive Bicycle Transportation Plan

Steering Committee Meeting #3
August 27, 2008
3pm-4:30pm

NOTES

The meeting began at 3:05pm

There was discussion of the public participation process including a summary of the public meeting in June, recent talks with civic organizations (Lions, Civitan, Appearance Commission and PACE) and the bicycle user survey summary. The public meeting had only one attendee, which signaled a need for additional outreach to the general public for feedback on bicycle transportation improvements. Response from the civic organizations and the bicycle user survey was positive. A summary of the survey was passed out to the committee members.

The draft recommendations map for bicycle improvements and intersection treatments was reviewed. Edits to the preferred corridor improvements and intersection treatments were included on the draft map and will be incorporated into the next recommendations map.

David Hyder discussed the Congestion Mitigation Air Quality Program and a call for projects the High Point MPO is conducting. There is a category for including bicycle projects for CMAQ funding, if air quality improvements can be achieved. The first step is to prioritize projects and then seek approval from the City Transportation Committee. If the Transportation Committee is interested in pursuing any of the prioritized projects, then they can be sent to council for approval. The following projects were reported as top priority projects by the steering committee:

1. Re-route Bike Route 3 and 8. On Route 3 avoid National Highway from north of Business 85 to Unity Street and research re-aligning onto Blair Street and Thomasville Road. On Route 8, move route to Main Street south of the railroad tracks from Trinity Street to Salem Street.
2. Provide safety enhancements (signs and striping) to the existing Bike Route 3 from Thomasville High and Middle School through Memorial Park and towards Downtown Thomasville.
3. Convert the abandoned rail-line through Thomasville to an off-road trail from Turner Street to Finch Ave.
4. Pursue a greenway along Farmview Road through the Baptist Children's Home Property and connect with East Optimist Community Park.

A brief discussion of the State SRTS program occurred and one of the prioritized projects connecting with Thomasville Middle school may qualify for a SRTS application. Support from the school system is necessary to push forward with an application. A call for applications will be released in October of 2008.

Billy Freeman volunteered for the National Bicycle Documentation Project for the week of Sept. 8th. More volunteers are needed to complete bicycle and pedestrian counts at schools, busy intersections and other areas where bicycle and pedestrian behavior is observed. This will establish baseline bike/ped transportation data to be used in assessing changes in behavior and needs for future facilities and grant funding.

The meeting adjourned at 4:30pm

Thomasville Comprehensive Bicycle Transportation Plan

Steering Committee Meeting #4
November 20, 2008
3pm-4:00pm

NOTES

Present: Ernest Perkins, Billy Freeman, Mike Cranford, Ken Hepler and Jesse Day

The meeting began at 3:05pm.

A draft plan report of recommendations was provided. Ernest took copies of the draft plan to give to other steering committee members not present. A summary of the policy, program and project recommendations was provided by Jesse Day.

It was mentioned that Memorial Park Drive should be a priority greenway and not secondary. It provides an important connection between the schools and downtown Thomasville. The other project recommendations supported.

Discussion of a public open house and presentations to the Thomasville Transportation Committee and the City Council ensued. The following dates were discussed:

- December 9, 2008 – Public Open House at City Hall
- Jan 5th, 2009 (tentative) – Transportation Committee Meeting
- Jan 20th, 2009 – City Council presentation

Discussion of funding strategies included Safe Routes to School and Clean Water Management Trust fund as two possible funding sources bicycle facility and trail development. Other private and public funding sources are available as well. The draft report has a number of possible funding sources listed in the appendix.

Norfolk Southern is working to provide detail on what sections of the abandoned rail spur south of downtown that they own. This will be important to know as discussion of implementing a rail to trail conversion.

The meeting adjourned at 3:45pm.

APPENDIX F: BICYCLE AND PEDESTRIAN COUNTS

NATIONAL BICYCLE AND PEDESTRIAN DOCUMENTATION PROGRAM				
BACKGROUND DATA SHEET				
Agency/Organization:	Piedmont Triad Council of Governments			
ID #:				
Date sheet completed:	Standardized Count Form			
Contact Information:				
Lead Person Name	Jesse Day			
Address	2216 W. Meadowview Rd, Ste. 201 Greensboro, NC 27407			
E-mail	jday@ptcog.org			
Phone	336 294-4950			
General Area Background:	Local Community			
Name of jurisdiction(s):	Thomasville			
If County or Region, number of local agencies:				
Source of demographic data:	Census 2000			
Year of data:	2008			
Population (State Pop. Center 2006):	26,326			
Density (people per square mile):	1,559			
Bicycle Mode Share: US Journey to Work	1.50%			
Pedestrian Mode Share: US Journey to Work	1.6			
Average (Median) Age:	34			
Average (Median) Income:	$30,972			
Number of annual visitors to area:	n/a			
Count Location Description:	Loc. #1 - Unity Street & Memorial Park Drive	Loc. #2 - YMCA and Bike Path	Loc. #3 - Main Street & Salem (North Side)	Loc. #4 -Main Street & Randolph (South Side)
Type of facility:	Bike Path	Bike Path	Shared Travel Lane	Shared Travel Lane
Type of setting:	School/Neighborhood	School/YMCA	Downtown	Downtown
Scenic Quality:	NO	NO	YES	YES
Surrounding land uses:	Residential/School	Residential/Institutional	Small business, railroad	Small business, railroad
Schools, parks, visitor destinations within 1 mile:	Yes	YES	Yes	YES
Quality of connecting facilities:	Average	Average	Average	Average
Length of facility:	3/4 Mile	3/4 Mile	n/a	n/a
Access:				
Quality of overall network:	Average	Average	Average	Average
Traffic volumes (ADT):	4,600	4,600	6,300	12,000
Traffic speeds (posted):	35	35	35	35
Crossings and intersections:	1	1	1	1
Crossings and intersection traffic:	n/a	n/a	n/a	n/a
Crossings and intersection protection:	no signal	no signal	signal	signal
Topography:	flat	flat	flat	flat
Count #1 Data:				
Date Collected:	9/11/2008	9/9/2008	9/9/2008	9/9/2008
Time Period:	7am-9am	7am-9am	9am-11am	7am-9am
Weather:	overcast/rainy	partly cloudy/pleasant	overcast/pleasant	cloudy
Bicycles:	0	1	10	3
Pedestrians:	37	24	17	6
Other:	0	0	1	0
Count #2 Data:				
Date Collected:	9/22/2008	9/19/2008		9/24/2008
Time Period:	2pm-4pm	2pm-4pm		3:30pm-5:30pm
Weather:	sunny/warm	partly cloudy/warm		sunny
Bicycles:	2	2		7
Pedestrians:	25	34		14
Other:	0	0		0

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